LeCroy

Automation Command Reference Manual

for

WaveMaster and WavePro Oscilloscopes

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Introduction

This manual provides a comprehensive reference of all the commands available to a controlling application when using WaveMaster and WavePro oscilloscopes. Automation enables the controlling application to run on the instrument itself.

PLEASE NOTE THE FOLLOWING:

- Available commands include ones for purchased options you may or may not have on your oscilloscope. For more information, contact your local LeCroy sales office for more information about options available for your instrument.
- While we encourage the use of our code examples provided in our manuals, cutting and pasting code samples directly from this .pdf manual into scripts **cause syntax errors** (typically illegal ASCII quotation characters). Carefully review code sample formatting during reuse.

The information in this manual is split into **Control** and **Processor** sections, each with their own table of contents.

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LECROY.XSTREAMDSO

app

This is the root of the automation hierarchy, all other nodes are accessed from this point.

AutoSetup	Action
ClearSweeps	Action
Exit	Action
FirmwareVersion	String
Height	Property
HideClock	Bool
InstrumentID	String
InstrumentModel	String
Left	Property
Maximize	Action
Minimize	Action
Quit()	Method
ResetPreferences	Action
Restore	Action
SetToDefaultSetup	Action
Shutdown	Action
Sleep([in] double timeoutMilliseconds)	Method
Top	Property
TouchScreenEnable	Bool
WaitUntilIdle([in] double timeoutSeconds)	Method
Width	Property
Windowed	Action
WindowState	Property

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Popup a dialog containing the instrument model
MsgBox "Model is: " & app.InstrumentModel
```

AutoSetup

Action

Description

Starts an AutoSetup operation. When input channels are visible, AutoSetup operates only on those visible channels. If no channels are visible, all channels are affected by AutoSetup. With more than one channel visible, the first visible channel in numerical order, that has a detectable signal applied to it, is automatically set up for edge triggering.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Start an Auto-Setup process.
app.AutoSetup
```

ClearSweeps *Action*

Description

Clears all accumulated sweeps for all subsystems. These include Channel Pre-Processing, Math, Measure, and Display Persistence. Note that subsystem-specific clear sweeps controls are also available. For the details please refer to the ClearSweeps control for each subsystem.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Clear all accumulated sweeps for all subsystems.
app.ClearSweeps
```

Exit *Action*

Description

Equivalent to app.Quit() method.

FirmwareVersion *String*

Range Any number of characters

Description

Queries the firmware version of the instrument in the form - "1.0.0 (build 12345)"

Example

```
' Microsoft Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Query the firmware version number of the instrument.
MsgBox "Firmware Version is: " + app.FirmwareVersion
```

Height *Property*

Description

Sets/Queries the height in pixels of the instrument display on the PC screen.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the height of the instrument window to 400 pixels.
app.Height = 400
```

HideClock *Bool*

Description

Hides/Shows the clock that resides in the lower-right corner of the display of the instrument.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Hide the clock for 3 seconds.
app.HideClock = True
app.Sleep(3000)
app.HideClock = False
```

InstrumentID *String*

Range Any number of characters

Description

Reads the complete ID of the instrument in the format: "LECROY,WM8500,WM000001,0.0.0", which includes the maker, the instrument model number, the serial number, and the version number.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Present the ID of the instrument.
MsgBox app.InstrumentID
```

InstrumentModel *String*

Range Any number of characters

Description

Queries the model number of the instrument.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Present the model number of the instrument.
MsgBox app.InstrumentModel
```

Left *Property*

Description

Sets/Queries the position in pixels of the left edge of the instrument display on the PC screen. The position is measured from the left edge of the screen to the left edge of the instrument window.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
' Set the position of the left edge of the instrument window to 100 pixels.
app.Left = 100
```

Maximize *Action*

Description

Maximize the instrument window to fill the underlying desktop.
Equivalent to app.WindowState = 1

Minimize *Action*

Description

Minimizes the instrument window to reveal the underlying desktop. It will display a small window in the bottom right corner of the display, which when clicked will restore the window to full-screen mode. To programmatically restore the window refer to the app.WindowState control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Minimize the instrument display.
app.Minimize
```

Quit() *Method*

Description

Closes the instrument application. The instrument will prompt the user with an 'Are you sure?' dialog before closing down. Note that until the user responds to the dialog, control via Automation will be blocked.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Quit the instrument application with a confirmation prompt.
app.Quit
```

ResetPreferences *Action*

Description

Resets all scope preferences to their default states. The set includes the current remote communications port, the color palette settings, etc. but does not include the main DSO controls such as V/Div, T/Div, etc. These main instrument controls can be reset using the SetToDefaultSetup control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Reset all instrument preferences.
app.ResetPreferences
```

Restore *Action*

Description

Restore the instrument display to its position and size before the last minimize request.

SetToDefaultSetup *Action*

Description

Restores the instrument setup to its default state. Note that certain settings will not be restored to the default state. These are the user preferences, such as the current remote communications port, and the color settings, which may be reset, if required, using the ResetPreferences action.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Restore the instrument to its default state.
app.SetToDefaultSetup
```

Shutdown *Action*

Description

Shuts down the instrument. It will prompt the user with an 'Are you sure?' dialog before shutting down. Note that until the user responds to the dialog, control via Automation will be blocked.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Shut down the instrument with a confirmation prompt.
app.Shutdown
```

Sleep([in] double timeoutMilliseconds) *Method*

Description

Causes the main execution thread of the instrument application to sleep for the specified time period, defined in milliseconds.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

MsgBox "Sleeping for 10 seconds..."
app.Sleep(10000)
MsgBox "Sleep finished"
```

Top *Property*

Description

Sets/Queries the position in pixels of the top edge of the instrument display on the PC screen. The position is measured downwards from the top of the screen to the top of the instrument window.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the position of the top edge of the instrument window to 100 pixels.
app.Top = 100
```

TouchScreenEnable *Bool*

Description

Sets/Queries the state of the touch-screen enable control. This is equivalent to the front-panel Touch Screen button.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Disable touch-screen if it is enabled.
if app.TouchScreenEnable = True then
   app.TouchScreenEnable = False
End if
```

WaitUntilIdle([in] double timeoutSeconds) *Method*

Description

Waits until either the application is idle or the specified timeout expires, specified in seconds. This evaluates to True if the application completes before the timeout expires, and to False if a timeout occurs.
When Trigger mode is Auto or Run, the application is never Idle. In this case the call to WaitUntilIdle returns after the next acquisition and any configured processing.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Wait with a timeout of five seconds.
app.WaitUntilIdle(5)
```

Width *Property*

Description

Sets/Queries the width in pixels of the instrument display on the PC screen.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the width of the instrument window to 800 pixels.
app.Width = 800
```

Windowed *Action*

Description

Places the instrument application in windowed mode (as opposed to full-screen mode). Places the application in the upper-part of the display screen with a sizable border.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the instrument display into the windowed mode.
app.Windowed
```

WindowState *Property*

Description

Sets/Queries the state of the PC window used by the instrument display.
0 windowed
1 full screen
2 minimized
Trying to set values greater than 2 or less than 0 will result in the value 0 (windowed) being set.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the instrument window state to windowed.
app.WindowState = 0
```

ACQUISITION *app.Acquisition*

This group of variables controls the input channels C1, C2, C3 and C4, the timebase, the trigger, and the Aux Output.

Names of the form app.Acquisition.Channels.xxxx are aliases of simpler names which are described in this section of the manual. Examples of alias pairs are as follows -
app.Acquisition.Channels("Cx") is equivalent to app.Acquisition.Cx
app.Acquisition.Channels(1) is equivalent to app.Acquisition.C1
app.Acquisition.Channels("Cx").Out.Result is equivalent to app.Acquisition.Cx.Out.Result

Acquire([in] double timeoutSeconds, [in] long bForceTriggerOnTimeout)	Method
Calibrate	Action
CalNeeded	Integer
ClearSweeps	Action
ShowChannelSetup	Action
TriggerMode	Enum

Acquire([in] double timeoutSeconds, [in] long bForceTriggerOnTimeout) *Method*

Description

Action/Query. Takes a single acquisition. The first of the two arguments specifies a timeout; the second, which is optional, specifies whether or not to force a trigger when the timeout occurs. Evaluates to True if a trigger occurred, or False if a timeout occurred.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
' Start an acquisition, wait for up to 5 seconds for a trigger
' event, force a software trigger if a hardware trigger is not
' detected before the 5 second timeout expires.
triggerDetected = app.Acquisition.Acquire(5, true)
```

Calibrate

Action

Description

Initiates a full calibration of the acquisition system of the instrument.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Start a calibration.
app.Acquisition.Calibrate
```

CalNeeded

Integer

Range From -2147483648 to 2147483647 step 1

Description

Query: Indicates whether calibration is required or not.

Based on hexadecimal bit value, it provides following information:
0x00000001: Front end calibration is required
0x00000002: Digitizers delay matching is required
0x00000004: Digitizers gain matching is required
0x00000008: Trigger level calibration is required
0xFFFFFFFF(-1): All of above calibrations are required

ClearSweeps

Action

Description

Resets any accumulated average data or persistence data for channel waveforms (C1..C4). Valid only when one or more channels have waveform averaging or persistence enabled in their pre-processing settings. Note that an average may be reset on an individual basis using app.Acquisition.Cx.ClearSweeps control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Clear accumulated sweeps for channels C1...C4
app.Acquisition.ClearSweeps

' Clear accumulated sweeps for only C1
app.Acquisition.C1.ClearSweeps
```

ShowChannelSetup

Action

TriggerMode *Enum*

Description

Sets/Queries the trigger mode, using values from the following list -
Auto, Norm, Normal, Single, Stopped.

Auto: After a timeout, if a real hardware trigger is not received, then force a trigger so there are automatically lots of updates.

Normal: Accepts triggers as rapidly as the system permits, but likewise will wait "forever" for a trigger, without updating anything.

Single: Arm the acquisition system to acquire once, and do not rearm automatically after. Once a trigger is received and the data processed, the instrument finishes in the "Stopped" state.

Stop: Finishes the current acquisition and does not re-arm.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Place the instrument in stopped mode and take one acquisition.
app.Acquisition.TriggerMode = "Stopped"
app.Acquisition.Acquire(5)
```

Values

Auto	Auto-trigger
Normal	Normal Trigger
Single	Single Trigger
Stopped	No trigger possible, Stopped

AUXIN *app.Acquisition.AuxIn*

Auxiliary trigger input properties.

Attenuation	Enum
Coupling	Enum
ProbeAttenuation	Double
ProbeName	String

Attenuation *Enum*

Description

Attenuation factor for the auxiliary input connector.

Values

Div10	
x1	

Coupling *Enum*

Description

Auxiliary trigger input connector coupling.

Values

DC1M	
DC50	
Gnd	

ProbeAttenuation *Double*

Range From 1e-006 to 10000 step 1e-006

Description

Probe attenuation for the probe on the Auxiliary Input connector.

ProbeName *String*

Range Any number of characters

Description

Name of the probe on the Auxiliary Input connector.

AUXOUTPUT *app.Acquisition.AuxOutput*

Controls for the Auxilliary output BNC, which can be programmed as a simple square-wave signal source, or as a pulse which is asserted when various events occur, including Trigger Enabled, Trigger Out, and Pass/Fail.

Amplitude	Double
AuxInCoupling	Enum
AuxMode	Enum
CalMode	Enum
Frequency	DoubleLockstep
Mode	Enum
SetToDefault	Action

Example

```
' Microsoft Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Setup the Auxiliary output to be a squarewave with an amplitude
' of 500mV a frequency of 5kHz
app.Acquisition.AuxOutput.Mode = "Square"
app.Acquisition.AuxOutput.Amplitu
```

Amplitude *Double*

Range From 0.005 to 1 step 0.001

Description

Sets/Queries the amplitude of the signal on the AUX OUT connector. Note that this is the amplitude of the signal into a 1Mohm load. Into 50 ohms the output voltage will be halved (since the source impedance is nominally 50 ohms). Units are Volts.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the amplitude of the signal from the AUX OUT connector
' to 0.6 V into 1 megohm, or 0.3 V into 50 ohms.
app.Acquisition.AuxOutput.Amplitude = 0.6
```

AuxInCoupling *Enum*

Description

Sets the input coupling for the Auxiliary input path.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the coupling of the Auxiliary socket, when used as an input, to
ground.
' In this condition, no input signal reaches the instrument.
app.Acquisition.AuxOutput.AuxInCoupling = "GND"
```

Values

DC50	DC, 50ohms coupling
GND	Grounded

AuxMode *Enum*

Description

Configures AUX Output type in WR and WS series of scopes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the Auxiliary output to trigger output signal.
app.Acquisition.AuxOutput.AuxMode = "TriggerOut"
```

Values

DCLevel	
Off	No output
PassFail	Pulse on Pass fail condition
Square	
TriggerEnabled	Trigger enabled signal from trigger circuitry.
TriggerOut	Internal trigger output signal from trigger circuitry

CalMode *Enum*

Description

Configures Cal Output type in WR and WS series of scopes.

Example

```
' Follwoing example will set CAL output to 1 KHz, 0.5V square wave.
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set cal output to Square wave
app.Acquisition.AuxOutput.CalMode = "Square"

' Set cal output amplitude to 0.5 V with 1 MOhm impedence
app.Acquisition.AuxOutput.Amplitude = "0.5"

' Set cal output frequency to 1 KHz
app.Acquisition.AuxOutput.Frequency = "1000"
```

Values

DCLevel	DC Level with 1 Mohm o/p impedence
Off	Off
Square	Square wave

Frequency *DoubleLockstep*

Range From 500 to 5e+006 step 10, locked to 1 2.5 5, fine grain allowed=false, on=false

Description

This control only has effect when the AuxOutput mode is "Square".

Sets/Queries the auxiliary output frequency of the squarewave. Units are Hertz.
Note that WaveMaster models (and derivatives) have a limit of 5MHz, WavePro 7000 models (and derivatives) have a limit of 1MHz.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the frequency of the signal from the AUX OUT
' connector to 1 MHz.
app.Acquisition.AuxOutput.Frequency = 1e6
```

Mode *Enum*

Description

Sets/Queries the output mode of the AUX OUT connector. (Applicable to WM, SDA, DDA, WP series of scopes)

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the output of the AUX OUT connector to output
' a pulse on a pre-determined Pass-Fail decision.
app.Acquisition.AuxOutput.Mode = "PassFail"
```

Values

DCLevel	Emit a DC level
Off	Output Disabled
PassFail	Pulse-out controlled by Pass/Fail system
Square	Square-wave signal generator
TriggerEnabled	Pulse-out when trigger is enabled
TriggerOut	Pulse-out when trigger occurs

SetToDefault *Action*

Description

Set the Aux Output controls to their default values.

CHANNELS *app.Acquisition.Channels*

This group of variables controls the acquisition channels C1, C2, C3 and C4.

Names of the form app.Acquisition.Channels.xxxx are aliases of simpler names which are described in the section of the manual which is devoted to app.Acquisition. Examples of alias pairs are as follows -
app.Acquisition.Channels("Cx") is equivalent to app.Acquisition.Cx
app.Acquisition.Channels(1) is equivalent to app.Acquisition.C1
app.Acquisition.Channels("Cx").Out.Result is equivalent to app.Acquisition.Cx.Out.Result

Example

```
Set app = CreateObject("LeCroy.XStreamDSO")

For X = 1 To 4
    app.Acquisition.Channels(X).VerScale = 0.2
Next
```

CX *app.Acquisition.Cx*

This group of variables controls the input channels C1, C2, C3 and C4.

Names of the form app.Acquisition.Channels.xxxx are aliases of simpler names which are described in the section of the manual which is devoted to app.Acquisition. Examples of alias pairs are as follows -
app.Acquisition.Channels("Cx") is equivalent to app.Acquisition.Cx
app.Acquisition.Channels("Cx").Out.Result is equivalent to app.Acquisition.Cx.Out.Result

ActiveInput	Enum

AverageSweeps	Integer
AxisXRotation	Integer
AxisYRotation	Integer
BandwidthLimit	Enum
ClearSweeps	Action
Coupling	Enum
Deskew	Double
EnhanceResType	Enum
FindScale	Action
InterpolateType	Enum
Invert	Bool
LabelsPosition	String
LabelsText	String
Overload	Bool
OverloadInputA	Bool
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ProbeAttenuation	Double
ShowLastTrace	Bool
UseGrid	String
VerOffset	Double
VerScale	DoubleLockstep
VerScaleVariable	Bool
View	Bool
ViewLabels	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Setup Channel C1
app.Acquisition.C1.VerScale = 0.5
app.Acquisition.C1.VerOffset = 0.0
app.Acquisition.C1.Coupling = "DC50"

' Setup Channel C2
app.Acquisition.C2.VerScale = 0.1
```

ActiveInput *Enum*

Description

Control the input switch, used on Input A/B scopes to select the active input.

Values

InputA	

InputB	

AverageSweeps *Integer*

Range From 1 to 1000000 step 1

Description

Sets/Queries the number of averaging sweeps for input channel Cx. This is distinct from the math function app.Math.Fx. If the number of sweeps is 1 (the default value), the data will not be averaged.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the number of sweeps for channel C1 to 25.
app.Acquisition.C1.AverageSweeps = 25
```

AxisXRotation *Integer*

Range From -90 to 90 step 1

Description

Sets/Queries the state of the X Axis rotation control, used only in 3-D persistence modes to control the viewing position. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the rotation about the X-axis to 35 degrees for trace C3.
app.Acquisition.C3.AxisXRotation = 35
```

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

Sets/Queries the state of the Y Axis rotation control, used only in 3-D persistence modes to control the viewing position. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the rotation about the Y-axis to 25 degrees for trace C3.
app.Acquisition.C3.AxisYRotation = 25
```

BandwidthLimit *Enum*

Description

Sets/Queries the bandwidth limit for input channel Cx, in Hz. Note that this control is an enum, and therefore requires a string value, and not a scalar value.
Note that bandwidth limit choices vary between DSO models.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the bandwidth limit for C2 to 20 MHz.
app.Acquisition.C2.BandwidthLimit = "20MHz"
```

Values

13GHz	
1GHz	
200MHz	
20MHz	
3GHz	
4GHz	
6GHz	
8GHz	
Full	

ClearSweeps *Action*

Description

Clears all accumulated average data and persistence data for this channel. See app.Acquisition.ClearSweeps for a control that clears accumulated data for channels 1..4, or app.ClearSweeps for a control that clears accumulated data for all subsystems (including Math/Measure/Display, etc.)

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Reset channel C1
app.Acquisition.C1.ClearSweeps

' Reset channels C1..C4
app.Acquisition.ClearSweeps
```

Coupling *Enum*

Description

Sets/Queries the input coupling of input channel Cx.
Note that coupling choices vary between instrument models. WavePro 7000 instruments for example support AC1M and DC1M modes in addition to DC50 and GND choices.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Inspect the input coupling for channel C2
CoupleC2 = app.Acquisition.C2.Coupling

' Set the coupling to DC, 50 ohms
app.Acquisition.C2.Coupling = "DC50"
```

Values

DC50	
Gnd	

Deskew *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

Description

Sets/Queries the deskew of input channel Cx to produce a required alignment with another trace.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
```

EnhanceResType *Enum*

Description

Enhance resolution setting (Noise Filter). Set to 'None' to turn off the filter.

Values

0.5bits	
1.5bits	
1bits	
2.5bits	
2bits	
3bits	
None	

FindScale *Action*

Description

Starts FindScale operation for this chanel. This operation will adjust channel's v/div and offset control such that the signal is visible on the screen with in +/- 3 div.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'Find vertical scale of channel 1
app.Acquisition.C1.FindScale
```

InterpolateType *Enum*

Description

Sets/Queries the type of interpolation used for input channel Cx. Note that Sinx/x interpolation increases the size of the trace by a factor of 10, beware when using this option with long records.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'  Set the interpolation for channel C3 to (sin x)/x
app.Acquisition.C3.InterpolateType = "Sinxx"
```

Values

Linear	Linear interpolation
Sinxx	Sinx/x interpolation

Invert *Bool*

Description

Sets/Queries whether input channel Cx is inverted.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set channel C2 to be inverted.
app.Acquisition.C2.Invert = True
```

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Add a couple of labels to trace C1, one at 0ns, and one at 55ns
app.SetToDefaultSetup
app.Acquisition.C1.ViewLabels = True
app.Acquisition.C1.LabelsPosition = "0.0,55e-9"
app.Acquisition.C1.LabelsText = "Hello,World"
```

LabelsText *String*

Range Any number of characters

Overload *Bool*

Description

Set TRUE if the input is in an overload state.

OverloadInputA *Bool*

Description

Set TRUE if Input A is in an overload state

Persist3DQuality *Enum*

Description

Sets/Queries the state of the 3D Persistence quality control, which controls the way that the persistence trace is rendered. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set persistence 3-D to shaded for trace C2.

app.Acquisition.C2.Persist3DQuality = "Shaded"
```

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set persistence on for trace C1
app.Display.LockPersistence = "PerTrace"
app.Acquisition.C1.Persisted = True
```

Persistence3d

Bool

Description

Sets/Queries the 3D persistence state. If True, then the persistence display for this channel will be displayed as a three dimensional surface map. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set persistence plot as 3-D for trace C1
app.Acquisition.C1.Persistence3D = True
```

PersistenceMonoChrome

Bool

Description

Sets/Queries the monochrome persistence state. If True, then the persistence display for this channel will be monochromatic, whether 2-D or 3-D. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set persistence monochrome on for trace C4.
app.Acquisition.C4.PersistenceMonoChrome = True
```

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence saturation level for trace C1.
app.Acquisition.C1.PersistenceSaturation = 60
```

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence time for the persistence trace of channel C1 to 10
seconds.
app.Acquisition.C1.PersistenceTime = "10s"
```

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ProbeAttenuation *Double*

Range From 1e-006 to 10000 step 1e-006

Description

Sets/Queries the probe attenuation. The probe attenuation is the factor by which the signal is made smaller, for example, 10 means that the probe divides by 10, and is referred to as a ÷10 probe. Note that certain passive probes may be marked as 'x10', even though they actually divide the input signal by a factor of 10.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'  Set the probe attenuation for channel C1 to 100
app.Acquisition.C1.ProbeAttenuation = 100
```

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Makes the last acquired trace invisible for the
' persistence trace of channel C1.
app.Acquisition.C1.ShowLastTrace = False
```

UseGrid *String*

Range Any number of characters

Description

Sets/Queries the graticule on which the trace is displayed. Typical values include:
YT1..YT8: one of the YT graticules used in Single, Dual, Quad, and Octal display modes.
NotOnGrid: not displayed on any graticule.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Switch to dual grid mode, place C1 on the lower graticule
' and C2 on the upper graticule.
app.Display.GridMode = "Dual"
app.Acquisition.C1.UseGrid = "YT2"
app.Acquisition.C2.UseGrid = "YT1"
```

VerOffset *Double*

Range From -3 to 3 step 0.0002

Description

Sets/Queries the vertical offset of input channel Cx. The setting resolution in volts lies in the range 0.25% to 0.5%, depending on the numerical value.
Note that the available offset range is dependent upon the current V/Div setting, and also the instrument model.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the vertical offset for C1 to 10 mV.
app.Acquisition.C1.VerOffset = 0.01
```

VerScale *DoubleLockstep*

Range From 0.002 to 1 step 0.01, locked to 1 2 5, fine grain allowed=true, on=false

Description

Sets/Queries the vertical scale (in Volts/Division) of an input channel. When variable gain (VerScaleVariable control) is disabled, the control will clip values to a 1..2..5 sequence. When variable gain is enabled, the setting resolution lies in the range 1% to 2%, depending upon the numerical value.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set C1 to a scale of 250mV/Div in Variable Scale mode
app.Acquisition.C1.VerScaleVariable = True
app.Acquisition.C1.VerScale = 0.25
```

VerScaleVariable *Bool*

Description

Sets/Queries the state of the variable vertical scale control for channel Cx. When the variable scale is enabled, the setting resolution lies in the range 1% to 2%, depending on the numerical value. If a knowledge of the exact value is important, the value should be read back after a setting has been made.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the variable vertical scale for C1 to On.
app.Acquisition.C1.VerScaleVariable = True
```

View *Bool*

Description

Sets/Queries the channel's 'Viewed' state. When True the channel waveform is displayed on one of the display graticules. Note that even when a channel is not visible it may be used as a source for Math, Measure, etc.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Make channel C3 visible.
app.Acquisition.C3.View = True
```

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Show the user-defined label for trace C2.
app.Acquisition.C2.ViewLabels = True
```

RESULT

app.Acquisition.Cx.Out.Result

Properties of the type xxxx.Out.Result.yyyy are those of the last completed acquisition. They are not affected if other controls are changed after that acquisition was completed. This distinction between "Out.Result" properties and other controls is most important when the trigger mode is Single or Stopped. You should treat "Out.Result" properties as read-only.

Several of these properties mention the 'frame', this is the term used to describe the visible portion of the trace, which is generally smaller than the acquired waveform. The frame could be used for example to display a 500pt. window onto a 1Mpt. Trace, or vertically it could be used to show the 'center' 10mV of a 100mV pk trace.

For a full overview of the properties of waveform (or other) results, please see Chapter 1.

HORIZONTAL

app.Acquisition.Horizontal

This group of variables controls the timebase, the sampling, and the trigger delay.

AcquisitionDuration	Double
Dbi2Active	Bool
Dbi3Active	Bool
HorOffset	Double
HorOffsetOrigin	Double
HorScale	DoubleLockstep
HorUnits	String
Maximize	Enum

MaxSamples	DoubleLockstep
NumSegments	Integer
ReferenceClock	Enum
SampleClock	Enum
SampleMode	Enum
SamplingRate	Double
SequenceTimeout	Double
SequenceTimeoutEnable	Bool

AcquisitionDuration *Double*

Range From 1e-012 to 1e+012 step 1e-015

Description

Queries the duration of the last completed acquisition. The result may depend on the spacing of the triggers in sequence mode, and it may depend on the number of averages when a channel is in averaging mode.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Obtain the duration of the last completed acquistion.
AcqDuration = app.Acquisition.Horizontal.AcquisitionDuration
MsgBox AcqDuration
```

Dbi2Active *Bool*

Description

Specific to SDA9k, SDA11k series of the scope.
Sets/Queries status of Channel 1 & 2. When set, C1 is inactive and C2 is configured for full bandwidth of the scope. When cleared, C1 and C2 both are configured for 6 GHz of bandwidth.

Dbi3Active *Bool*

Description

Specific to SDA9k, SDA11k series of the scope.
Sets/Queries status of Channel 3 & 4. When set, C4 is inactive and C3 is configured for full bandwidth of the scope. When cleared, C3 and C4 both are configured for 6 GHz of bandwidth.

HorOffset *Double*

Range From -0.0005 to 5e-007 step 1e-009

Description

Sets/Queries the horizontal position of the trigger time, relative to the origin set by HorOffsetOrigin, in seconds. Positive to the right, negative to the left. The setting resolution is about 1% to 2&.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the horizontal trigger offset to 200 ns.
app.Acquisition.Horizontal.HorOffset = 2.0e-7
```

HorOffsetOrigin *Double*

Range From 0 to 10 step 1

Description

Sets/Queries the origin, in graticule divisions, of the time scale in which HorOffset is measured. The value 0 corresponds to the left edge of the graticule. The value 10 corresponds to the right edge of the graticule. Requesting a value outside the range will select the nearest allowed value.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the origin of the horizontal trigger offset to 4.0 divisions.
app.Acquisition.Horizontal.HorOffsetOrigin = 4.0
```

HorScale *DoubleLockstep*

Range From 2e-011 to 64 step 5e-010, locked to 1 2 5, fine grain allowed=true, on=false

Description

Sets/Queries the horizontal scale in time per division.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the horizontal acquisition scale to 200 ns/div.
app.Acquisition.Horizontal.HorScale = 2.0e-7
```

HorUnits *String*

Range Any number of characters

Description

Queries the units in which the horizontal scale is measured.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Obtain the units of the horizontal scale.
HorizUnit = app.Acquisition.Horizontal.HorUnits
```

Maximize *Enum*

Description

Define whether timebase controls use a fixed sample rate, or a maximum memory length.

Values

SetMaximumMemory	Maximum memory is programmed, sample rate changed to vary T/Div

MaxSamples *DoubleLockstep*

Range From 500 to 1.28e+008 step 1000, locked to 1 2.5 5, fine grain allowed=false, on=false

Description

Sets/Queries the maximum permissible number of samples to be used in the acquisition memories. At the faster sample rates, the actual number used may be less than this maximum.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the available memory length per channel to 500
app.Acquisition.Horizontal.MaxSamples = 500
```

NumSegments *Integer*

Range From 2 to 15000 step 1

Description

Sets/Queries the number of segments in the sequence mode of acquisition. Only valid when SampleMode = "Sequence'

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Enable sequence mode and capture 500 segments
app.Acquisition.Horizontal.SampleMode = "Sequence"
app.Acquisition.Horizontal.NumSegments = 500
```

ReferenceClock *Enum*

Description

Sets/Queries the source of the acquisition reference clock.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the source of the reference clock to External.
app.Acquisition.Horizontal.ReferenceClock = "EXT"
```

Values

External	External reference (use rear-panel BNC)
Internal	Internal reference clock

SampleClock *Enum*

Description

Sets/Queries the source for the sample clock.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the sample clock to expect an external source.
app.Acquisition.Horizontal.SampleClock = "External"
```

Values

Internal	

SampleMode *Enum*

Description

Sets/Queries the mode of acquisition as real-time or sequence or random interleaved sampling. Note that RIS mode and sequence mode are not available over the entire range of time-bases, and are not available simultaneously.
WaveExpert differences: CIS and SEQ are the only timebase modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the mode of acquisition to random interleaved sampling.
app.Acquisition.Horizontal.SampleMode = "RIS"
' WaveExpert example
app.Acquisition.Horizontal.SampleMode = "CIS"
```

Values

RealTime	
Sequence	

SamplingRate *Double*

Range From 200000 to 4e+010 step 1

Description

Queries the sampling rate. This is the effective sampling rate of the traces, rather than the sample rate of the ADCs.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Inspect the effective sampling rate of the signal.
SamplingRate = app.Acquisition.Horizontal.SamplingRate
```

SequenceTimeout *Double*

Range From 0.0001 to 800 step 0.0001

Description

Sets/Queries the timeout in segment mode of acquisition if insufficient triggers are received.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the sequence mode timeout to 10 seconds
app.Acquisition.Horizontal.SequenceTimeout = 10.0
```

SequenceTimeoutEnable *Bool*

Description

Sets/Queries the enabling of the sequence mode timeout.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Enable the sequence mode timeout.
app.Acquisition.Horizontal.SequenceTimeoutEnable = True
```

TRIGGER *app.Acquisition.Trigger*

This group of cvars controls all aspects of the trigger, except for trigger delay, which is in Acquisition.Horizontal.

Names of the form app.Acquisition.Trigger.Sources.xxxx are aliases of simpler names which are described in this section of the manual. Examples of alias pairs are as follows -
app.Acquisition.Trigger.Sources("Cx") is equivalent to app.Acquisition.Trigger.Cx
app.Acquisition.Trigger.Sources("Ext") is equivalent to app.Acquisition.Trigger.Ext
app.Acquisition.Trigger.Sources("Line") is equivalent to app.Acquisition.Trigger.Line
Please see under Acquisition.Channels("Cx") for a programming example.

C1Coupling	Enum
C1Level	Double
C1Slope	Enum
C2Coupling	Enum
C2Level	Double
C2Slope	Enum
C3Coupling	Enum
C3Level	Double
C3Slope	Enum
C4Coupling	Enum
C4Level	Double
C4Slope	Enum
ExtCoupling	Enum
ExtLevel	Double
ExtSlope	Enum
LineLevel	Double
LineSlope	Enum

Type	Enum

C1Coupling *Enum*

Description

Channel 1 input coupling control.

Values

AC	
DC	
HFREJ	
LFREJ	

C1Level *Double*

Range From -4.1 to 4.1 step 0.01

Description

Channel 1 trigger level control.

C1Slope *Enum*

Description

Channel 1 trigger slope control.

Values

Either	
Negative	
Positive	

C2Coupling *Enum*

Description

Channel 2 input coupling control.

Values

AC	
DC	
HFREJ	
LFREJ	

C2Level *Double*

Range From -4.1 to 4.1 step 0.01

Description

Channel 2 trigger level control.

C2Slope *Enum*

Description

Channel 2 trigger slope control.

Values

Either	
Negative	
Positive	

C3Coupling *Enum*

Description

Channel 3 input coupling control.

Values

AC	
DC	
HFREJ	
LFREJ	

C3Level *Double*

Range From -4.1 to 4.1 step 0.01

Description

Channel 3 trigger level control.

C3Slope *Enum*

Description

Channel 3 trigger slope control.

Values

Either	
Negative	
Positive	

C4Coupling *Enum*

Description

Channel 4 input coupling control.

Values

AC	
DC	
HFREJ	
LFREJ	

C4Level

Double

Range From -4.1 to 4.1 step 0.01

Description

Channel 4 trigger level control.

C4Slope

Enum

Description

Channel 4 trigger slope control.

Values

Either	
Negative	
Positive	

ExtCoupling

Enum

Description

External Input coupling control.

Values

AC	
DC	
HFREJ	
LFREJ	

ExtLevel

Double

Range From -0.41 to 0.41 step 0.001

Description

External trigger input level control.

ExtSlope

Enum

Description

External trigger input slope control.

Values

Either	
Negative	
Positive	

LineLevel

Double

Range From 0 to 1 step 0.001

Description

Control the trigger level for the Line trigger input.

LineSlope *Enum*

Description

Control the trigger slope for the Line trigger input.

Values

Either	
Negative	
Positive	

Type *Enum*

Description

Sets/Queries the trigger type (mode).

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the trigger type to glitch.
app.Acquisition.Trigger.Type = "Glitch"
```

Values

CAN	
Cascaded	
Dropout	
Edge	
FLX	
Glitch	
I2C	
I2S	
Interval	
LIN	
MIL1553	
Pattern	
Qualified	
RS232	
Runt	
SlewRate	
SPI	
TV	
UART	
Width	
Window	

EDGE

app.Acquisition.Trigger.Edge

Coupling	Enum
HoldoffEvents	Integer

HoldoffTime	DoubleLockstep
HoldoffType	Enum
Level	Double
OptimizeForHF	Bool
Slope	Enum
Source	Enum

Coupling *Enum*

Values

AC	
DC	
HFREJ	
LFREJ	

HoldoffEvents *Integer*

Range From 1 to 1000000000 step 1

HoldoffTime *DoubleLockstep*

Range From 1e-009 to 20 step 2e-010, locked to 1 2.5 5, fine grain allowed=true, on=true

HoldoffType *Enum*

Values

Events	
Off	
Time	

Level *Double*

Range From -4.1 to 4.1 step 0.01

OptimizeForHF *Bool*

Slope *Enum*

Values

Either	
Negative	
Positive	

Source

Enum

Values

C1	
C2	
C3	
C4	
D0	
D1	
D10	
D11	
D12	
D13	
D14	
D15	
D16	
D17	
D18	
D19	
D2	
D20	
D21	
D22	
D23	
D24	
D25	
D26	
D27	
D28	
D29	
D3	
D30	
D31	
D32	
D33	
D34	
D35	
D4	
D5	
D6	
D7	
D8	
D9	
Ext	
FastEdge	
Line	

CAN

app.Acquisition.Trigger.Serial.Protocol (Standard = "CAN")

AdaptedSamplingPoint	Double
AddressFormat	Enum
AddressOperator	Enum
AddressValue	BitPattern
AddressValue2	BitPattern
BitRate	Double
ByteOrder	Enum
DefaultLevel	Double
NeedDualLevels	Bool
NeededSources	Enum
NumSamplingPoints	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
RequestedSamplingPoint	Double
SignType	Enum
SupportsDigital	Bool
SynchJumpWidth	Integer
TriggerCondition	Enum
Tseg1	Integer
Tseg2	Integer
ViewingMode	Enum

AdaptedSamplingPoint

Double

Range From 20 to 90 step 0.01

AddressFormat

Enum

Values

ALL	
EXT	
STD	

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=29 NumBits=11 NumBytes=2 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=29 NumBits=11 NumBytes=2 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

BitRate *Double*

Range From 10000 to 1e+006 step 1

ByteOrder *Enum*

Values

Intel	
Motorola	

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

NeedDualLevels *Bool*

NeededSources *Enum*

Values

DataSource	

NumSamplingPoints *Enum*

Values

1	
3	

PatternBitLength *Integer*

Range From 0 to 64 step 1

PatternBitPos *Integer*

Range From 0 to 63 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=64 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=64 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

RequestedSamplingPoint *Double*

Range From 20 to 90 step 0.01

SignType *Enum*

Values

SignedInt	
UnsignedInt	

SupportsDigital *Bool*

SynchJumpWidth *Integer*

Range From 1 to 4 step 1

TriggerCondition *Enum*

Values

All	
Error	
ID	
IdData	
Remote	

Tseg1 *Integer*

Range From 3 to 16 step 1

Tseg2 *Integer*

Range From 2 to 8 step 1

ViewingMode *Enum*

Values

Binary	
Hex	

FLX

app.Acquisition.Trigger.Serial.Protocol (Standard = "FLX")

BitRate	Double
ByteBitOrder	Enum
CycleCountOperator	Enum
CycleCountValue	Integer
CycleCountValue2	Integer
DefaultLevel	Double
FrameIDOperator	Enum
FrameIDValue	BitPattern
FrameIDValue2	BitPattern
NeedDualLevels	Bool
NeededSources	Enum
NullFrameInd	Enum
PatternLength	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
PayloadChannel	Enum
PayloadPreamble	Enum
RepetitionFactor	Enum
StartupFrameInd	Enum
SupportsDigital	Bool
SymbolCAS	Bool

SymbolCID	Bool
SymbolWakeup	Bool
SyncFrameInd	Enum
TriggerCondition	Enum
TrigOnBadBSS	Bool
TrigOnBadDTS	Bool
TrigOnBadFES	Bool
TrigOnBadFSS	Bool
TrigOnBadSymbol	Bool
TrigOnHeaderCRCError	Bool
TrigOnPayloadCRCError	Bool
ViewingMode	Enum

BitRate *Double*

Range From 2.5e+006 to 1e+007 step 500000

ByteBitOrder *Enum*

Values

LSB	
MSB	

CycleCountOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

CycleCountValue *Integer*

Range From 0 to 63 step 1

CycleCountValue2 *Integer*

Range From 0 to 63 step 1

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

FrameIDOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

FrameIDValue *BitPattern*

Range MaxBits=11 NumBits=11 NumBytes=2 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

FrameIDValue2 *BitPattern*

Range MaxBits=11 NumBits=11 NumBytes=2 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

NeedDualLevels *Bool*

NeededSources *Enum*

Values

DataSource	

NullFrameInd *Enum*

Values

One	
Zero	

PatternLength *Integer*

Range From 0 to 12 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=ByteVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=ByteVar Format=Ehex

PayloadChannel *Enum*

Values

ChannelA	
ChannelB	

PayloadPreamble *Enum*

Values

One	
Zero	

RepetitionFactor *Enum*

Values

1	
16	
2	
32	
4	
64	
8	

StartupFrameInd *Enum*

Values

One	
Zero	

SupportsDigital *Bool*

SymbolCAS *Bool*

SymbolCID *Bool*

SymbolWakeup *Bool*

SyncFrameInd *Enum*

Values

One	
Zero	

TriggerCondition *Enum*

Values

Errors	
Frame	
Symbol	
TSS	

TrigOnBadBSS *Bool*

TrigOnBadDTS *Bool*

TrigOnBadFES *Bool*

TrigOnBadFSS *Bool*

TrigOnBadSymbol *Bool*

TrigOnHeaderCRCError *Bool*

TrigOnPayloadCRCError *Bool*

ViewingMode *Enum*

Values

Binary	
Hex	

I2C

app.Acquisition.Trigger.Serial.Protocol (Standard = "I2C")

AckCondition	Enum
AddressLength	Enum
AddressValue	BitPattern
AddressWithRW	Bool
AtPosition	Enum
ByteBitOrder	Enum
DefaultLevel	Double
Direction	Enum
FrameCondition	Enum
NeedDualLevels	Bool
NeededSources	Enum
PatternLength	Integer

PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
SupportsDigital	Bool
ViewingMode	Enum

AckCondition *Enum*

Values

Ack	
NoAck	

AddressLength *Enum*

Values

10Bits	
7Bits	

AddressValue *BitPattern*

Range MaxBits=10 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressWithRW *Bool*

AtPosition *Enum*

Values

Value	

ByteBitOrder *Enum*

Values

LSB	
MSB	

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

Direction *Enum*

Values

Read	
Write	

FrameCondition *Enum*

Values

Addr	
AddrData	
EEPROM	
FrameLength	
NoAck	
Restart	
Start	
Stop	

NeedDualLevels *Bool*

NeededSources *Enum*

Values

ClockSource	
DataSource	

PatternLength *Integer*

Range From 0 to 12 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=ByteVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=ByteVar Format=Ehex

SupportsDigital *Bool*

ViewingMode *Enum*

Values

Binary	
Hex	

I2S *app.Acquisition.Trigger.Serial.Protocol (Standard = "I2S")*

AudioChannel	Enum
BitsInChannel	Integer
ByteBitOrder	Enum
ChipSelCondition	Enum
ClockPol	Enum
DefaultLevel	Double
EnableInterFrame	Bool
I2SCondition	Enum
I2SVariant	Enum
NeedDualLevels	Bool
NeededSources	Enum
PatternBitsLen	Integer
PatternLength	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
StartBitInChannel	Integer
SupportsDigital	Bool
TimeOutLenInNanoSec	Double
ViewingMode	Enum
WSFrameStart	Enum

AudioChannel *Enum*

Values

Left	
Right	

BitsInChannel *Integer*

Range From 1 to 32 step 1

ByteBitOrder *Enum*

Values

LSB	
MSB	

ChipSelCondition *Enum*

Values

Auto	
Manual	
None	

ClockPol *Enum*

Values

Negative	
Positive	

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

EnableInterFrame *Bool*

I2SCondition *Enum*

Values

Clip	
Data	
FallingEdge	
Glitch	
Mute	
RisingEdge	

I2SVariant *Enum*

Values

I2S	
LJ	
RJ	

NeedDualLevels *Bool*

NeededSources *Enum*

Values

ClockSource	
CSSource	
DataSource	

PatternBitsLen *Integer*

Range From 1 to 32 step 1

PatternLength *Integer*

Range From 0 to 8 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=32 NumBits=32 NumBytes=4 AllowedBitValues=01X PaddingChar=X PadAlign=Right SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=32 NumBits=32 NumBytes=4 AllowedBitValues=01 PaddingChar=0 PadAlign=Right SizeAlign=BitVar Format=Ehex

StartBitInChannel *Integer*

Range From 0 to 31 step 1

SupportsDigital *Bool*

TimeOutLenInNanoSec *Double*

Range From 4e-008 to 0.0026214 step 4e-008

ViewingMode *Enum*

Values

Binary	
Hex	

WSFrameStart *Enum*

Values

Falling	
Rising	

LIN

app.Acquisition.Trigger.Serial.Protocol (Standard = "LIN")

AddressOperator	Enum

AddressValue	BitPattern
AddressValue2	BitPattern
BitRate	Double
DefaultLevel	Double
NeedDualLevels	Bool
NeededSources	Enum
PatternLength	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
SupportsDigital	Bool
TriggerCondition	Enum
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=6 NumBits=6 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=6 NumBits=6 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

BitRate *Double*

Range From 300 to 20000 step 1

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

NeedDualLevels *Bool*

NeededSources *Enum*

Values

DataSource	

PatternLength *Integer*

Range From 0 to 8 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=ByteVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=ByteVar Format=Ehex

SupportsDigital *Bool*

TriggerCondition *Enum*

Values

Break	
Error	
FrameID	
IDData	

ViewingMode *Enum*

Values

Binary	
Hex	

MIL1553

app.Acquisition.Trigger.Serial.Protocol (Standard = "MIL1553")

BitRate	Double

C1_ModeCode	Enum
C1_ModeCodeOP	Enum
C1_RTAddress	BitPattern
C1_RTAddress2	BitPattern
C1_RTAddressOP	Enum
C1_RTSubAddress	BitPattern
C1_RTSubAddress2	BitPattern
C1_RTSubAddressOP	Enum
C1_WordCount	Integer
C1_XmitRcv	Enum
C2_ModeCode	Enum
C2_ModeCodeOP	Enum
C2_RTAddress	BitPattern
C2_RTAddress2	BitPattern
C2_RTAddressOP	Enum
C2_RTSubAddress	BitPattern
C2_RTSubAddress2	BitPattern
C2_RTSubAddressOP	Enum
C2_WordCount	Integer
C2_XmitRcv	Enum
D_PatternBitLength	Integer
D_PatternBitPos	Integer
D_PatternOperator	Enum
D_PatternValue	BitPattern
D_PatternValue2	BitPattern
DefaultLevel	Double
IMGTimeFrom	Double
IMGTimeOperator	Enum
IMGTimeTo	Double
NeedDualLevels	Bool
NeededSources	Enum
RespTimeFrom	Double
RespTimeOperator	Enum
RespTimeTo	Double
RHSRatio	Integer
S1_BcastRcvdBit	Enum
S1_BusyBit	Enum
S1_DynBusCtrlBit	Enum
S1_InstrBit	Enum
S1_MsgErrorBit	Enum
S1_RTAddress	BitPattern
S1_RTAddress2	BitPattern
S1_RTAddressOP	Enum
S1_SRQBit	Enum
S1_SubSystFlagBit	Enum
S1_TermFlagBit	Enum

S2_BcastRcvdBit	Enum
S2_BusyBit	Enum
S2_DynBusCtrlBit	Enum
S2_InstrBit	Enum
S2_MsgErrorBit	Enum
S2_RTAddress	BitPattern
S2_RTAddress2	BitPattern
S2_RTAddressOP	Enum
S2_SRQBit	Enum
S2_SubSystFlagBit	Enum
S2_TermFlagBit	Enum
SupportsDigital	Bool
TrigOnBadManchesterEncoding	Bool
TrigOnBadWordCount	Bool
TrigOnIdleError	Bool
TrigOnInvalidSync	Bool
TrigOnNonContiguousData	Bool
TrigOnParityError	Bool
TrigOnStatusAddressMismatch	Bool
TrigOnSyncError	Bool
Type	Enum
TypeTransfer	Enum

BitRate *Double*

Range From 500000 to 4e+007 step 1000

C1_ModeCode

Enum

Values

0DynamicBusControl	
10Reserved	
11Reserved	
12Reserved	
13Reserved	
14Reserved	
15Reserved	
16TransmitVectorWord	
17Synchronize	
18TransmitLastComman	
19TransmitBITWord	
1Synchronize	
20SelectedTransmitterSh	
21OverrideSelectedTran	
22Reserved	
23Reserved	
24Reserved	
25Reserved	
26Reserved	
27Reserved	
28Reserved	
29Reserved	
2TransmitStatusWord	
30Reserved	
31Reserved	
3InitiateSelfTest	
4TransmitterShutdown	
5OverrideTransmitterShu	
6InhibitTerminalFlag	
7OverrideInhibitTerminal	
8ResetRemoteTerminal	
9Reserved	

C1_ModeCodeOP

Enum

Values

Equal	
Greater	
GreaterOrEqual	
NotEqual	
Smaller	
SmallerOrEqual	

C1_RTAddress

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

C1_RTAddress2

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

C1_RTAddressOP

Enum

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

C1_RTSubAddress

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

C1_RTSubAddress2

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

C1_RTSubAddressOP

Enum

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

C1_WordCount

Integer

Range From 0 to 31 step 1

C1_XmitRcv

Enum

Values

0	
1	
X	

C2_ModeCode

Enum

Values

0DynamicBusControl	
10Reserved	
11Reserved	
12Reserved	
13Reserved	
14Reserved	
15Reserved	
16TransmitVectorWord	
17Synchronize	
18TransmitLastComman	
19TransmitBITWord	
1Synchronize	
20SelectedTransmitterSh	
21OverrideSelectedTran	
22Reserved	
23Reserved	
24Reserved	
25Reserved	
26Reserved	
27Reserved	
28Reserved	
29Reserved	
2TransmitStatusWord	
30Reserved	
31Reserved	
3InitiateSelfTest	
4TransmitterShutdown	
5OverrideTransmitterShu	
6InhibitTerminalFlag	
7OverrideInhibitTerminal	
8ResetRemoteTerminal	
9Reserved	

C2_ModeCodeOP

Enum

Values

Equal	
Greater	
GreaterOrEqual	
NotEqual	
Smaller	
SmallerOrEqual	

C2_RTAddress

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

C2_RTAddress2

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

C2_RTAddressOP

Enum

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

C2_RTSubAddress

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

C2_RTSubAddress2

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

C2_RTSubAddressOP

Enum

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

C2_WordCount

Integer

Range From 0 to 31 step 1

C2_XmitRcv

Enum

Values

0	
1	
X	

D_PatternBitLength

Integer

Range From 0 to 16 step 1

D_PatternBitPos

Integer

Range From 0 to 511 step 1

D_PatternOperator

Enum

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

D_PatternValue

BitPattern

Range MaxBits=16 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=ByteVar Format=Ehex

D_PatternValue2 *BitPattern*

Range MaxBits=16 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=ByteVar Format=Ehex

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

IMGTimeFrom *Double*

Range From 0 to 3.2752e-005 step 8e-009

IMGTimeOperator *Enum*

Values

Greater	
InRange	
OutRange	
Smaller	

IMGTimeTo *Double*

Range From 0 to 3.2752e-005 step 8e-009

NeedDualLevels *Bool*

NeededSources *Enum*

Values

DataSource	

RespTimeFrom *Double*

Range From 0 to 3.2752e-005 step 8e-009

RespTimeOperator *Enum*

Values

Greater	
InRange	
OutRange	
Smaller	

RespTimeTo *Double*

Range From 0 to 3.2752e-005 step 8e-009

RHSRatio *Integer*

Range From 0 to 100 step 1

S1_BcastRcvdBit *Enum*

Values

0	
1	
X	

S1_BusyBit *Enum*

Values

0	
1	
X	

S1_DynBusCtrlBit *Enum*

Values

0	
1	
X	

S1_InstrBit *Enum*

Values

0	
1	
X	

S1_MsgErrorBit *Enum*

Values

0	
1	
X	

S1_RTAddress *BitPattern*

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

S1_RTAddress2 *BitPattern*

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

S1_RTAddressOP *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

S1_SRQBit *Enum*

Values

0	
1	
X	

S1_SubSystFlagBit *Enum*

Values

0	
1	
X	

S1_TermFlagBit *Enum*

Values

0	
1	
X	

S2_BcastRcvdBit *Enum*

Values

0	
1	
X	

S2_BusyBit *Enum*

Values

0	
1	
X	

S2_DynBusCtrlBit

Enum

Values

0	
1	
X	

S2_InstrBit

Enum

Values

0	
1	
X	

S2_MsgErrorBit

Enum

Values

0	
1	
X	

S2_RTAddress

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

S2_RTAddress2

BitPattern

Range MaxBits=5 NumBits=5 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

S2_RTAddressOP

Enum

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

S2_SRQBit

Enum

Values

0	
1	
X	

S2_SubSystFlagBit *Enum*

Values

0	
1	
X	

S2_TermFlagBit *Enum*

Values

0	
1	
X	

SupportsDigital *Bool*

TrigOnBadManchesterEncoding *Bool*

TrigOnBadWordCount *Bool*

TrigOnIdleError *Bool*

TrigOnInvalidSync *Bool*

TrigOnNonContiguousData *Bool*

TrigOnParityError *Bool*

TrigOnStatusAddressMismatch *Bool*

TrigOnSyncError *Bool*

Type *Enum*

Values

Error	
Timing	
Transfer	
Word	

TypeTransfer *Enum*

Values

All	
BCRTRcv	
Modecommand	
ModecommandDataRcv	
ModecommandDataXmit	
RTBCXmit	
RTRT	

RS232 *app.Acquisition.Trigger.Serial.Protocol (Standard = "RS232")*

AtPosition	Enum
BitRate	Double
ByteBitOrder	Enum
DefaultLevel	Double
FrameDelimiter	Enum
InterFrameMinBits	Integer
NeedDualLevels	Bool
NeededSources	Enum
NumDataBits	Integer
ParityType	Enum
PatternLength	Integer
PatternOperator	Enum
PatternPosition	Integer
PatternValue	BitPattern
PatternValue2	BitPattern
Polarity	Enum
RS232Mode	Bool
StopBitLength	Enum
SupportsDigital	Bool
TrigOnBadParity	Bool
UARTCondition	Enum
ViewingMode	Enum

AtPosition *Enum*

Values

Value	

BitRate *Double*

Range From 300 to 1e+007 step 1

ByteBitOrder *Enum*

Values

LSB	

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

FrameDelimiter *Enum*

Values

Manual	
None	

InterFrameMinBits *Integer*

Range From 1 to 65535 step 1

NeedDualLevels *Bool*

NeededSources *Enum*

Values

DataSource	

NumDataBits *Integer*

Range From 5 to 8 step 1

ParityType *Enum*

Values

Even	
None	
Odd	

PatternLength *Integer*

Range From 0 to 12 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternPosition *Integer*

Range From -1 to 2047 step 1

PatternValue *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=ByteVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=ByteVar Format=Ehex

Polarity *Enum*

Values

IdleLow	

RS232Mode *Bool*

StopBitLength *Enum*

Values

1.5bit	
1bit	
2bits	

SupportsDigital *Bool*

TrigOnBadParity *Bool*

UARTCondition *Enum*

Values

Data	

ViewingMode *Enum*

Values

Binary	
Hex	

SPI *app.Acquisition.Trigger.Serial.Protocol (Standard = "SPI")*

ByteBitOrder	Enum
ChipSelCondition	Enum
ClockPhase	Enum
ClockPolarity	Enum
CSPolarity	Enum
DefaultLevel	Double
EnableInterFrame	Bool
NeedDualLevels	Bool
NeededSources	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
SignType	Enum
SPIVariant	Enum
SupportsDigital	Bool
TimeOutLen	Double
ViewingMode	Enum

ByteBitOrder *Enum*

Values

LSB	
MSB	

ChipSelCondition *Enum*

Values

Auto	
Manual	

ClockPhase *Enum*

Values

0	
1	

ClockPolarity *Enum*

Values

0	
1	

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

EnableInterFrame *Bool*

NeedDualLevels *Bool*

NeededSources *Enum*

Values

ClockSource	
CSSource	
DataSource	

PatternBitLength *Integer*

Range From 0 to 96 step 1

PatternBitPos *Integer*

Range From 0 to 95 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitVar Format=Ehex

SignType *Enum*

Values

SignedInt	
UnsignedInt	

SPIVariant *Enum*

Values

DDR	
SIOP	
SPI	
SSPI	

SupportsDigital *Bool*

TimeOutLen *Double*

Range From 4e-008 to 0.0026214 step 4e-008

ViewingMode *Enum*

Values

Binary	
Hex	

UART

app.Acquisition.Trigger.Serial.Protocol (Standard = "UART")

AtPosition	Enum
Bit9State	Enum
BitRate	Double
ByteBitOrder	Enum
DefaultLevel	Double
FrameDelimiter	Enum
InterFrameMinBits	Integer
NeedDualLevels	Bool
NeededSources	Enum
NumDataBits	Integer
ParityType	Enum
PatternLength	Integer
PatternOperator	Enum
PatternPosition	Integer
PatternValue	BitPattern
PatternValue2	BitPattern
Polarity	Enum
StopBitLength	Enum
SupportsDigital	Bool
TrigOnBadParity	Bool
UARTCondition	Enum
ViewingMode	Enum

AtPosition *Enum*

Values

Value	

Bit9State *Enum*

Values

0	
1	
X	

BitRate *Double*

Range From 300 to 1e+007 step 1

ByteBitOrder *Enum*

Values

LSB	
MSB	

DefaultLevel *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0.001

FrameDelimiter *Enum*

Values

Manual	
None	

InterFrameMinBits *Integer*

Range From 1 to 65535 step 1

NeedDualLevels *Bool*

NeededSources *Enum*

Values

DataSource	

NumDataBits *Integer*

Range From 5 to 9 step 1

ParityType *Enum*

Values

Even	
None	
Odd	

PatternLength *Integer*

Range From 0 to 12 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternPosition *Integer*

Range From -1 to 2047 step 1

PatternValue *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=ByteVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=ByteVar Format=Ehex

Polarity *Enum*

Values

IdleHigh	
IdleLow	

StopBitLength *Enum*

Values

1.5bit	
1bit	
2bits	

SupportsDigital *Bool*

TrigOnBadParity *Bool*

UARTCondition *Enum*

Values

Data	

ViewingMode *Enum*

Values

Binary	
Hex	

CASCADED

app.Acquisition.Trigger.Type (Type = "Cascaded")

Level	Double
Slope	Enum
Source	Enum
StageASource	Enum
StageTypeA	Enum
StageTypeB	Enum
StageTypeC	Enum
StageTypeD	Enum

Level *Double*

Range From -4.1 to 4.1 step 0.01

Slope *Enum*

Values

Negative	
Positive	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	

StageASource *Enum*

Values

C1	
C2	
C3	
C4	
Ext	

StageTypeA *Enum*

Values

Dropout	
Edge	
Interval	
Pattern	
Runt	
SlewRate	
Width	
Window	

StageTypeB *Enum*

Values

Dropout	
Edge	
Interval	
None	
Pattern	
Runt	
SlewRate	
Width	
Window	

StageTypeC *Enum*

Values

None	

StageTypeD *Enum*

Values

None	

AEDGE

app.Acquisition.Trigger.Type (Type = "Cascaded").AEdge

Coupling	Enum
Level	Double
OptimizeForHF	Bool
Slope	Enum
Source	Enum

Coupling *Enum*

Values

AC	
DC	
HFREJ	
LFREJ	

Level *Double*

Range From -4.1 to 4.1 step 0.01

OptimizeForHF *Bool*

Slope *Enum*

Values

Negative	
Positive	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	

EDGE

app.Acquisition.Trigger.Type (Type = "Edge")

Coupling	Enum
HoldoffEvents	Integer
HoldoffTime	DoubleLockstep
HoldoffType	Enum
Level	Double
OptimizeForHF	Bool
Slope	Enum
Source	Enum

Coupling *Enum*

Values

AC	
DC	
HFREJ	
LFREJ	

HoldoffEvents *Integer*

Range From 1 to 1000000000 step 1

HoldoffTime *DoubleLockstep*

Range From 1e-009 to 20 step 2e-010, locked to 1 2.5 5, fine grain allowed=true, on=true

HoldoffType *Enum*

Values

Events	
Off	
Time	

Level *Double*

Range From -4.1 to 4.1 step 0.01

OptimizeForHF *Bool*

Slope *Enum*

Values

Either	
Negative	
Positive	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	
FastEdge	
Line	

PATTERN

app.Acquisition.Trigger.Type (Type = "Pattern")

QUALIFIED

app.Acquisition.Trigger.Type (Type = "Qualified")

Coupling	Enum
EventA	Enum
EventB	Enum
QualifyBy	Enum
Slope	Enum
Source	Enum

Coupling *Enum*

Values

AC	
DC	
HFREJ	
LFREJ	

EventA *Enum*

Values

Edge	
PatState	
Pattern	
State	

EventB *Enum*

Values

Edge	

QualifyBy *Enum*

Values

Events	
GreaterThan	
LessThan	
Off	

Slope *Enum*

Values

Either	
Negative	
Positive	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	
FastEdge	
Line	

AEDGE

app.Acquisition.Trigger.Type (Type = "Qualified").AEdge

Coupling	Enum
Level	Double
OptimizeForHF	Bool
Slope	Enum
Source	Enum

Coupling *Enum*

Values

AC	
DC	
HFREJ	
LFREJ	

Level *Double*

Range From -4.1 to 4.1 step 0.01

OptimizeForHF *Bool*

Slope *Enum*

Values

Either	
Negative	
Positive	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	

BEDGE

app.Acquisition.Trigger.Type (Type = "Qualified").BEdge

Coupling	Enum
Level	Double
OptimizeForHF	Bool
Slope	Enum
Source	Enum

Coupling *Enum*

Values

AC	
DC	
HFREJ	
LFREJ	

Level *Double*

Range From -4.1 to 4.1 step 0.01

OptimizeForHF *Bool*

Slope *Enum*

Values

Either	
Negative	
Positive	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	
FastEdge	
Line	

SERIAL

app.Acquisition.Trigger.Type (Type = "Serial")

LevelAbsolute	Double
LevelHighAbsolute	Double
Protocol	Enum

LevelAbsolute *Double*

Range From -4.1 to 4.1 step 0.01

LevelHighAbsolute *Double*

Range From -4.1 to 4.1 step 0.01

Protocol

Enum

Values

CAN	
FLX	
I2C	
I2S	
LIN	
MIL1553	
RS232	
SPI	
UART	

I2C

app.Acquisition.Trigger.Type (Type = "Serial").I2C

AckCondition	Enum
AddressLength	Enum
AddressValue	BitPattern
AddressWithRW	Bool
AtPosition	Enum
ByteBitOrder	Enum
DefaultLevel	Double
Direction	Enum
FrameCondition	Enum
NeedDualLevels	Bool
NeededSources	Enum
PatternLength	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
SupportsDigital	Bool
ViewingMode	Enum

AckCondition

Enum

Values

Ack	
NoAck	

AddressLength

Enum

Values

10Bits	
7Bits	

AddressValue

BitPattern

Range MaxBits=10 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressWithRW

Bool

AtPosition

Enum

Values

Value	

ByteBitOrder

Enum

Values

LSB	
MSB	

DefaultLevel

Double

Range From -1.79769e+308 to 1.79769e+308 step 0.001

Direction

Enum

Values

Read	
Write	

FrameCondition

Enum

Values

Addr	
AddrData	
EEPROM	
FrameLength	
NoAck	
Restart	
Start	
Stop	

NeedDualLevels

Bool

NeededSources

Enum

Values

ClockSource	
DataSource	

PatternLength

Integer

Range From 0 to 12 step 1

PatternOperator

Enum

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue

BitPattern

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=ByteVar Format=Ehex

PatternValue2

BitPattern

Range MaxBits=96 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=ByteVar Format=Ehex

SupportsDigital

Bool

ViewingMode

Enum

Values

Binary	
Hex	

SMART

app.Acquisition.Trigger.Type (Type = "Smart")

Coupling	Enum
HoldoffEvents	Integer
HoldoffTime	DoubleLockstep
HoldoffType	Enum
Level	Double
Mode	Enum
Size	Double
Slope	Enum
Source	Enum

Coupling

Enum

Values

AC	
DC	
HFREJ	
LFREJ	

HoldoffEvents *Integer*

Range From 1 to 1000000000 step 1

HoldoffTime *DoubleLockstep*

Range From 1e-301 to 1 step 1e-303, locked to 1 2.5 5, fine grain allowed=true, on=true

HoldoffType *Enum*

Values

Level *Double*

Range From -4.1 to 4.1 step 0.01

Mode *Enum*

Values

Absolute	
Relative	

Size *Double*

Range From 0.4 to 4.1 step 0.01

Slope *Enum*

Values

Window	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	

TV

app.Acquisition.Trigger.Type (Type = "TV")

Condition	Enum
Coupling	Enum

Field	Enum
FieldRate	Enum
Interlace	Enum
Level	Double
Line	Integer
LineAny	Bool
NumberOfFields	Enum
NumberOfLines	Integer
Slope	Enum
Source	Enum

Condition *Enum*

Values

1080i50	
1080i60	
1080p50	
1080p60	
720p50	
720p60	
CUSTOM	
NTSC	
PAL	

Coupling *Enum*

Values

AC	
DC	
HFREJ	
LFREJ	

Field *Enum*

Values

1	
2	
3	
4	

FieldRate *Enum*

Values

25Hz	
30Hz	
50Hz	
60Hz	

Interlace *Enum*

Values

11	
21	
41	
81	

Level *Double*

Range From -4.1 to 4.1 step 0.01

Line *Integer*

Range From 1 to 263 step 1

LineAny *Bool*

NumberOfFields *Enum*

Values

1	
2	
4	
8	

NumberOfLines *Integer*

Range From 300 to 2000 step 1

Slope *Enum*

Values

Negative	
Positive	

Source

Enum

Values

C1	
C2	
C3	
C4	
Ext	

WIDTH

app.Acquisition.Trigger.Type (Type = "Width")

Condition	Enum
Coupling	Enum
HoldoffEvents	Integer
HoldoffTime	DoubleLockstep
HoldoffType	Enum
Level	Double
RangeMode	Enum
Slope	Enum
Source	Enum
TimeHigh	Double
TimeLow	Double

Condition

Enum

Values

GreaterThan	
InRange	
LessThan	
OutOfRange	

Coupling

Enum

Values

AC	
DC	
HFREJ	
LFREJ	

HoldoffEvents

Integer

Range From 1 to 1000000000 step 1

HoldoffTime

DoubleLockstep

Range From 1e-009 to 20 step 2e-010, locked to 1 2.5 5, fine grain allowed=true, on=true

HoldoffType *Enum*

Values

Events	
Off	
Time	

Level *Double*

Range From -4.1 to 4.1 step 0.01

RangeMode *Enum*

Values

Delta	
Limits	

Slope *Enum*

Values

Negative	
Positive	

Source *Enum*

Values

C1	
C2	
C3	
C4	
Ext	

TimeHigh *Double*

Range From 2e-010 to 20 step 1e-010

TimeLow *Double*

Range From 2e-010 to 20 step 1e-010

CURSORS *app.Cursors*

This set of variables controls the cursor system.

Track	Bool
Type	Enum
View	Bool
XPos1	Double
XPos2	Double
YPos1	Double

YPos2	Double

Track

Bool

Description

Sets/Queries the state of tracking of a pair of cursors. If tracking is enabled then when the first cursor is moved, the second will track at a constant distance from it.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set cursors tracking on.
app.Cursors.Track = True
```

Type

Enum

Description

Sets/Queries the currently selected type of cursor.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the cursor type to vertical relative.
app.Cursors.View = "On"
app.Cursors.Type = "VertRel"
```

Values

HorizAbs	Single cursor, position specified in time
HorizRel	Dual cursors, positions specified in time
VertAbs	Single cursor, position specified in divisions vertically
VertRel	Dual cursors, positions specified in divisions vertically

View

Bool

Description

Sets/Queries visibility of the cursors.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Make the cursors visible.
app.Cursors.View = "On"
```

XPos1 *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

Description

Sets/Queries the horizontal position of the first cursor, in the units of the horizontal variable.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the horizontal position of the first cursor to 50 ns.
app.Cursors.XPos1 = 50e-9
```

XPos2 *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

Description

Sets/Queries the horizontal position of the second cursor, in the units of the horizontal variable.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the horizontal position of the second cursor to 4.5 ms.
app.Cursors.XPos2 = 4.5e-3
```

YPos1 *Double*

Range From -3.99 to 3.99 step 0.01

Description

Sets/Queries the vertical position of the first cursor, in graticule divisions.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the vertical position of the first cursor.
app.Cursors.YPos1 = 3.4
```

YPos2 *Double*

Range From -3.99 to 3.99 step 0.01

Description

Sets/Queries the vertical position of the second cursor, in graticule divisions.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the vertical position of the second cursor.
app.Cursors.YPos2 = 2.1
```

DISPLAY *app.Display*

This set of variables controls the properties of the screen display of the instrument.

AxisLabels	Bool
AxisXRotation	Integer
AxisYRotation	Integer
Brightness	Integer
C1Color	Color
C1PrintColor	Color
C2Color	Color
C2PrintColor	Color
C3Color	Color
C3PrintColor	Color
C4Color	Color
C4PrintColor	Color
ClearSweeps	Action
DisplayMode	Enum
F1Color	Color
F1PrintColor	Color
F2Color	Color
F2PrintColor	Color
F3Color	Color
F3PrintColor	Color
F4Color	Color
F4PrintColor	Color
F5Color	Color
F5PrintColor	Color
F6Color	Color
F6PrintColor	Color
F7Color	Color
F7PrintColor	Color
F8Color	Color
F8PrintColor	Color
FactoryDefault	Action
GridIntensity	Integer
GridMode	Enum
GridOnTop	Bool
LockPersistence	Enum
M1Color	Color
M1PrintColor	Color
M2Color	Color
M2PrintColor	Color
M3Color	Color
M3PrintColor	Color
M4Color	Color
M4PrintColor	Color
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool

Persistence3d	Bool
PersistenceLastTrace	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceStyle	Enum
PersistenceTime	Enum
PreviewPrintColors	Action
ResetAll	Action
SegmentMode	Enum
TraceIntensity	Double
TraceStyle	Enum

AxisLabels

Bool

Description

Sets/Queries the visibility of the labels that show the horizontal and vertical limits of each grid.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Show the axis labels.
app.Display.AxisLabels = True
```

AxisXRotation

Integer

Range From -90 to 90 step 1

Description

Sets/Queries the rotation angle, about the X-axis, of the 3-D persistence display. The X-axis runs horizontally in the plane of the screen. Positive or negative angles may be used. Positive or negative angles may be used, in the range - 90 to + 90 degrees. Zero produces a direct plan, viewed perpendicularly. Zero produces a direct plan view, if Y rotation is also zero.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the rotation about the X axis to 45 degrees.
app.Display.AxisXRotation = 45
```

AxisYRotation

Integer

Range From -90 to 90 step 1

Description

Sets/Queries the rotation angle, about the Y-axis, of the 3-D persistence display. The Y-axis runs vertically in the plane of the screen. Positive or negative angles may be used, in the range - 90 to + 90 degrees.
A positive angle makes the left side look closer than the right side. Zero produces a direct plan view, if X rotation is also zero.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the rotation about the Y axis to 35 degrees.
app.Display.AxisYRotation = 35
```

Brightness

Integer

Range From 30 to 100 step 1

Description

LCD Display Brightness, only used on older WaveRunner 6000 DSOs.

C1Color

Color

Range From 0 to 16777215

Description

Sets/Queries the color of trace C1, using a number in the range 0 to FFFFFF in hexadecimal. The possible colors are made from any combination of the primary colors, which are set in hexadecimal as Blue = &HFF0000, Green = &HFF00, Red = &HFF. The value may be entered in decimal or in hexadecimal, though hexadecimal is usually more convenient. Note that if the intensity of a color is to be reduced or increased by a numerical factor, an AND operation must be used afterwards, to prevent corruption of other primary colors.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

Red = &Hff: Green = &H80: Blue = &H00

' Set the color of channel C1 trace to orange
app.Display.C1Color = (Blue * &H10000) + (Green * &H100) + Red
```

C1PrintColor

Color

Range From 0 to 16777215

Description

Sets/Queries the color, in the printing palette, of trace C1, using a number in the range 0 to FFFFFF in hexadecimal. The primary colors are Blue = &HFF0000, Green = &HFF00, Red = &HFF in hexadecimal.
The value may be entered in decimal or in hexadecimal.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

Red = &Hff: Green = &H80: Blue = &H00

' Set the color of channel C1 trace to orange for printing.
app.Display.C1PrintColor = (Blue * &H10000) + (Green * &H100) + Red
```

C2Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

C2PrintColor

Color

Range From 0 to 16777215

Description

Please see C1Printcolor.

C3Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

C3PrintColor

Color

Range From 0 to 16777215

Description

Please see C1Printcolor.

C4Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

C4PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

ClearSweeps *Action*

Description

Initiates the Clear Sweeps operation. Clears history only for persistence traces, see the main Clear Sweeps control 'app.ClearSweeps', or the ClearSweeps control in other subsystems for other options.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Initiate a clear sweeps action for persistence traces.
app.Display.ClearSweeps
```

DisplayMode *Enum*

Description

Sets/Queries the display mode as either "Scope", showing the normal instrument screen, or "WebEdit", showing the web processor editing panel. Note that WebEdit mode is available only with certain software options, including XMATH and XMAP.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Switch to WebEdit mode
app.Display.DisplayMode = "WebEdit"
```

Values

Scope	
WebEdit	

F1Color *Color*

Range From 0 to 16777215

Description

Please see C1Color.

F1PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

F2Color *Color*

Range From 0 to 16777215

Description

Please see C1Color.

F2PrintColor

Color

Range From 0 to 16777215

Description

Please see C1Printcolor.

F3Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

F3PrintColor

Color

Range From 0 to 16777215

Description

Please see C1Printcolor.

F4Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

F4PrintColor

Color

Range From 0 to 16777215

Description

Please see C1Printcolor.

F5Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

F5PrintColor

Color

Range From 0 to 16777215

Description

Please see C1Printcolor.

F6Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

F6PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

F7Color *Color*

Range From 0 to 16777215

Description

Please see C1Color.

F7PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

F8Color *Color*

Range From 0 to 16777215

Description

Please see C1Color.

F8PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

FactoryDefault *Action*

Description

Restores the display of the instrument to the factory default settings

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Restore the display to the factory pre-set state.
app.Display.FactoryDefault
```

GridIntensity

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the grid intensity as a percentage of the maximum value, with a resolution of 1%.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the grid intensity to 60% of the maximum.
app.Display.GridIntensity = 60
```

GridMode

Enum

Description

Sets/Queries the grid mode. The commands "Single" and "Dual", for example, set the grid mode until countermanded. "Auto" allows the instrument to set the grid mode most suitable for the current number of visible traces.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Enter Octal grid mode
app.Display.GridMode = "Octal"
```

Values

Auto	Automatically choose grid mode, one trace per grid
Dual	Dual grid mode
Hex	
Octal	Octal grid mode
Quad	Quad grid mode
Quattro	
Single	Single grid mode
Tandem	
Triple	
XY	XY grid mode
XYDual	XY + Dual grid mode
XYSingle	XY + Single grid mode

GridOnTop

Bool

Description

Sets/Queries whether the grid lines lie over the traces or vice versa.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the grid lines to be over the trace lines.
app.Display.GridOnTop = True
```

LockPersistence *Enum*

Description

Sets/Queries whether the persistence states of the visible traces are locked together or separate.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence display to per trace, not locked.
app.Display.LockPersistence = "PerTrace"
```

Values

AllLocked	
PerTrace	

M1Color *Color*

Range From 0 to 16777215

Description

Please see C1Color.

M1PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

M2Color *Color*

Range From 0 to 16777215

Description

Please see C1Color.

M2PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

M3Color *Color*

Range From 0 to 16777215

Description

Please see C1Color.

M3PrintColor *Color*

Range From 0 to 16777215

Description

Please see C1Printcolor.

M4Color

Color

Range From 0 to 16777215

Description

Please see C1Color.

M4PrintColor

Color

Range From 0 to 16777215

Description

Please see C1Printcolor.

Persist3DQuality

Enum

Description

Sets/Queries the type of 3D plot that is displayed

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the type of the 3-D persistence plot.
app.Display.Persist3DQuality = "WireFrame"
```

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries whether persistence mode is in use. If the previously set persistence mode is per trace, the persisted cvar will be set as true by this command, even if none of the traces has been set to persistence mode.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the state of persistence mode.
Persist = app.Display.Persisted
```

Persistence3d

Bool

Description

Sets/Queries whether the persistence 3-D mode is activated.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the 3-D display to off.
app.Display.Persistence3d = False
```

PersistenceLastTrace

Bool

Description

Sets/Queries whether the last created trace is shown over the persistence trace.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence display to show the last trace
' on top of the persistence trace.
app.Display.PersistenceLastTrace = True
```

PersistenceMonoChrome

Bool

Description

Sets/Queries whether the persistence mode is monochrome.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence mode as color.
app.Display.PersistenceMonoChrome = False
```

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the population level, relative to the maximum possible level, at which the persistence traces reach maximum intensity, and above which there are no further changes in color or intensity.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence saturation level to 60%.
app.Display.PersistenceSaturation = 60
```

PersistenceStyle *Enum*

Description

Sets/Queries the type of persistence trace displayed.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence style to color graded.
app.Display.PersistenceStyle = "ColorGraded"
```

Values

3d	
Analog	
ColorGraded	

PersistenceTime *Enum*

Description

Sets/Queries decay time for trace persistence, expressed as a number of seconds, or as "infinity".

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence time to 10 seconds.
app.Display.PersistenceTime = "10s"
```

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

PreviewPrintColors *Action*

Description

Show the instrument display in the current color scheme selected for printing.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Show the current color scheme selected for printing.
app.Display.PreviewPrintColors
```

ResetAll *Action*

Description

Turns off persistence on any traces where it has been set on.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Reset all persistence traces to non-persisted mode.
app.Display.ResetAll
```

SegmentMode *Enum*

Description

Sets/Queries the display mode for segmented input channels. All visible channels are set to the same display mode by a single command.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the display mode for segments in C2 to perspective.
app.Acquisition.C2.SegmentMode = "Perspective"
```

Values

Adjacent	All segments displayed end-to-end, left to right
Mosaic	Segments displayed in a mosaic, top-left to bottom right
Overlay	Segments are overlaid, similar to persistence
Perspective	Segments are displayed in a perspecfive view
Waterfall	Successive segments are displayed with increasing vertical offset

TraceIntensity *Double*

Range From 1 to 100 step 1

Description

Control the intensity of traces.

TraceStyle *Enum*

Description

Sets/Queries the style in which traces are drawn.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the state of the persistence mode.
TraceStyle = app.Display.TraceStyle
```

Values

Line	Connect adjacent samples with straight lines
Points	Show only the sample points

ELECTRICALTELECOM *app.ElectricalTelecom*

Root Automation node to control Electrical Telecom (ET-PMT) package. This package is performing Pulse Mask Test on diferent SONET/SDH standards.

ClearSweeps	Action
Polarity	Enum
Run	Action
Setup	Action
Source	Enum
Standard	Enum
Stop	Action
StopAfter	Integer
StopTesting	Bool
VerticalAlign	Action

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard, run the test and get results after a while
app.ElectricalTelecom.Standard = "E1Tp"
app.ElectricalTelecom.Source = "C2"
app.ElectricalTelecom.Setup
app.ElectricalTelecom.Run
app.Sleep 10000
app.ElectricalTelecom.Pause
passed = CStr(app.ElectricalTelecom.NumPass)
tested = CStr(app.ElectricalTelecom.NumTested)
MsgBox passed + " passed of " + tested + " tests"
```

ClearSweeps *Action*

Description

The ClearSweeps allows you to reset the sweep count and start testing over again.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")
```

```
'Select an stadard, run the test and clear the counter after a while
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Setup
app.ElectricalTelecom.Run
app.Sleep 5000
app.ElectricalTelecom.Pause
app.Sleep 5000
app.ElectricalTelecom.ClearSweeps
```

Polarity *Enum*

Description

In many electrical standards, such as DS-1, alternate “ones” are inverted. Each time a one is transmitted it is either a positive or negative going pulse depending upon the polarity of the previous one. This type of coding is referred to as AMI (alternate mark inversion). The Polarity control allows you to select which polarity (positive or negative) pulse to test.
The STS-3E and STM-1E standards use CMI (code mark inversion) pulse coding. In CMI coding, a one remains high for the full bit period while a zero has a transition to the low state in the middle of the bit period. The Polarity control allows you to select whether a 1 or 0 is to be tested.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select a stadard and set polarity to 'neg'
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Polarity = "neg"
app.ElectricalTelecom.Setup
```

Values

neg	Negative pulse
pos	Positive pulse

Run *Action*

Description

The Setup button applies the appropriate settings to the oscilloscope for testing the selected standard. Different standards require a particular termination, and an error message will appear at the bottom of the oscilloscope screen if the wrong (or no) adapter is present. However, this error will not prevent the instrument from making the measurement; that is, measurements can be made without the specific adapters. But if the signal is out of range for the standard, the setup operation will generate an error message and the Run button will be grayed out. The signal will appear on the screen, but no testing will be possible.
Before the Setup button is pressed, the Run and Clear Sweeps buttons appear grayed out. These buttons become available (not grayed out) upon successful completion of a setup. At that time, a Re-Align button will replace the Setup button.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard and run the test
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Setup
app.ElectricalTelecom.Run
app.Sleep 5000
app.ElectricalTelecom.Pause   'pause the test after 5 seconds
app.Sleep 5000
app.ElectricalTelecom.Run     'and continue after 5 other seconds
```

Setup *Action*

Description

After the Telecom Standard has been choosed, the Source set, the 'Setup' command will perform all acquisition setup, make the appropriate alignments and make test ready to run.
This is one of the action to control the state machine of Mask Testing : Setup, ReAlign, Stop, Pause, Run and VerticalAlign.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard and run the test
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Setup
app.ElectricalTelecom.Run
app.Sleep 5000
app.ElectricalTelecom.Pause   'pause the test after 5 seconds
```

Source *Enum*

Description

Specify on which channel (C1 to C4) the electrical signal to be tested is connected.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard and the source
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Source = "C4"
app.ElectricalTelecom.Setup
```

Values

C1	
C2	
C3	
C4	

Standard *Enum*

Description

Select the Telecom Standards that will be used to make alignments and mask test.
Available standards are listed in the 'Standard' field of this database :
D:\Masks\PulseMasksProp.mdb. (whithout spaces and special characters).

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard and the source
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Source = "C4"
app.ElectricalTelecom.Setup
```

Values

DS1	ANSI T1 DS1 standard on 100 ohm line (using AP100)
DS3	ANSI T1 DS3 standard on 75 ohm coax (using PP090 probe)
E1coax	ITU-T E1 on 75 ohm coax (using PP090 probe)
E1TP	ITU-T E1 on 120 ohm twisted pairs (using AP120 probe)
E2	ITU-T E2 on 75 ohm coax (using PP090 probe)
E3	ITU-T E3 on 75 ohm coax (using PP090 probe)
E4	ITU-T E4 on 75 ohm coax (using PP090 probe)
Off	
STM1E	ITU-T STM-1E on 75 ohm coax (using PP090 probe)
STS1	ANSI T1 STS-1 on 75 ohm coax (using PP090 probe)
STS3E	ANSI T1 STS-3E on 75 ohm coax (using PP090 probe)

Stop

Action

Description

Stop the test and reset counters. After this command, a new 'Setup' must be made.
This is one of the action to control the state machine of Mask Testing : Setup, ReAlign, Stop, Pause, Run and VerticalAlign.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard and run the test
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Setup
app.ElectricalTelecom.Run
app.Sleep 5000
app.ElectricalTelecom.Pause   'pause the test after 5 seconds
app.Sleep 5000
app.ElectricalTelecom.Stop    'Stop the test
```

StopAfter

Integer

Range From 1 to 1000000000 step 1

Description

If app.ElectricalTelecom.StopTesting is "On", this specify the number of sweeps that will be done before test will be stopped. After that, counters could be read.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard, run the test and stop after 1000 sweeps
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Source = "C2"
app.ElectricalTelecom.Polarity = "pos"
app.ElectricalTelecom.StopAfter = 1000
app.ElectricalTelecom.StopTesting = "On"
app.ElectricalTelecom.Setup
app.ElectricalTelecom.Run
do while app.ElectricalTelecom.TestState <> "Pause"
  app.Sleep 500
loop
passed = CStr(app.ElectricalTelecom.NumPass)
tested = CStr(app.ElectricalTelecom.NumTested)
MsgBox passed + " passed of " + tested + " tests"
```

StopTesting

Bool

Description

If this mode is "On", the test will stop after 'app.ElectricalTelecom.StopAfter' sweeps.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.WaveMasterApplication.1")

'Select an stadard, run the test and stop after 1000 sweeps
app.ElectricalTelecom.Standard = "E1Coax"
app.ElectricalTelecom.Source = "C2"
app.ElectricalTelecom.Polarity = "pos"
app.ElectricalTelecom.StopAfter = 1000
app.ElectricalTelecom.StopTesting = "On"
app.ElectricalTelecom.Setup
app.ElectricalTelecom.Run
do while app.ElectricalTelecom.TestState <> "Pause"
  app.Sleep 500
loop
passed = CStr(app.ElectricalTelecom.NumPass)
tested = CStr(app.ElectricalTelecom.NumTested)
MsgBox passed + " passed of " + tested + " tests"
```

VerticalAlign

Action

Description

For test that allow that, it's possible to perform a Vertical re-alignment .

ET

app.ElectricalTelecom.ET

Aligned waveform output of Electrical Telecom package. From there, all it's diplay settings can be changed. See "executive setup" chapter for more details.

AxisXRotation	Integer
AxisYRotation	Integer
BipolarLevel	Double
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
LFCutoff	Double
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
Source	Enum
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

BipolarLevel *Double*

Range From -100 to 100 step 1e-005

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

LFCutoff *Double*

Range From 1 to 5e+010 step 4

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

Source *Enum*

Values

C1	
C2	
C3	
C4	

UseGrid *String*

Range Any number of characters

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.ElectricalTelecom.ET.Out.Result

HARDCOPY

app.HardCopy

This set of variables controls the transfer of information about the screen display to destinations such as such as disc files, internal memories, printers and remote computers.

Destination	Enum
EMailMessage	String
GridAreaOnly	Bool
HardcopyArea	Enum
Orientation	Enum
PreferredFilename	String
Print	Action
PrintLogo	Bool
SelectedPrinter	Enum
StripChart	Bool
StripChartFactor	Enum
UseColor	Enum

Destination

Enum

Description

Sets/Queries the destination for hard copy.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the destination for hard copy to e-mail.
app.Hardcopy.Destination = "EMail"
```

Values

Clipboard	Send to clipboard for pasting into other applications
EMail	Send image in an E-Mail
File	Store image in a file
Printer	Print to a local, or networked printer
Remote	Special case used for remote printing, not usually used

EMailMessage

String

Range

Any number of characters

Description

Sets/Queries the e-mail message.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Create the e-mail message - "Results for run 89".
app.Hardcopy.EMailMessage = "Results for run 89"
```

GridAreaOnly

Bool

Description

Sets/Queries whether hard copy is of grid area only.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the status of Grid Area Only.
GridArea = app.Hardcopy.GridAreaOnly
```

HardcopyArea

Enum

Description

Sets/Queries the area of the screen to be included in a hard copy.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Select the DSO screen area for hard copy.
app.Hardcopy.HardCopyArea = "DSOWindow"
```

Values

DSOWindow	Include only the DSO window
FullScreen	Include the full display screen
GridAreaOnly	Include the grid area only (doesn't include menus)

Orientation

Enum

Description

Sets/Queries the orientation for hard copy to landscape.
Valid only when emitting to a printer as opposed to a file, the clipboard, or an E-Mail.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the orientation for hardcopy to landscape.
app.Hardcopy.Orientation = "Landscape"
```

Values

Landscape	
Portrait	

PreferredFilename *String*

Range Any number of characters

Description

Sets/Queries the preferred file name to use for hard copy.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the preferred filename to PrintFile.
app.Hardcopy.PreferredFilename = "PrintFile"
```

Print *Action*

Description

Initiates a hard copy.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Initiate a hard copy.
app.Hardcopy.Print
```

PrintLogo *Bool*

Description

Control whether the LeCroy logo will be superimposed on hardcopies.

SelectedPrinter *Enum*

Description

Sets/Queries the selection of the printer for hard copy. Note that whitespace and punctuation are removed from the string.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Select BarbondaleTintJet as the printer for hardcopy
app.Hardcopy.SelectedPrinter = "BarbondaleTintJet"
```

Values

StripChart *Bool*

Description

Sets/Queries the status of strip chart mode of printing. Valid only when emitting to the internal printer.

StripChartFactor *Enum*

Description

Sets/Queries the scale factor for strip chart printing. Valid only when emitting to the internal printer.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the strip chart scale to 5 cm/division.
app.Hardcopy.StripChartFactor = "5cmdiv"
```

Values

100cmdiv	
10cmdiv	
1cmdiv	
200cmdiv	
20cmdiv	
2cmdiv	
50cmdiv	
5cmdiv	

UseColor *Enum*

Description

Defines the color scheme to be used when printing.

Values

BW	Optimized for black and white printers
Print	Use print colors (white background)
Std	As presented on DSO display

LABNOTEBOOK *app.LabNotebook*

Provides access to the 'LabNotebook' feature. This allows the entire scope state (Waveforms, Setups, Display Images) to be stored, annotated, recalled, emailed, etc.

AttachFilesToEMail	Bool
BackupDatabase	Action
BackupFilename	String
BackupFolder	FileName
BackupToFolder	Action
BackupToMemoryStick	Action
ClearFilter	Action
CompactDatabase	Action
CreateReport	Action
DeleteAll	Action
DeleteRecord	Action
EMailRecord	Action
FilterRecords	Action

FlashBackToRecord	Action
Format	Enum
HardcopyArea	Enum
InternalView	Action
MyLabNotebookMD	FileName
NextRecord	Action
PreviousRecord	Action
PrintRecord	Action
PromptBeforeSaving	Bool
RecordList	Enum
ReportLogo	FileName
ReportsDirectory	FileName
Save	Action
ScribbleBeforeSaving	Bool
StartNew	Action
UseDefaultLogo	Bool
UseDefaultTemplate	Bool
UsePrintColor	Bool
ViewRecord	Action
XSLTemplate	FileName

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Save the current state of the DSO into the Notebook
app.LabNotebook.ScribbleBeforeSaving = False
app.LabNotebook.PromptBeforeSaving = False
app.LabNotebook.Save

' Create a PDF report, and store it in the root of drive
C:app.LabNotebook.ReportsDirectory = "C:\"
app.LabNotebook.Format = "PDF"
app.LabNotebook.CreateReport

' Send the report in an email
app.Preferences.Email.Mode = "SMTP"
app.Preferences.Email.DefaultRecipient = "somebody@somewhere.com"
app.LabNotebook.EMailRecord
```

AttachFilesToEMail *Bool*

Description

If true, the DSO Setup, and all enabled waveforms will be attached to any emailed report.

BackupDatabase *Action*

Description

Backup the current LabNotebook database. Note that this control will present a modal dialog, prompting for the backup filename and folder.
Use the BackupToFolder control to skip the dialog.

BackupFilename *String*

Range Any number of characters

Description

Contains the filename into which the LabNotebook is stored, when the BackupDatabase request is made.

BackupFolder *FileName*

Range Any number of characters

Description

Contains the folder into which the LabNotebook is stored, when the BackupDatabase request is made.

BackupToFolder *Action*

Description

Create a backup of the current LabNotebook database into the file specified by the BackupFolder/BackupFilename controls.

BackupToMemoryStick *Action*

Description

Create a backup of the current LabNotebook database into a file on an attached memory stick.

ClearFilter *Action*

Description

Clear the NoteBook entry filter.

CompactDatabase *Action*

Description

Compact the LabNotebook database. Useful if entries have been deleted from the database, to reclaim disk space.

CreateReport *Action*

Description

Create a report (PDF/RTF/HTML) of the currently selected notebook entry.

DeleteAll *Action*

Description

Delete all LabNotebook entries.
Note that this action will popup a modal dialog, requesting confirmation.

DeleteRecord *Action*

Description

Delete the currently selected LabNotebook record.
Note that this will popup a modal dialog requesting confirmation.

EMailRecord *Action*

Description

Email the currently selected record, in the selected format (PDF/RTF/HTML), to the recipient specified in the email setup (app.Preferences.Email).

FilterRecords *Action*

Description

Popup a dialog proposing various filtering methods, including date, and/or keword based filters.

FlashBackToRecord *Action*

Description

Restore (FlashBack) the scope to the state that it was in when the current lab notebook entry was saved.
This may include the setup, and active waveforms.

Format *Enum*

Description

File Format in which exported reports are saved.

Values

HTML	
PDF	Adobe Acrobat file
RTF	Rich-text file (MS Wordpad, Word, etc.)

HardcopyArea *Enum*

Description

Defines the region of the display that is stored when creating a new entry in the notebook.

Values

DSOWindow	Contents of DSO window, incl. dialog + menu bar
FullScreen	Entire windows display area
GridAreaOnly	Grid area only

InternalView *Action*

Description

View the selected Lab Notebook entry within the DSO's graticule area.
Contrast with the 'ViewRecord' control, which presents the selected Lab Notebook entry in an external HTML browser.

MyLabNotebookMD *FileName*

Range Any number of characters

Description

Filename of the currently active Lab Notebook database.

NextRecord *Action*

Description

Move to (select) the next entry in the notebook.

PreviousRecord *Action*

Description

Move to (select) the previous entry in the notebook.

PrintRecord *Action*

Description

Print the selected Lab Notebook entry. This action will present a popup allowing the target printer to be selected .

PromptBeforeSaving *Bool*

Description

If true, the DSO will prompt the interactive user for a summary, and description, before the notebook entry is created.

RecordList *Enum*

Description

The list of entries in the Lab Notebook, named using a GUID.

Values

ReportLogo *FileName*

Range Any number of characters

Description

Contains the full pathname of the logo which will appear on Lab Notebook pages.

ReportsDirectory *FileName*

Range Any number of characters

Description

The directory in which Lab Notebook reports are created.

Save *Action*

Description

Initiate the creation of a new Lab Notebook entry.

ScribbleBeforeSaving *Bool*

Description

If True, the DSO will allow the interactive user to 'scribble' (annotate) the report page before it is saved.

StartNew *Action*

Description

Start a new Lab Notebook. This action will prompt the interactive user for the filename of the new Lab Notebook database file.

UseDefaultLogo *Bool*

Description

If True, the default logo is used on Lab Notebook pages. If False, the logo specifeid by the ReportLogo control is used instead.

UseDefaultTemplate *Bool*

Description

If True, the default xsl template is used when creating reports from LabNotebook pages.
If False, the template file specified by the XSLTemplate control is used instead.

UsePrintColor *Bool*

Description

If True, 'print colors' are used when storing an image of the display. These use a white background, as opposed to black, to save toner/ink.

ViewRecord *Action*

Description

View the selected Lab Notebook entry in an external HTML browser.
Contrast with the 'ViewInternal' control, which presents the selected Lab Notebook entry within the DSO's graticule area.

XSLTemplate *FileName*

Range Any number of characters

Description

Filename of the XSL template used in creating reports from Lab Notebook pages.

LOGICANALYZER *app.LogicAnalyzer*

CombinedChannels	Enum
LineNames	String
MSxxHysteresis0	Double
MSxxHysteresis1	Double
MSxxHysteresis2	Double
MSxxHysteresis3	Double
MSxxLogicFamily0	Enum
MSxxLogicFamily1	Enum
MSxxLogicFamily2	Enum
MSxxLogicFamily3	Enum
MSxxThreshold0	Double
MSxxThreshold1	Double
MSxxThreshold2	Double

MSxxThreshold3	Double

CombinedChannels *Enum*

Description

Select MS-500 operation mode. In "2Combine", sampling rate is up to 2 GS/s and you can use up to 18 digital input lines. In "NoCombine", sampling rate is up to 1 GS/s and you can use up to 36 digital input lines.

Values

2Combine	
NoCombine	

LineNames *String*

Range Any number of characters

Description

List of Digital Line Names

MSxxHysteresis0 *Double*

Range From 0.5 to 0.5 step 0.02

Description

The minimum high voltage level is user definable by the hysteresis control up to 1.4 V above the threshold. The maximu low voltage level is user definable by the hysteresis control up to 1.4 V below the threshold. The minimum hysteresis is 100 mV.

MSxxHysteresis1 *Double*

Range From 0.5 to 0.5 step 0.02

MSxxHysteresis2 *Double*

Range From 0.5 to 0.5 step 0.02

MSxxHysteresis3 *Double*

Range From 0.5 to 0.5 step 0.02

MSxxLogicFamily0 *Enum*

Description

You can select various Logic Families, or select User Defined and define a custom threshold crossing.

Values

CMOS2.5V	
CMOS3.3V	
CMOS5V	
ECL	
LVDS	
PECL5V	
TTL	
UserDefined	

MSxxLogicFamily1 *Enum*

Values

CMOS2.5V	
CMOS3.3V	
CMOS5V	
ECL	
LVDS	
PECL5V	
TTL	
UserDefined	

MSxxLogicFamily2 *Enum*

Values

CMOS2.5V	
CMOS3.3V	
CMOS5V	
ECL	
LVDS	
PECL5V	
TTL	
UserDefined	

MSxxLogicFamily3 *Enum*

Values

CMOS2.5V	
CMOS3.3V	
CMOS5V	
ECL	
LVDS	
PECL5V	
TTL	
UserDefined	

MSxxThreshold0 *Double*

Range From 1.5 to 1.5 step 0.02

Description

If you select User Defined Logic Family, then you will be able to define the voltage level of threshold. The threshold level determines how the input signal is interpreted. Input voltages less than the threshold are converted to '0'. Input voltages greater than the threshold are converted to '1'.

MSxxThreshold1 *Double*

Range From 1.5 to 1.5 step 0.02

MSxxThreshold2 *Double*

Range From 1.5 to 1.5 step 0.02

MSxxThreshold3 *Double*

Range From 1.5 to 1.5 step 0.02

DIGITALX *app.LogicAnalyzer.Digitalx*

BusName	String
Digital0	Bool
Digital1	Bool
Digital2	Bool
Digital3	Bool
Digital4	Bool
Digital5	Bool
Digital6	Bool
Digital7	Bool
Digital8	Bool
DisplayMode	Enum
LineHeight	Double
LineNames	String
PersistDotJoined	Bool
UseGrid	String

VerPosition	Double
View	Bool

BusName *String*

Range Any number of characters

Digital0 *Bool*

Digital1 *Bool*

Digital2 *Bool*

Digital3 *Bool*

Digital4 *Bool*

Digital5 *Bool*

Digital6 *Bool*

Digital7 *Bool*

Digital8 *Bool*

DisplayMode *Enum*

Values

Collapse	
Expand	

LineHeight *Double*

Range From 0.2 to 10 step 0.02

LineNames *String*

Range Any number of characters

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

UseGrid

String

Range Any number of characters

VerPosition

Double

Range From -3.8 to 10 step 0.05

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.LogicAnalyzer.Digitalx.Out.Result

PATTERN

app.LogicAnalyzer.Pattern

DigitalPatternArrayLogic0	Enum
DigitalPatternArrayLogic1	Enum
DigitalPatternArrayLogic10	Enum
DigitalPatternArrayLogic11	Enum
DigitalPatternArrayLogic12	Enum
DigitalPatternArrayLogic13	Enum
DigitalPatternArrayLogic14	Enum
DigitalPatternArrayLogic15	Enum
DigitalPatternArrayLogic16	Enum
DigitalPatternArrayLogic17	Enum
DigitalPatternArrayLogic18	Enum
DigitalPatternArrayLogic19	Enum

DigitalPatternArrayLogic2	Enum
DigitalPatternArrayLogic20	Enum
DigitalPatternArrayLogic21	Enum
DigitalPatternArrayLogic22	Enum
DigitalPatternArrayLogic23	Enum
DigitalPatternArrayLogic24	Enum
DigitalPatternArrayLogic25	Enum
DigitalPatternArrayLogic26	Enum
DigitalPatternArrayLogic27	Enum
DigitalPatternArrayLogic28	Enum
DigitalPatternArrayLogic29	Enum
DigitalPatternArrayLogic3	Enum
DigitalPatternArrayLogic30	Enum
DigitalPatternArrayLogic31	Enum
DigitalPatternArrayLogic32	Enum
DigitalPatternArrayLogic33	Enum
DigitalPatternArrayLogic34	Enum
DigitalPatternArrayLogic35	Enum
DigitalPatternArrayLogic4	Enum
DigitalPatternArrayLogic5	Enum
DigitalPatternArrayLogic6	Enum
DigitalPatternArrayLogic7	Enum
DigitalPatternArrayLogic8	Enum
DigitalPatternArrayLogic9	Enum
MSxxDigitalTriggerSet	Enum
MSxxDigitalTriggerType	Enum
PatternType	Enum
StateBottomArrayC1	Enum
StateBottomArrayC2	Enum
StateBottomArrayC3	Enum
StateBottomArrayC4	Enum
StateBottomArrayExt	Enum
TriggerPattern	String

DigitalPatternArrayLogic0 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic1 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic10 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic11 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic12 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic13 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic14 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic15 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic16 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic17 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic18 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic19 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic2 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic20 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic21 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic22 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic23 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic24 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic25 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic26 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic27 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic28 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic29 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic3 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic30 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic31 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic32 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic33 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic34 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic35 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic4 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic5 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic6 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic7 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic8 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

DigitalPatternArrayLogic9 *Enum*

Values

DontCare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

MSxxDigitalTriggerSet *Enum*

Values

Dontcare	
EitherEdge	
FallingEdge	
One	
RisingEdge	
Zero	

MSxxDigitalTriggerType *Enum*

Values

Logic	
LogicBus	

PatternType *Enum*

Values

And	
Nand	
Nor	
Or	

StateBottomArrayC1 *Enum*

Values

DontCare	
High	
Low	

StateBottomArrayC2 *Enum*

Values

DontCare	
High	
Low	

StateBottomArrayC3 *Enum*

Values

DontCare	
High	
Low	

StateBottomArrayC4 *Enum*

Values

DontCare	
High	
Low	

StateBottomArrayExt *Enum*

Values

DontCare	
High	
Low	

TriggerPattern *String*

Range Any number of characters

Variables of the form app.Math.xxxx control the mathematical functions F1 through F8.

Names of the form app.Math.Functions("Fx").xxxx are aliases of simpler names which are described in this section of the manual. Examples of alias pairs are as follows -
app.Math.Functions("Fx") is equivalent to app.Math.Fx
app.Math.Functions("Fx").Out.Result is equivalent to app.Math.Fx.Out.Result
app.Math.Functions("Fx").Zoom is equivalent to app.Math.Zoom.Fx
Please see under Acquisition.Channels for a programming example.

ClearSweeps	Action
ResetAll	Action
ShowZoomMenu	Action

ClearSweeps *Action*

Description

Clear sweeps for history functions such as average, histogram and trend. See also the general 'app.ClearSweeps' control which clears accumulated data for all subsystems, including persistence, measurement statistics, etc.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Clear sweeps for all history functions.
app.Math.ClearSweeps
```

ResetAll *Action*

Description

Reset the math subsystem to its default state.
All currently selected math operators, and other settings will be lost.

ShowZoomMenu *Action*

Description

Present the Zoom setup Menu (to setup the Zoom (Z) traces).

FUNCTIONS *app.Math.Functions*

Names of the form app.Math.Functions("Fx").xxxx are aliases of simpler names which are described in the section of the manual which is devoted to app.Math. Examples of alias pairs are as follows -
app.Math.Functions("Fx") is equivalent to app.Math.Fx
app.Math.Functions("Fx").Out.Result is equivalent to app.Math.Fx.Out.Result
app.Math.Functions("Fx").Zoom is equivalent to app.Math.Zoom.Fx
Please see under Acquisition.Channels for a programming example.

FX *app.Math.Fx*

This set of variables controls the math functions F1 through F8.

AxisXRotation	Integer

AxisYRotation	Integer
ClearSweeps	Action
DoResetZoom	Action
DoStoreToMemoryTrace	Action
Equation	String
LabelsPosition	String
LabelsText	String
MathMode	Enum
Operator1	Enum
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
Source1	Enum
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

Description

Sets/Queries the state of the X Axis rotation control, used only in 3d persistence modes to control the apparent viewing position. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

Set the rotation about the X-axis to 35 degrees for trace F3.
app.Acquisition.F3.AxisXRotation = 35
```

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

Sets/Queries the state of the Y Axis rotation control, used only in 3d persistence modes to control the apparent viewing position. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

Set the rotation about the Y-axis to 25 degrees for trace F3.
app.Acquisition.F3.AxisYRotation = 25
```

ClearSweeps *Action*

Description

Clears accumulated data for a single function trace.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Reset accumulation for trace F1
app.Math.F1.ClearSweeps
```

DoResetZoom *Action*

Description

Resets the zoom state of math trace Fx.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Reset zoom of math function F3.
app.Math.F3.DoResetZoom
```

DoStoreToMemoryTrace *Action*

Description

Store data from math function Fx to a memory trace.
Destination for F1 will be M1, F2 will be M2, etc.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Store math function F2 to a memory trace.
app.Math.F2.DoStoreToMemoryTrace
```

Equation

String

Range Any number of characters

Description

Queries the equation which defines the math function Fx.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the definition of math function F3.
EquationF3 = app.Math.F3.Equation
MsgBox EquationF3
```

LabelsPosition

String

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the trace Fx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point.
Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Add a couple of labels to trace F1, one at 0ns, and one at 55ns
app.SetToDefaultSetup
app.Math.F1.View = True
app.Math.F1.ViewLabels = True
app.Math.F1.LabelsPosition = "0.0, 55e-9"
app.Math.F1.LabelsText = "Hello,World"
```

LabelsText

String

Range Any number of characters

Description

Sets / Queries the text that appears in labels attached to acquisition trace Cx. Multiple labels may be specified by using comma as a delimiter. See the documentation on LabelsPosition for an example of use.

MathMode *Enum*

Description

Sets/Queries the math mode.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the mode of the math function F1
app.Math.F1.MathMode = "TwoOperators"
```

Values

Graphing	Graphing mode, chain a measurement and a graphing operator
OneOperator	Single math operator
TwoOperators	Chain two math operators
WebEdit	

Operator1

Enum

Description

Sets/Queries the first operator of math function Fx. When MathMode = "OneOperator, this is the only math operator, when MathMode = "TwoOperator", this is the first of two operators. Note that when MathMode = "Graph", this control has no effect.
Note also that the list of available math operators varies depending upon the instrument model number, and the list of installed software options.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Define the first operator of math function F1 as an Average
app.Math.F1.View = True
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Average"
```

Values

AbsoluteValue	
AltNcycle	
Average	
Boxcar	
ClrStop	
Copy	
Correlation	
CTLE	
Demodulate	
Derivative	
Deskew	
Difference	
EnhancedResolution	
Envelope	
ExcelMath	
Exp	
Exp10	
FastWavePort	
FFT	
FFTFILTER	
Filter	
Floor	
Histogram	
Htie2BER	
I2SToWform	
IFFT	
Integral	
Interpolate	
Invert	
ISB	
ISIPatt	

JitterFilter	
JitterSim	
Ln	
Log10	
LowPassIIR	
MathcadMath	
MATLABWaveform	
Mux	
Null	
PersistenceHistogram	
PersistenceTraceMean	
PersistenceTraceRange	
PersistenceTraceSigma	
Product	
Ratio	
Reciprocal	
Reframe	
Rescale	
Roof	
SegmentSelect	
SequencePackParamCo	
SinXOverX	
Slice2Persist	
Sparse	
Square	
SquareRoot	
SSCTrack	
Sum	
TappedDelayLineFilter	
Track	
Trend	
Trk	
WaveScript	
WfT	
Zoom	

Persist3DQuality *Enum*

Description

Sets/Queries the state of the 3D Persistence quality control. Control the way that the persistence trace is rendered. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set persistence 3-D to shaded for trace F1
app.Math.F1.Persist3DQuality = "Shaded"
```

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the function waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set persistence on for trace F3.
app.Math.F3.Persisted = True
```

Persistence3d

Bool

Description

Sets/Queries the 3D persistence state. If True, then the persistence display for this channel will be displayed as a three dimensional surface map. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

Set persistence plot as 3-D for trace F4.
app.Acquisition.F4.Persistence3D = True
```

PersistenceMonoChrome

Bool

Description

Sets/Queries the monochrome persistence state. If True, then the persistence display for this channel will be monochromatic, whether 2-D or 3-D.
See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set persistence monochrome on for trace F1
app.Math.F1.PersistenceMonoChrome = True
```

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms. All information at this level or above will be recorded with the same color or intensity. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence saturation level for trace F1.
app.Math.F1.PersistenceSaturation = 40
```

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the persistence time for the trace F1 to 10 seconds.
app.Math.F1.PersistenceTime = "10s"
```

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map. See the general description above for a discussion of the locked and unlocked persistence modes.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Do not show the last trace for the persistence trace of trace F1.
app.Math.F1.ShowLastTrace = False
```

Source1 *Enum*

Description

Sets/Queries the first source of the first operator in Fx. Note that the two possible sources of Operator1 are Source1 and Source2, Source3 is the second source to Operator2, with the first source of Operator2 being the ouput of Operator1.
Note that the list of available sources is dependent upon the instrument model, and it's installed software options.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Define the first source of math function F1 as C3.
app.Math.F1.Source1 = "C3"
```

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
DDjHist	
DDjPlot	
Decode1	
Decode2	
Decode3	
Decode4	
Digital1	
Digital2	
Digital3	
Digital4	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F2	
F3	
F4	
F5	
F6	
F7	
F8	

FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
P1	
P10	
P11	
P12	
P2	
P3	
P4	
P5	
P6	
P7	
P8	
P9	
PCIeEye	
PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	

stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

UseGrid *String*

Range Any number of characters

Description

Sets/Queries the grid in use for the math trace Fx.
See also app.Acquisition.Cx.UseGrid.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Place math trace F3 on grid YT4.
app.Math.F3.UseGrid = "YT4"
```

View *Bool*

Description

Sets/Queries whether the trace of math function Fx is visible. Note that even when math traces are not visible, but are being used as inputs to other math functions and/or measurements, they are computed.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Show math trace F3.
app.Math.F3.View = True
```

ViewLabels *Bool*

Description

Sets/Queries whether trace labels, defined with LabelsText and LabelsPosition controls, are shown.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Show the user-defined trace label for trace F1
app.Math.F1.ViewLabels = True
```

OPERATOR1SETUP

app.Math.Fx.Operator1Setup

This node is dynamically created, and will contain the controls for the operator currently selected into Operator1.
See the Math/Measure Control reference at the end of this manual for a lost of these controls.

RESULT

app.Math.Fx.Out.Result

Properties of the type xxxx.Out.Result.yyyy are those of the last completed acquisition. They are not affected if other cvars are changed after that acquisition was completed. This distinction between "Out.Result" properties and other cvars is most important when the trigger mode is Single or Stopped. You should treat "Out.Result" properties as read-only.

For a detailed description of all properties available for the output of a Math Function, please see Chapter 1.

ZOOM

app.Math.Fx.Zoom

This set of variables controls the zoom functions for math trace Fx.

CenterSelectedSegment	Integer
HorPos	Double
HorZoom	Double
NumSelectedSegments	DoubleLockstep
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Turn on trace F1, will default to Zoom-Only
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"

' Zoom trace F1 by a factor of 2 horizontally and vertically
app.Math.F1.Zoom.Rese
```

CenterSelectedSegment

Integer

Range From 1 to 1 step 1

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Sets/Queries the horizontal position of center of the grid on the zoomed trace Fx. The unit of measurement is the screen width, that is, 0.3 means a shift of three of the ten divisions. A positive value moves the trace to the left.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Sets/Queries the horizontal magnification of the trace Fx. The magnification will be in a 1 2 5 10 sequence unless variable horizontal magnification has been set.

NumSelectedSegments *DoubleLockstep*

Range From 1 to 1 step 1, locked to 1 2 5, fine grain allowed=true, on=false

VariableHorZoom *Bool*

Description

Sets/Queries the ability to zoom horizontally by a continuously variable factor. Note that if a horizontal zoom of 0.9 is set, while variable zoom is off, the horizontal zoom will be set to 1.0. If the variable zoom is then enabled, the factor of 0.9 will have been remembered, and it will be used. Note that the previous value will not be remembered during a power-cycle.

VariableVerZoom *Bool*

Description

Sets/Queries the ability to zoom vertically by a continuously variable factor. Note that if a vertical zoom of 0.9 is set, while variable zoom is off, the vertical zoom will be set to 1.0. If the variable zoom is then enabled, the factor of 0.9 will have been remembered, and it will be used. Note that the previous value will not be remembered during a power-cycle.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Sets/Queries the vertical position of center of the grid on the zoomed trace Fx. The unit of measurement is the screen height, that is, 0.375 means a shift of three of the eight divisions. A positive value moves the trace downwards.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Sets/Queries the vertical magnification of the trace Fx. The magnification will be in a 1 2 5 10 sequence unless VariableVerZoom has been set to True, in which case it will be continuously variable.

XY *app.Math.XY*

This set of variables controls the display of data in X vs. Y mode. Only Valid when the instrument is in XY, XYSingle, or XYDual display modes.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
InputX	Enum
InputY	Enum
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Switch to XY+Dual Grid Mode
app.Display.GridMode = "XYDual"

' Configure XY to show C1 vs. C2 in 3D Persistence mode
app.Math.XY.InputX = "C1"
app.Math.XY.InputY = "C2"
app.Math
```

AxisXRotation *Integer*

Range From -90 to 90 step 1

Description

Sets/Queries the state of the X Axis rotation control, used only in 3-D persistence modes to control the viewing position. See the general description above for a discussion of the locked and unlocked persistence modes.

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

Sets/Queries the state of the Y Axis rotation control, used only in 3-D persistence modes to control the viewing position. See the general description above for a discussion of the locked and unlocked persistence modes.

ClearSweeps *Action*

Description

Clears persistence X-Y plot.

InputX

Enum

Description

Sets/Queries the name of the input channel for the X axis of the X-Y plot.

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
DDjHist	
DDjPlot	
Digital1	
Digital2	
Digital3	
Digital4	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	

PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

InputY

Enum

Description

Sets/Queries the name of the input channel for the Y axis of the X-Y plot.

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
DDjHist	
DDjPlot	
Digital1	
Digital2	
Digital3	
Digital4	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	

PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

Persist3DQuality

Enum

Description

Sets/Queries the state of the 3D Persistence quality control. Controls the way that the persistence trace is rendered. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the X-Y plot. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Sets/Queries the 3D persistence state. If True, then the persistence display for the X-Y plot will be displayed as a three dimensional surface map.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceMonoChrome

Bool

Description

Sets/Queries the monochrome persistence state. If True, then the persistence display for the X-Y plot will be monochromatic, whether 2-D or 3-D. See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted X-Y plot. All information at this level or above will be recorded with the same color or intensity. See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for the Xy persistence. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

RESULT *app.Math.XY.Out.Result*

Properties of the type xxxx.Out.Result.yyyy are those of the last completed acquisition. They are not affected if other cvars are changed after that acquisition was completed. This distinction between "Out.Result" properties and other cvars is most important when the trigger mode is Single or Stopped. You should treat "Out.Result" properties as read-only.

Note that this XY result object is very similar, but not identical to the result object exposed by the channel and math traces. The differences are due to the fact that the XY trace returns pairs of data values, one for X, one for Y.

For a detailed description of all properties available for the output of an XY trace, please see Chapter 1.

MEASURE *app.Measure*

Variables of the form app.Measure control the parameters P1 through P8, and their associated statistical results and histicons.

Names of the forms app.Measure.Measure("Premote").xxxx and app.Measure.Measure("Px").xxxx are aliases of simpler names which are described in this section of the manual. Examples of alias pairs are as follows -

app.Measure.Measure("Premote").OutResult is equivalent to app.Measure."Premote".OutResult
app.Measure.Measure("Px").Statistics is equivalent to app.Measure.Px.Statistics
Please see under Acquisition.Channels for a programming example.

ClearAll	Action
ClearAllHelpMarkers	Action
ClearSweeps	Action
HelpMarkers	Enum
HistoOn	Bool
MeasureSet	Enum
SetGateToDefault	Action
ShowAllHelpMarkers	Action
ShowMeasure	Bool
StatsOn	Bool
StdGateStart	Double
StdGateStop	Double
StdSource	Enum

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' get into the custom parameter mode
app.Measure.MeasureMode = "MyMeasure"
app.Measure.ClearAll
app.Measure.StatsOn = True
app.Measure.HistoOn = False

' Configure P1 to measure a
```

ClearAll *Action*

Description

Resets all parameter setups, turning each of the parameters view to "off", the MeasurementType to "measure"and the selected paramEngine to "Null".

ClearAllHelpMarkers *Action*

Description

Force all 'HelpMarkers' off.
(HelpMarkers are the on-trace annotation of measurement setup and results)

ClearSweeps *Action*

Description

Clears the accumulated statistics for parametersP1 to P8 as well as the acumulated statistics for their associated histicons.

HelpMarkers *Enum*

Description

Sets/Queries the level of detail for help markers (if indeed any of the selected parameter definitions have help markers).

These markers are displayed on the source traces, and only if those traces are viewed simultaneously with the parameter measurements.

Note: this setting is global for all Px

Values

Detailed	Detailed help markers
Off	No help markers
Simple	Simple help markers

HistoOn *Bool*

Description

Sets/Queries the visibility of the histicons of the parameters which are viewed.

MeasureSet *Enum*

Description

Defines the mode in which the measurement system is working.

Values

MyMeasure	Custom list, each chosen from the list of available measurements.
StdHorizontal	Standard Horizontal Measurements
StdVertical	Standard Vertical Measurements

SetGateToDefault *Action*

Description

Sets the measure gate to its default state. Valid only when in either Std. Vertical or Std. Horizontal measurement modes. For MyMeasure see the equivalent controls under Px.

ShowAllHelpMarkers *Action*

Description

Force all 'HelpMarkers' on.
(HelpMarkers are the on-trace annotation of measurement setup and results)

ShowMeasure *Bool*

Description

Defines whether the measure results table is displayed or not.

StatsOn *Bool*

Description

Sets/Queries the visibility of parameter statistics. Note: the statistics are accumulated whether the view of them is on or not, so you needn't have StatsOn = "On" to collect statistics.

StdGateStart

Double

Range From 0 to 10 step 0.01

Description

Sets/Queries the position of the left hand limit of the measure gate (n divisions).
Valid only when in either Std. Vertical or Std. Horizontal measurement modes. For MyMeasure see the equivalent controls under Px.

StdGateStop

Double

Range From 0 to 10 step 0.01

Description

Sets/Queries the position of the right hand limit of the measure gate (in divisions). Valid only when in either Std. Vertical or Std. Horizontal measurement modes. For MyMeasure see the equivalent controls under Px.

StdSource *Enum*

Description

Sets/Queries the channel which is the source of ALL standard voltage or time parameters. Note that when in 'My Measure' mode each parameter has it's own Source selection, and this setting is ignored.

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
D0	
D1	
D10	
D11	
D12	
D13	
D14	
D15	
D16	
D17	
D18	
D19	
D2	
D20	
D21	
D22	
D23	
D24	
D25	
D26	
D27	
D28	
D29	
D3	
D30	
D31	
D32	
D33	
D34	
D35	
D4	

D5	
D6	
D7	
D8	
D9	
DDjHist	
DDjPlot	
Decode1	
Decode2	
Decode3	
Decode4	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	
PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	

ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

MEASURE

app.Measure.Measure

Names of the forms app.Measure.Measure("Premote").xxxx and app.Measure.Measure("Px").xxxx are aliases of simpler names which are described in the section of the manual which is devoted to app.Measure. Examples of alias pairs are as follows -

app.Measure.Measure("Premote").OutResult is equivalent to app.Measure."Premote".OutResult
app.Measure.Measure("Px").Statistics is equivalent to app.Measure.Px.Statistics

Please see under app.Acquisition.Channels("Cx") for a programming example.

PX

app.Measure.Px

This set of variables controls the parameters P1 through P8, (when the MeasureMode is "MyMeasure", otherwise these are predefined) and the statistical results and histicons which depend on them.

FindLevel	Action
FindRange	Action
GateByRange	Bool

GateByWform	Bool
GateStart	Double
GateStop	Double
HelpAlwaysOn	Bool
LevelType	Enum
LowerLimit	Double
MeasurementType	Enum
ParamEngine	Enum
PassWhen	Enum
PercentLevel	Double
Source1	Enum
UpperLimit	Double

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

app.Measure.MeasureMode = "MyMeasure"

' Set parameter P1 to math on parameters.
App.Measure.P1.MeasurementType = "math"
```

FindLevel *Action*

FindRange *Action*

GateByRange *Bool*

Description

If True, only measurements who's value(s) fall between the limits defined by the LowerLimit and UpperLimit controls, are accepted.

GateByWform *Bool*

Description

If True, measurements are gated by the state of the waveform defined by the WformSource control.

GateStart *Double*

Range From 0 to 10 step 0.01

Description

Sets/Reads the position of the left hand edge of the measure gate for parameter Px.

GateStop *Double*

Range From 0 to 10 step 0.01

Description

Sets/Reads the position of the right hand edge of the measure gate for parameter Px.

HelpAlwaysOn

Bool

Description

Defines whether Help Marters are always displayed for this measurement, even when the measurement dialog is closed.

LevelType

Enum

Values

Absolute	
Percent	

LowerLimit

Double

Range From -1e+010 to 1e+010 step (4 digits)

MeasurementType

Enum

Description

Sets/Queries the measurement type of the parameter Px.

Values

math	Measurement is a mathematical combination of one or two other Py,Pz
measure	Standard measurement mode (parametric of a trace waveform)
WebEdit	Measurement is defined using the Processing Web Editor

ParamEngine *Enum*

Description

Sets/Queries the parameter (measurement on a trace) for Px. This setting applies only if the MeasurementType control is set to "measure".

Values

Amplitude	
AmplitudeAsymmetry	
Analog2Protocol	
Area	
AutoCorrelationSignalTo	
Base	
BitRate	
BurstWidth	
CANLoad	
CANMsgBR	
CANMsgNum	
CANtoAnalog	
CANtoCAN	
CANtoValue	
CMACP	
Cycles	
DataDependentJitter	
Delay	
DeltaDelay	
DeltaMessages	
DeltaPeriodAtLevel	
DeltaTimeAtLevel	
DeltaTriggerTime	
DeltaWidthAtLevel	
Duration	
DutyAtLevel	
DutyCycle	
DutyCycleDistortion	
EdgeAtLevel	
edgeDA	
EMClvlPulse	
EMCt2Val	
ExcelParam	
ExtinctionRatio	
EyeACRMS	
EyeAmplitude	
EyeAvgPower	
EyeBER	
EyeBitRate	
EyeBitTime	

EyeCrossing	
EyeCrossingNegative	
EyeCrossingPositive	
EyeCyclicArea	
EyeDelay	
EyeDeltaDelay	
EyeFallTime	
EyeHeight	
EyeMean	
EyeOneLevel	
EyeOpeningFactor	
EyeOvershootNegative	
EyeOvershootPositive	
EyePkpkJitter	
EyePkPkNoise	
EyePulseWid	
EyeQFactor	
EyeRiseTime	
EyeRMSJitter	
EyeSDEVNoise	
EyeSignalToNoise	
EyeSuppressionRatio	
EyeWidth	
EyeZeroLevel	
Fall	
Fall8020	
FallAtLevel	
FastMultiWPort	
FirstPoint	
Frequency	
FrequencyAtLevel	
FullWidthAtHalfMaximum	
FullWidthAtXX	
GapWidth	
HalfPeriod	
HistogramAmplitude	
HistogramBase	
HistogramMaximum	
HistogramMean	
HistogramMedian	
HistogramMid	
HistogramMinimum	
HistogramRms	
HistogramSdev	
HistogramTop	
HoldTime	

HParamScript	
I2StoValue	
LastPoint	
LevelAtX	
Lmode	
LocalBase	
LocalBaselineSeparation	
LocalMaximum	
LocalMinimum	
LocalNumber	
LocalPeakToPeak	
LocalTimeAtMaximum	
LocalTimeAtMinimum	
LocalTimeBetweenEvent	
LocalTimeBetweenPeaks	
LocalTimeBetweenTroug	
LocalTimeOverThreshold	
LocalTimePeakToTrough	
LocalTimeTroughToPeak	
LocalTimeUnderThreshol	
MathcadParam	
MATLABParameter	
Maximum	
MaximumPopulation	
Mean	
Median	
Minimum	
Mode	
NarrowBandPhase	
NarrowBandPower	
NCycleJitter	
NonLinearTransitionShift	
npoints	
NRZBitPatternTime	
Null	
NumberOfModes	
OvershootNegative	
OvershootPositive	
Overwrite	
ParamScript	
PCIeMisc	
Peaks	
PeakToPeak	
Percentile	
Period	
PeriodAtLevel	

PersistArea	
PersistDCD	
PersistDutyCycle	
PersistMax	
PersistMean	
PersistMid	
PersistMin	
PersistPkPk	
PersistPulseSymmetry	
PersistRMS	
Phase	
PopulationAtX	
Protocol2Analog	
Protocol2Protocol	
Protocol2Value	
ProtocolBitrate	
ProtocolLoad	
ProtocolNumMessages	
PW50	
PW50Negative	
PW50Positive	
Range	
Resolution	
Ring	
Rise	
Rise2080	
RiseAtLevel	
RootMeanSquare	
SD2LanesSkew	
sDDj	
Setup	
Skew	
Slew	
SSCDiff	
SSCFrequency	
SSCMinMax	
SSCRatio	
StandardDeviation	
TAA	
TAANegative	
TAAPositive	
TIE	
TieRsmp	
TimeAtCAN	
TimeAtLevel	
TimeAtProtocol	

TMnPls	
Top	
TotalPopulation	
tUpS	
TXCMD	
TXFALL	
TXRISE	
VCROSS	
VDIFF	
VDiffPP	
VTxDeRatio	
Width	
WidthAtLevel	
WidthNegative	
XAtMaximum	
XAtMinimum	
XAtPeak	

PassWhen

Enum

Values

High	
Low	

PercentLevel

Double

Range From 0 to 100 step 1

Source1

Enum

Description

Sets/Queries the first trace source of the parameter Px. Used only when MeasurementType = "measure", for MeasurementType = "math", refer to PSource1.

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
D0	
D1	
D10	
D11	
D12	
D13	
D14	
D15	
D16	
D17	
D18	
D19	
D2	
D20	
D21	
D22	
D23	
D24	
D25	
D26	
D27	
D28	
D29	
D3	
D30	
D31	
D32	
D33	
D34	
D35	
D4	

D5	
D6	
D7	
D8	
D9	
DDjHist	
DDjPlot	
Decode1	
Decode2	
Decode3	
Decode4	
DigPat	
ET	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	
PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	

SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

UpperLimit ***Double***

Range From -1e+010 to 1e+010 step (4 digits)

RESULT

app.Measure.Px.histo.Result

RESULT

app.Measure.Px.last.Result

RESULT

app.Measure.Px.max.Result

RESULT

app.Measure.Px.mean.Result

RESULT

app.Measure.Px.min.Result

RESULT

app.Measure.Px.num.Result

OPERATOR

app.Measure.Px.Operator

This path specifies that the selected ParamEngine or ArithEngine control variables are "here"

RESULT

app.Measure.Px.Out.Result

Properties of the type xxxx.Out.Result.yyyy are those of the last completed acquisition. They are not affected if other cvars are changed after that acquisition was completed. This distinction between "Out.Result" properties and other cvars is most important when the trigger mode is Single or Stopped. You should treat "Out.Result" properties as read-only.

RESULT

app.Measure.Px.sdev.Result

STATISTICS

app.Measure.Px.Statistics

This set of variables controls the statistical summaries that are provided for all the parameters.

MEMORY

app.Memory

Variables of the form app.Memory.xxxx control the memories M1 through M4.

Names of the form app.Memory.Memories("Mx").xxxx are aliases of simpler names which are described in this section of the manual. Examples of alias pairs are as follows -

app.Memory.Memories("Mx").Out.Result is equivalent to app.Memory.Mx.Out.Result

app.Memory.Memories("Mx").Zoom is equivalent to app.Memory.Mx.Zoom

Please see under app.Acquisition.Channels("Cx") for a programming example.

ClearAllMem	Action

ClearAllMem *Action*

Description

Clears the contents of all trace memories.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Clear the contents of all trace memories.
app.Memory.ClearAllMem
```

MEMORIES *app.Memory.Memories*

Names of the form app.Memory.Memories("Mx").xxxx are aliases of simpler names which are described in the section of the manual which is devoted to app.Memory. Examples of alias pairs are as follows -

app.Memory.Memories("Mx").Out.Result is equivalent to app.Memory.Mx.Out.Result

app.Memory.Memories("Mx").Zoom is equivalent to app.Memory.Mx.Zoom

Please see under Acquisition.Channels for a programming example.

MX *app.Memory.Mx*

This set of variables controls the memories M1 through M4.

ClearMem	Action
Copy	Action
LabelsPosition	String
LabelsText	String
PersistDotJoined	Bool
Source1	Enum
UseGrid	String
UserText	String
View	Bool
ViewLabels	Bool

ClearMem *Action*

Description

Initiates a clear memory operation for memory Mx.

Copy *Action*

Description

Copy the trace specified by the Source1 control into this memory.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Source1

Enum

Description

Source trace for Copy operations (see 'Copy' control)

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
DDjHist	
DDjPlot	
Digital1	
Digital2	
Digital3	
Digital4	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M2	
M3	
M4	
NQFit	
PCIeEye	
PCIeEyeNT	

PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

UseGrid *String*

Range Any number of characters

Description

Sets/Queries the grid used for memory trace Mx.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set memory trace M2 to use grid YT3.
app.Memory.M2.UseGrid = "YT3"
```

UserText *String*

Range Any number of characters

Description

Text field, used to attach arbitrary comments to a memory waveform.

View *Bool*

Description

Sets/Queries whether memory trace Mx is visible.

ViewLabels *Bool*

Description

Sets/Queries whether labels are visible for trace Mx.

RESULT

app.Memory.Mx.Out.Result

See app.Acquisition.Cx.Out.Result for a definition of methods and properties used to access the Mx waveform result.

ZOOM

app.Memory.Mx.Zoom

This set of variables controls zooming of the memory traces M1 through M4.

CenterSelectedSegment	Integer
HorPos	Double
HorZoom	Double
NumSelectedSegments	DoubleLockstep
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Save C1 into M1
app.SaveRecall.Waveform.SaveTo = "Memory"
app.SaveRecall.Waveform.SaveSource = "C1"
app.SaveRecall.Waveform.SaveDestination = "M1"
app.SaveRecall.Waveform.DoSave
```

CenterSelectedSegment *Integer*

Range From 1 to 1 step 1

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Sets/Queries the horizontal position of center of the grid on the zoomed trace Mx. The unit of measurement is the screen width, that is, 0.3 means a shift of three of the ten divisions. A positive value moves the trace to the left.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Sets/Queries the horizontal magnification of the trace Mx. The magnification will be in a 1 2 5 10 sequence unless variable horizontal magnification has been set.

NumSelectedSegments *DoubleLockstep*

Range From 1 to 1 step 1, locked to 1 2 5, fine grain allowed=true, on=false

VariableHorZoom *Bool*

Description

Sets/Queries the ability to zoom horizontally by a continuously variable factor as opposed to a factor that follows a 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Sets/Queries the ability to zoom vertically by a continuously variable factor as opposed to a factor that follows a 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Sets/Queries the vertical position of center of the grid on the zoomed trace Mx. The unit of measurement is the screen height, that is, 0.375 means a shift of three of the eight divisions. A positive value moves the trace downwards.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Sets/Queries the vertical magnification of the trace Mx. The magnification will be in a 1 2 5 10 sequence unless variable vertical magnification has been set.

PASSFAIL *app.PassFail*

Names of the forms app.PassFail("Qremote").xxxx and app.PassFail("Qx").xxxx are aliases of simpler names which are described in this section of the manual. Examples of alias pairs are as follows -
app.PassFail.PassFail("Qremote").Operator is equivalent to app.PassFail.Qremote.Operator
app.PassFail.PassFail("Qx").Out.Result is equivalent to app.PassFail.Qx.Out.Result
Please see under app.Acquisition.Channels("Cx") for a programming example.

ActionOn	Enum

ActionOn	Enum
Alarm	Bool
EnableActions	Bool
PredefinedConditions	Enum
PrintScreen	Bool
Pulse	Bool
Save	Bool
Stop	Bool
StopAfter	Integer
StopTesting	Bool
SummaryView	Bool
Testing	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Setup Parameter P1 to be the amplitude of C1
app.Measure.MeasureMode = "MyMeasure"
app.Measure.P1.ParamEngine = "Ampl"
app.Measure.P1.Source1 = "C1"
app.Measure.P1.View = True
```

ActionOn *Enum*

Description

Sets/Queries whether a Pass condition or a Fail condition will initiate the pre-selected actions.

Values

Fail	
Pass	

Alarm *Bool*

Description

Sets/Queries whether Alarm is included in the PassFail actions.

EnableActions *Bool*

Description

Sets/Queries whether the selected actions will be executed if the selected PassFail condition is met.

PredefinedConditions *Enum*

Description

Sets/Queries the logical criteria that must be met in a pass-fail test. For example, the condition AnyTrue means that the pass-fail criterion is met if at least one of the test conditions results in a True result.

Values

AllFalse	
AllQ1ToQ4OrAllQ5ToQ8	
AllTrue	
AnyFalse	
AnyQ1ToQ4AndAnyQ5T	
AnyTrue	

PrintScreen *Bool*

Description

Sets/Queries whether Print Screen is included in the PassFail actions.

Pulse *Bool*

Description

Sets/Queries whether Pulse is included in the PassFail actions. This action emits a pulse from the Aux output socket.

Save *Bool*

Description

Sets/Queries whether Save is included in the PassFail actions.

Stop *Bool*

Description

Sets/Queries whether Stop is included in the PassFail actions.

StopAfter *Integer*

Range From 1 to 1000000000 step 1

Description

Sets/Queries the maximum number of sweeps that will be acquired before testing is halted.

StopTesting *Bool*

Description

If Enabled, testing will stop after a number of sweeps defined by the StopAfter control.

SummaryView *Bool*

Description

Summary view

Testing *Bool*

Description

Sets/Queries whether PassFail testing is on.

RESULT *app.PassFail.LastPass.Result*

RESULT *app.PassFail.NumPassed.Result*

QX *app.PassFail.Qx*

This set of variables controls the tests Q1 through Q8 in the pass fail system.

ClearSweeps	Action
ConditionEngine	Enum
Equation	String
PSource1	Enum
ShortDescription	String
View	Bool
WSource2	Enum

ClearSweeps *Action*

Description

ClearSweeps

ConditionEngine *Enum*

Description

Sets/Queries whether pass-fail test Qx uses mask testing or parameter comparison.

Values

DualParamCompare	
MaskTestCondition	
ParameterCompare	

Equation *String*

Range Any number of characters

Description

Inspects the equation for pass-fail test Qx. A typical equation would be "All P3 < 0.7071".

PSource1

Enum

Description

PSource1

Values

BitRate	
DCD	
DDj	
DDjPops	
DDjVals	
Dj	
DjDD	
DjNQ	
Djsp	
Eye2Ampl	
Eye2AvgPwr	
Eye2BER	
Eye2Cross	
Eye2ER	
Eye2Height	
Eye2One	
Eye2Width	
Eye2Zero	
EyeAmpl	
EyeAvgPwr	
EyeBER	
EyeCross	
EyeER	
EyeHeight	
EyeOne	
EyeWidth	
EyeZero	
FLXAsymDelay	
FLXAsymDelay	
FLXFrameTSSLengthCa	
FLXFrameTSSLengthCa	
FLXJitter	
FLXJitter	
FLXPropDelay	
FLXPropDelay	
ISI	
Mask2Hits	
Mask2Out	
MaskHits	
MaskOut	
NonMonotonic	

P1	
P10	
P11	
P12	
P2	
P3	
P4	
P5	
P6	
P7	
P8	
P9	
PattLen	
Pj	
Rj	
RjBUj	
RjDD	
RjNQ	
Rjsp	
RjspRaw	
SD2Skew	
SSC1Freq	
SSC1Max	
SSC1Min	
SSC2Freq	
SSC2Max	
SSC2Min	
SSCDiff	
stAvgUI	
stBitRate	
stDjDD	
stMaxNonTransVoltage	
stMaxPeakToPeakJitter	
stMaxTransVoltage	
stMinNonTransLowerMar	
stMinNonTransUpperMar	
stMinNonTransVoltage	
stMinTimeBetweenCross	
stMinTransLowerMargin	
stMinTransUpperMargin	
stMinTransVoltage	
stNonTransitionViolation	
stNumFailures	
stNumPasses	
stRjRMS	
stTj	

stTotalEdges	
stTransitionViolations	
TIE	
TIEbar	
TIEraw	
Tj	
TjDD	
TjNQ	
Tjsp	
TxFallDm	
TxFallDp	
TxRiseDm	
TxRiseDp	
Vdiff	
VdiffPP	
VTxCm	
VTxDe	

ShortDescription *String*

Range Any number of characters

Description

ShortDescription

View *Bool*

Description

Sets/Queries whether pass-fail test Qx is visible.

WSource2

Enum

Description

WSource2

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
DDjHist	
DDjPlot	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	
PCIeEyeNT	
PjInvFFT	
PkThresh	

PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

RESULT

app.PassFail.Qx.Out.Result

Properties of the type xxxx.Out.Result.yyyy are those of the last completed acquisition. They are not affected if other cvars are changed after that acquisition was completed. This distinction between "Out.Result" properties and other cvars is most important when the trigger mode is Single or Stopped. You should treat "Out.Result" properties as read-only.

RESULT

app.PassFail.Rate.Result

RESULT

app.PassFail.Tests.Result

PREFERENCES

app.Preferences

This set of variables controls user preferences for the instrument setup and operation.

AudibleFeedback	Bool
DefaultInput	Enum
EnhancedPrecisionMode	Bool
HorOffsetControl	Enum
OffsetControl	Enum
Performance	Enum

AudibleFeedback

Bool

Description

Sets/Queries whether audible feedback is enabled, to sound when a control is touched.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Turn on the audible feedback function.
app.Preferences.AudibleFeedback = True
```

DefaultInput

Enum

Description

Control the default setting choice of the Input control, when default state is requested.

Values

Dontchange	
InputA	
InputB	

EnhancedPrecisionMode

Bool

Description

EnhancedPrecisionMode

HorOffsetControl

Enum

Description

HorOffsetControl.

Values

Div	
Time	

OffsetControl *Enum*

Description

Sets/Queries whether Vertical Offset constant in Volts or Divisions when the vertical scale control is changed.

Values

Div	
Volts	

Performance *Enum*

Description

Sets/Queries the variable value that control the Optimization of the instrument in terms of analysis or display.
When set to Analysis the display is given low priority and will update less frequently. Use this mode where analysis performance is much more important than display rate.

Values

Analysis	
AnalysisMid	
Default	
Display	
DisplayMid	

EMAIL *app.Preferences.EMail*

This set of variables controls user preferences for the instrument e-mail system.
E-Mail may be sent when the hardcopy button is pressed when the hardcopy system is appropriately configured. Two standards are supported, SMTP (Simple Mail Transport Protocol), and MAPI (Messaging Application Programming Interface).

DefaultRecipient	String
Mode	Enum
OriginatorAddress	String
SendTestMail	Action
SMTPServer	String

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure the originator and recipient addresses, replace these with
' appropriate values for your corporate network.
app.Preferences.Email.DefaultRecipient = "recipientAddress@do
```

DefaultRecipient *String*

Range Any number of characters

Description

Sets/Queries the default recipient of e-mail transmissions.

Mode *Enum*

Description

Sets/Queries the transmission mode for e-mail.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'  Set e-Mail mode to MAPI.
app.Preferences.EMail.Mode = "MAPI"
```

Values

MAPI	Messaging Application Programming Interface (Uses Outlook Express by default)
SMTP	Simple Mail Transfer Protocol, requires an SMTP server

OriginatorAddress *String*

Range Any number of characters

Description

Sets/Queries the originator address for e-mail. This may be any address, and will be used when the recipient replies to a mail, note that the instrument doesn't necessarily have to have it's own E-Mail account in order to use this.

SendTestMail *Action*

Description

Sends a message by e-mail to test the system.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'  Send an e-Mail message to test the system.
app.Preferences.EMail.SendTestMail
```

SMTPServer *String*

Range Any number of characters

Description

Sets/Queries the name of the SMTP Server for e-mail. Ask your system administrator if you are unsure of what value to set this to.

PROBESCAL *app.ProbesCal*

ProbesCal (Probe Calibration) controls are contained within this automation node.
For a comprehensive description of the functionality supplied by the ProbesCal feature refer to the TF-DSQ chapter in the scope's online help.

AdvancedMode	Bool
CalibrateAll1	Action
CalibrateAll2	Action
CalibrateAll3	Action
CalibrateAll4	Action

CalSource	Enum
Clear1	Action
Clear2	Action
Clear3	Action
Clear4	Action
CommonMode	Double
DcCal1	Action
DcCal2	Action
DcCal3	Action
DcCal4	Action
Deskew1	Action
Deskew2	Action
Deskew3	Action
Deskew4	Action
DeskewCalRef	Enum
Gain1	Double
Gain2	Double
Gain3	Double
Gain4	Double
Offset1	Double
Offset2	Double
Offset3	Double
Offset4	Double
ProbeName1	String
ProbeName2	String
ProbeName3	String
ProbeName4	String
ProbeName5	String
RecallCalSetup	Action
RiseTime1	Double
RiseTime2	Double
RiseTime3	Double
RiseTime4	Double
Skew1	Double
Skew2	Double
Skew3	Double
Skew4	Double
SkewCal1	Double
SkewCal2	Double
SkewCal3	Double
SkewCal4	Double
SkewCal5	Double
SkewCorrection1	Double
SkewCorrection2	Double
SkewCorrection3	Double
SkewCorrection4	Double

AdvancedMode *Bool*

Description

If true, advanced mode is enabled, which enables the Advanced tab, and enables the selective Gain/Offset and Deskew calibrations.

CalibrateAll1 *Action*

Description

Initiate full calibration of channel 1, which includes Gain/Offset, and deskew.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

CalibrateAll2 *Action*

Description

Initiate full calibration of channel 2, which includes Gain/Offset, and deskew.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

CalibrateAll3 *Action*

Description

Initiate full calibration of channel 3, which includes Gain/Offset, and deskew.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

CalibrateAll4 *Action*

Description

Initiate full calibration of channel 4, which includes Gain/Offset, and deskew.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

CalSource *Enum*

Description

Defines the calibration source. Can be the Auxiliary output, or, if connected, the TF-DSQ board.

Values

AUXOUT	
FastEdge	

Clear1 *Action*

Description

Clear all calibration coefficients for Channel 1.

Clear2 *Action*

Description

Clear all calibration coefficients for Channel 2.

Clear3 *Action*

Description

Clear all calibration coefficients for Channel 3.

Clear4 *Action*

Description

Clear all calibration coefficients for Channel 4.

CommonMode *Double*

Range From -1.1 to 1.1 step 0.001

Description

The TF-DSQ fixture will calibrate probes differentially or in single-ended mode depending on the type of probe. Differential probes allow the common mode voltage component to be applied during the DC calibration for improved calibration accuracy in situations where probe gain or offset correction depends on common mode components.

DcCal1 *Action*

Description

Initiate a DC calibration (Gain/Offset) of Channel 1.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

DcCal2 *Action*

Description

Initiate a DC calibration (Gain/Offset) of Channel 2.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

DcCal3 *Action*

Description

Initiate a DC calibration (Gain/Offset) of Channel 3.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

DcCal4 *Action*

Description

Initiate a DC calibration (Gain/Offset) of Channel 4.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

Deskew1 *Action*

Description

Initiate a deskew calibration of Channel 1.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

Deskew2 *Action*

Description

Initiate a deskew calibration of Channel 2.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

Deskew3 *Action*

Description

Initiate a deskew calibration of Channel 3.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

Deskew4 *Action*

Description

Initiate a deskew calibration of Channel 4.
(Note that this action pops up an interactive wizard, which requires a user to manually dismiss)

DeskewCalRef *Enum*

Description

This specifies the signal source used for DC and skew calibrations. When the TF-DSQ fixture is plugged into a scope input, the scope will automatically specify this fixture as the calibration source.

Values

C1	
C2	
C3	
C4	
EXT	

Gain1 *Double*

Range From 0.8 to 1.2 step 0.001

Gain2 *Double*

Range From 0.8 to 1.2 step 0.001

Gain3 *Double*

Range From 0.8 to 1.2 step 0.001

Gain4 *Double*

Range From 0.8 to 1.2 step 0.001

Offset1 *Double*

Range From -1e+012 to 1e+012 step 1e-012

Offset2 *Double*

Range From -1e+012 to 1e+012 step 1e-012

Offset3 *Double*

Range From -1e+012 to 1e+012 step 1e-012

Offset4 *Double*

Range From -1e+012 to 1e+012 step 1e-012

ProbeName1 *String*

Range Any number of characters

Description

Reflects the name of the probe detected on Channel 1. Contains the text 'No Probe', if no probe is sensed.

ProbeName2 *String*

Range Any number of characters

Description

Reflects the name of the probe detected on Channel 2. Contains the text 'No Probe', if no probe is sensed.

ProbeName3 *String*

Range Any number of characters

Description

Reflects the name of the probe detected on Channel 3. Contains the text 'No Probe', if no probe is sensed.

ProbeName4 *String*

Range Any number of characters

Description

Reflects the name of the probe detected on Channel 4. Contains the text 'No Probe', if no probe is sensed.

ProbeName5 *String*

Range Any number of characters

RecallCalSetup *Action*

Description

Whenever a probe calibration is applied, the scope saves the information in a file on the disk. If the scope must be rebooted for any reason, the probe calibration information is always cleared, but can be recalled using this control.

RiseTime1 *Double*

Range From 0 to 2e-009 step 1e-012

Description

When probes are deskewed, this control is set to the measured risetime of Channel 1.

RiseTime2 *Double*

Range From 0 to 2e-009 step 1e-012

Description

When probes are deskewed, this control is set to the measured risetime of Channel 2.

RiseTime3 *Double*

Range From 0 to 2e-009 step 1e-012

Description

When probes are deskewed, this control is set to the measured risetime of Channel 3.

RiseTime4 *Double*

Range From 0 to 2e-009 step 1e-012

Description

When probes are deskewed, this control is set to the measured risetime of Channel 4.

Skew1 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

Description

Defines the skew value for Channel 1. Units are in seconds. A positive value has the effect of moving the trace to the right.

Skew2 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

Description

Defines the skew value for Channel 2. Units are in seconds. A positive value has the effect of moving the trace to the right.

Skew3 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

Description

Defines the skew value for Channel 3. Units are in seconds. A positive value has the effect of moving the trace to the right.

Skew4 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

Description

Defines the skew value for Channel 4. Units are in seconds. A positive value has the effect of moving the trace to the right.

SkewCal1 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

SkewCal2 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

SkewCal3 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

SkewCal4 *Double*

Range From -4.5e-007 to 4.5e-007 step 1e-012

SkewCal5 *Double*

Range From -1e-009 to 1e+009 step 1e-013

SkewCorrection1 *Double*

Range From 0 to 2e-009 step 1e-014

Description

Additional skew correction to be applied to Channel 1 to correct for signal rise-time.

SkewCorrection2 *Double*

Range From 0 to 2e-009 step 1e-014

Description

Additional skew correction to be applied to Channel 2 to correct for signal rise-time.

SkewCorrection3 *Double*

Range From 0 to 2e-009 step 1e-014

Description

Additional skew correction to be applied to Channel 3 to correct for signal rise-time.

SkewCorrection4 *Double*

Range From 0 to 2e-009 step 1e-014

Description

Additional skew correction to be applied to Channel 4 to correct for signal rise-time.

RECALLSETUPLOCK *app.RecallSetupLock*

SAVERECALL *app.SaveRecall*

Controls for the Save/Recall subsystem. Includes nodes for saving and recalling both Waveforms and Panels (Setups).

ShowLSIBExport	Action
ShowSaveTable	Action

ShowLSIBExport *Action*

ShowSaveTable *Action*

SETUP *app.SaveRecall.Setup*

Controls for Saving and Recalling instrument setups.

DoRecallDefaultNvlPanel	Action
DoRecallDefaultPanel	Action
DoRecallPanel	Action
DoSavePanel	Action
InternalName1	String
InternalName2	String
InternalName3	String
InternalName4	String
InternalName5	String
InternalName6	String
PanelDir	FileName
PanelFilename	FileName
RecallInternal1	Action
RecallInternal2	Action
RecallInternal3	Action
RecallInternal4	Action
RecallInternal5	Action
RecallInternal6	Action
SaveInternal1	Action
SaveInternal2	Action
SaveInternal3	Action
SaveInternal4	Action
SaveInternal5	Action
SaveInternal6	Action

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Reset to default setup
app.SaveRecall.Setup.DoRecallDefaultPanel

' Store the current setup into the first of the 6 setup stores.
app.SaveRecall.Setup.InternalName1 = "My Setup1"
```

DoRecallDefaultNvlPanel *Action*

Description

Recalls the factory set NVL (preference) panel settings. These are controls which are not affected when the default panel is recalled, and includes items such as the color preferences, remote control preferences, etc. Use with care!, especially when invoking via the VBS? Remote command via GPIB or TCP/IP, which could result in the controller being disconnected when the default port is selected.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Recall the factory default nvl panel settings.
app.SaveRecall.Setup.DoRecallDefaultNvlPanel
```

DoRecallDefaultPanel *Action*

Description

Recalls the factory set panel settings.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Recall the factory default panel settings.
app.SaveRecall.Setup.DoRecallDefaultPanel
```

DoRecallPanel *Action*

Description

Recall the panel file named in the PanelFilename control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Create the filename for the next panel setup to be recalled.
app.SaveRecall.Setup.PanelFilename = "Setup89"

' Recall the panel setup from the named file.
app.SaveRecall.Setup.DoRecallPanel
```

DoSavePanel *Action*

Description

Saves the current panel settings to the previously specified file. If the filename already exists, the file will be over-written without a prompt.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Create the filename for the next panel setup save.
app.SaveRecall.Setup.PanelFilename = "TestSave"

' Save the panel setup to the named file.
app.SaveRecall.Setup.DoSavePanel
```

InternalName1 *String*

Range Any number of characters

Description

Sets/Queries the name of internal panel setup memory 1.

InternalName2 *String*

Range Any number of characters

Description

Please see InternalName1.

InternalName3 *String*

Range Any number of characters

Description

Please see InternalName1.

InternalName4 *String*

Range Any number of characters

Description

Please see InternalName1.

InternalName5 *String*

Range Any number of characters

Description

Please see InternalName1.

InternalName6 *String*

Range Any number of characters

Description

Please see InternalName1.

PanelDir *FileName*

Range Any number of characters

Description

Directory in which setups are stored/recalled.

PanelFilename *FileName*

Range Any number of characters

Description

Sets/Queries the current filename for saving a panel setup. Note that a '.lss' extension is automatically appended if not supplied.

RecallInternal1 *Action*

Description

Recall the settings which are stored in internal panel memory 1.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Recall the settings from internal panel memory 1.
app.SaveRecall.Setup.RecallInternal1
```

RecallInternal2 *Action*

Description

Please see RecallInternal1.

RecallInternal3 *Action*

Description

Please see RecallInternal1.

RecallInternal4 *Action*

Description

Please see RecallInternal1.

RecallInternal5 *Action*

Description

Please see RecallInternal1.

RecallInternal6 *Action*

Description

Please see RecallInternal1.

SaveInternal1 *Action*

Description

Saves the current instrument settings into internal panel memory 1.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Save the current settings into internal panel memory 1.
app.SaveRecall.Setup.SaveInternal1
```

SaveInternal2 *Action*

Description

Please see SaveInternal1.

SaveInternal3 *Action*

Description

Please see SaveInternal1.

SaveInternal4 *Action*

Description

Please see SaveInternal1.

SaveInternal5 *Action*

Description

Please see SaveInternal1.

SaveInternal6 *Action*

Description

Please see SaveInternal1.

TABLE *app.SaveRecall.Table*

Delimiter	Enum
DoSave	Action
SaveSource	Enum
TableDir	FileName
TableFormat	Enum
TableTitle	String

Delimiter *Enum*

Values

Comma	
Semicolon	
Space	
Tab	

DoSave *Action*

SaveSource *Enum*

Values

AllDisplayed	

TableDir *FileName*

Range Any number of characters

TableFormat *Enum*

Values

ASCII	
Excel	

TableTitle *String*

Range Any number of characters

UTILITIES *app.SaveRecall.Utilities*

Controls used to manage files and folders, including the ability to create and delete folders, and the ability to delete files.

CreateDir	Action
DeleteAll	Action
DeleteFile	Action
Directory	FileName

CreateDir *Action*

Description

Creates the directory specified in the Directory control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Create a named directory
app.SaveRecall.Utilities.Directory = "C:\MyDir"
app.SaveRecall.Utilities.CreateDir
```

DeleteAll *Action*

Description

Deletes all files in the directory specified by the Directory control without a cautionary prompt. Use with care! Files cannot be recovered if deleted accidentally.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Delete all files without showing a yes/no prompt.
app.SaveRecall.Utilities.Directory = "C:\MyDir"
app.SaveRecall.Utilities.DeleteAll
```

DeleteFile *Action*

Description

Deletes the file named by the Filename control

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Delete the named file
app.SaveRecall.Utilities.Filename = "C:\MyDir\MyFile.txt"
app.SaveRecall.Utilities.DeleteFile
```

Directory *FileName*

Range Any number of characters

Description

Defines the directory which will be used for the operations in this automation node.

WAVEFORM *app.SaveRecall.Waveform*

Contains controls used for saving and recalling waveforms.

Delimiter	Enum
DoRecall	Action
DoSave	Action
RecallDestination	Enum
RecallFrom	Enum
RecallSource	Enum
SaveDestination	Enum

SaveSource	Enum
SaveTo	Enum
TraceTitle	String
WaveFormat	Enum
WaveformDir	FileName

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Save C1 into M1
app.SaveRecall.Waveform.SaveTo = "Memory"
app.SaveRecall.Waveform.SaveSource = "C1"
app.SaveRecall.Waveform.SaveDestination = "M1"
app.SaveRecall.Waveform.DoSave
```

Delimiter *Enum*

Description

Sets/Queries the delimiter to use when saving data in ASCII text mode.

Values

Comma	
Semicolon	
Space	
Tab	

DoRecall *Action*

Description

Recall waveform data into a trace memory. Source may be either an internal memory (M1..M4), or a file on a mass-storage device, depending on the state of the 'RecallFrom' control.

DoSave *Action*

Description

Save waveform data into an internal memory, or file on a mass-storage device, using the pre-specified source and destination.

RecallDestination *Enum*

Description

Sets/Queries the destination for waveform recall. When the DoRecall action is executed the waveform will be transferred into this destination trace.

Values

M1	
M2	
M3	
M4	

RecallFrom *Enum*

Description

Sets/Queries the type of source for waveform recall.

Values

File	Recall from file on a mass-storage device
Memory	Recall from one of the internal memories (M1..M4)

RecallSource *Enum*

Description

Sets/Queries the source for recalling waveform data. Used only when recalling from an internal memory with RecallSource = "Memory".

Values

M1	
M2	
M3	
M4	

SaveDestination *Enum*

Description

Sets/Queries the destination to which waveform data will be saved. Used only when the SaveTo = "Memory".

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'  Setup to store trace C2 into M4 and perform the save operation
app.SaveRecall.Waveform.SaveTo = "Memory"
app.SaveRecall.Waveform.SaveSource = "C2"
app.SaveRecall.Waveform.SaveDestination = "M4"
app.SaveRecall.Waveform.DoSave
```

Values

M1	
M2	
M3	
M4	

SaveSource *Enum*

Description

Sets/Queries the source from which waveform data will be saved.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'  Set the destination to memory for waveform save.
app.SaveRecall.Waveform.SaveTo = "Memory"
'  Set the source to C2, for saving a waveform.
app.SaveRecall.Waveform.SaveSource = "C2"
'  Set the destination to memory M4, for saving a waveform.
app.SaveRecall.Waveform.SaveDestination = "M4"
'  Save waveform data as previously specified.
app.SaveRecall.Waveform.DoSave
```

Values

AllDisplayed	
BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
DDjHist	
DDjPlot	
Digital1	
Digital2	
Digital3	
Digital4	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	

FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	
PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	

Z7	
Z8	

SaveTo *Enum*

Description

Sets/Queries type of destination for waveform save.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

'  Set the destination to Memory for waveform save.
app.SaveRecall.Waveform.SaveTo = "Memory"
```

Values

File	Save into file on a mass-storage device
Memory	Save into an internal memory (M1..M4)

TraceTitle *String*

Range Any number of characters

Description

Sets/Queries the title (prefix) to use when naming saved traces. This prefix will have the family (sequence) number appended to it when forming the filename.

WaveFormat *Enum*

Description

Sets/Queries the format to use when saving waveform data into a file. 'Binary' is the most efficient, storing one or two bytes per data sample, depending upon the number of significant bits. When in ASCII mode, the Subformat and Delimiter controls define the data format.

Values

ASCII	Plain ASCII files with choice of various delimiters
Audio	
Binary	LeCroy's standard binary waveform format
Excel	
MathCad	
MATLAB	

WaveformDir *FileName*

Range Any number of characters

Description

Sets/Queries the directory for storing waveform files.

SDA2 *app.SDA2*

ClearSweeps	Action
EnableSDA	Bool

FindFrequency	Action
FindScale	Action
HelpHelp	Action
QuickView	Action
ShowTopDialog	Action

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

EnableSDA *Bool*

Description

This is the Enable SDA checkbox on the top level Serial Data Analysis II dialog. When off, all SDA2 functions (jitter measurement, eye diagrams and measurements) are disabled.

FindFrequency *Action*

Description

Same as the Find Rate button on SDA2's Clock Recovery dialog.

FindScale *Action*

HelpHelp *Action*

Description

Brings up Help text on the graphical user interface.

QuickView *Action*

Description

Brings up a pop-up dialog alloing you to quickly set up Serial Data Input(s) and crossing level, and creates four useful SDA2 result views.

ShowTopDialog *Action*

Description

Sames the menu action Analysis, Serial Data, which enables SDA2 and shows the top level Serial Data dialog.

CDR

app.SDA2.CDR

Controls under CDR correspond to items on SDA2's Ref. Clock Input dialog page and on the Clock Recovery dialog page.

BaseFrequency	Double
CutOffDivisor	Integer
FindBaseFrequency	Action
PLL1TransportDelay	Double
PLLCompensateForMissingEdges	Bool
PLLFrequency	Double
PLLType	Enum

RefClkSlope	Enum
SignalFrequency	Double
UsePLL	Bool
UseRefClk	Bool

BaseFrequency *Double*

Range From 1 to 2e+012 step 1

Description

This is the value shown as "Data or Bit Rate" on the Clock Recovery dialog page. This value can be automatically set using app.SDA2.CDR.FindBaseFrequency, or app.SDA2.FindFrequency. Note: if you are using an separate reference clock, ie, if you have checked "Use Explicit Ref Clock", then this value is the clock frequency times the Multiplier.

CutOffDivisor *Integer*

Range From 10 to 1000000 step 1

Description

This setting controls the bandwidth of a single-pole PLL emulation that can be selectd as PLL Type "FC Golden". When set to the default value of 1667, the response is the "golden PLL" defined for Fibre Channel. The value should be thought of as dividing the bit rate. For example, for a bit rate of 1GHz, 1e9/1667 = 599.88kHz. That value can be read in app.SDA2.CDR.PLLFrequency, when the PLLType is "FC Golden".

FindBaseFrequency *Action*

Description

See app.SDA2.CDR.BaseFrequency. This control does the same thing as app.SDA2.FindFrequency.

PLL1TransportDelay *Double*

Range From 0 to 1 step 1e-015

Description

For FB-DIMM, when two PLLs are required, this is the delay of the signal produced using the first PLL before it is seen by the second PLL. This is meant to emulate a Tx PLL, the Tx sends a signal through a channel, which is then seen by an Rx PLL.

PLLCompensateForMissingEdges *Bool*

Description

This setting should normally be False, so that the PLL behaves as a real hardware PLL probably would, that is, the bandwidth of the PLL is proportional the transition density of the signal. When this control is set to True, we compensate for the transition density so that the PLL bandwidth does not vary with transition density. (In firmware revisions through 6.0 this control was not revealed on the SDA2 clock recovery dialog and can only be set using Automation.)

PLLFrequency

Double

Range From 2488 to 2.488e+008 step 1

Description

This setting controls the bandwidth of a single-pole PLL emulation that can be selectd as PLL Type "FC Golden". This bandwidth is usuall controlled by app.SDA2.CDR.CutOffDivisor, and the resulting bandwidth can then be read from this control variable. When app.SDA2.CDR.PLLFrequency is set, the CutOffDivisor is set based on this value and on the current SignalFrequency. Please see CutOffDivisor for further explanation.

PLLType

Enum

Description

Sets the type of our software PLL emulation. Within SDA2 user interface other types besides those shown below may be listed, if so they are mapped onto Custom, they select Custom PLL with appropriate settings.

Values

Custom	1 pole (and 1 parasitic 0) or 2 pole PLL, with customizable settings
DVI	Reuses the Custom 1 pole, pole at 4MHz, zero at 70MHz (that is, negligible).
FBDIMM	o 2 pole PLLs separated by a Tranport Delay, preset to values needed for FB-DIMM.
GOLDEN	/hen CutOffDivisor is at its default value of 1667 this it the Fibre Channel golden PLL
PCIEXPRESS	·n 1 preset. SDA2 adds three PCIe Gen2 PLLs, as specified in the PCIE CEM spec.

RefClkSlope

Enum

Description

When UseRefClk is set to ON, then this control specifies which edges of the reference clock signal should be used to sample the data signal.

Values

Both	Use both edges - half frequency clock
Neg	Use negative going edges
Pos	Use positive going edges

SignalFrequency

Double

Range From 90000 to 4e+010 step 1

Description

if UseRefClk is OFF, then SignalFrequency is the BaseFrequency, which is derived from the data signal by FindBaseFrequency. If UseRefClk is ON, then SignalFrequency is BaseFrequency multiplied by ClockMultiplier; BaseFrequency is derived from the reference clock signal by FindBaseFrequency.

UsePLL

Bool

Description

The expected use of SDA2 is with UsePLL set to true. In that state, the SDA2 uses the selected PLL type to produce a clock signal that tracks variations in the data rate. Variations at frequencies low enough for the PLL to track effectively are not counted as jitter. If the data is produced using a very stable clock, it is possible to set UsePLL to false, in which case the SignalFrequency is uses as a perfectly stable (mathematically generated) reference; in this state any variation even at very low frequencies will be seen in jitter measurements.

UseRefClk

Bool

Description

If UseRefClk is set to true, then the clock is not derived from the data signal, instead it is derived from a separate reference clock signal. This corresponds to the "Use Explicit Clock Ref" checkbox on the Clock Recovery dialog page. If UseRefClk is set to true, the RefClkSlope, Deskew and FrequencyMultiplier controls are active. (See app.SDA2.RefClkInput for Deskew and FrequencyMultiplier).

EYEMEASURE

app.SDA2.EyeMeasure

Under EyeMeasure are controls for the eye diagrams, iso BER, masks, and mask testing.

BitsInLocator	DoubleLockstep
EyeMode	Enum
FailedList	Enum
FailedListEye2	Enum
FailedSymbolsFilter	Enum
LogBERmax	Double
LogBERmin	Double
MaxFailures	Integer
SetToCenter	Action
ShowEyeMeasure	Bool
ShowFailLocation	Bool
ShowIsoBER	Bool
ShowMask	Bool
ShowMaskFailures	Bool
ShowSimpleEye	Bool
SliceWidth	Integer
StopOnFail	Bool

BitsInLocator

DoubleLockstep

Range From 1 to 100 step 0.05, locked to 1 2 5, fine grain allowed=true, on=false

EyeMode *Enum*

Description

Selects either "Single Eye" or the method for sorting the data to make dual eye diagrams. "Dual Eye Trans./nonTrans." sorts UIs that begin with a transition into one eye, and the "non transition" UIs into Eye2. "Dual EyeGated" uses another signal to steer bits into the two eye diagrams. "Dual EyeFSB" sorts the bits into eyes based on which input appears first, ie, which side was driving the Front Side Bus.

Values

FSB	
FSBDual	
Gated	
Sequential	
Transition	

FailedList *Enum*

Values

FailedListEye2 *Enum*

Values

FailedSymbolsFilter *Enum*

Values

All	
NearSelected	

LogBERmax *Double*

Range From -21 to -3 step 1

Description

upper limit (higher probability limit) for the ISOBer display.

LogBERmin *Double*

Range From -21 to -3 step 1

Description

Minimum (lower probability limit) of the ISOBer display.

MaxFailures *Integer*

Range From 20 to 10000 step 1

SetToCenter *Action*

Description

This Action cvar corresponds to the button "Start IsoBER Scan" on the Eye Diagram tab of the Eye Measure menu's right side dialog. Sending this command causes the "Show IsoBER" checkbox to be checked, and the IsoBER curves appear inside the opening of the Eye diagram. Each curve shows what the eye opening should be to achieve a certain probability of signal instrusion inside that curve.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
app.SDA2.EyeMeasure.SetToCenter
```

ShowEyeMeasure *Bool*

Description

This cvar corresponds to the "Enable Eye Meas." checkbox at the left of the Eye Measure menu. Setting it to false turns off the eye diagram, any failure cursors and failure location waveforms. Setting it to true re-enables those things, and they appear if their individual controls are set.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
app.SDA2.EyeMeasure.ShowEyeMeasure = true
app.SDA2.EyeMeasure.ShowSimpleEye = true
app.SDA2.EyeMeasure.ShowMask = true
app.SDA2.EyeMeasure.ShowMaskFailures = true
```

ShowFailLocation *Bool*

Description

The best way to describe the feature this enables is to distinguish between this and ShowMaskFailures. ShowMaskFailures is a simple mask test, it looks at the accumulated Eye Diagram and draws red circle cursors around any sample that violates the mask. See "ShowMaskFailures" for more detail on the simple mask test. "ShowFailLocation" is a feature that helps you gain insight into the mask failures. As its name implies, it looks at every UI of the current acquisition, and builds a list of which UI numbers contained at least one sample that violated the mask (see app.SDA2.EyeMeasure.FailedList). Then, by selecting a number in that list, you can view the segment of the waveform centered at the middle of the UI with the failure. The samples from that UI are highlighted with yellow circles, instead of red circles. If there are a few points at opposite corners of the mask, you can filter the list to show only UI with nearby failures (app.SDA2.EyeMeasure.FailedSymbolsFilter), to easily check if all the failures at a corner were caused by the same local bit pattern.
When ShowFailLocation is true, the setting of ShowFailures is irrelevent; the cursors are drawn by the Mask Failure Locator feature and not by the simple mask test.

ShowIsoBER *Bool*

Description

Turns on contours showing eye closure at the same Bit Error Rate = Iso BER contours. These are displayed on the Eye.

ShowMask *Bool*

Description

If a standard has been selected (other than "Custom"), then at least one mask (possibly many) defined for that standard can be shown, and used for mask testing. This cvar controls whether the selected mask for Eye (and Eye2, if in a dual eye mode) are shown. When true, app.SDA2.EyeMeasure.ShowMaskFailures can be set, or app.SDA2.EyeMeasure.ShowFailLocation can be set.

ShowMaskFailures *Bool*

Description

ShowMaskFailures enables a simple mask test, it looks at the accumulated Eye Diagram and draws red circle cursors around any sample that violates the mask. This can help make a single dot failure much more noticable. This is simply a visual result. For automation, you should also see the MaskHits and MaskOut parameter results; and for a more sophisticated mask test that can stop on failure and show the time domain near each failure, see app.SDA2.EyeMeasure.ShowFailLocation. Note: Unlike ShowFailLocation, which allows you to limit the information collected, ShowMaskFailures will try to draw a red circle around every dot that is on top of the mask's exclusion regions. Even though drawing a few cursors is fast, drawing tens of thousands of cursors takes a number of seconds. If there are many failures, you probably don't need ShowMaskFailures - the failures are clearly visble. If you do turn it on in such a case, be prepared to wait several seconds every time it needs to redraw tens of thousands of red circles.

ShowSimpleEye *Bool*

SliceWidth *Integer*

Range From 0 to 100 step 1

Description

SliceWidth is the width of the region considered by Eye parameters such as EyeHeight, One level, and Zero level. This region is centered at the middle of the Eye (and Eye2, if in a dual eye mode).

StopOnFail *Bool*

EYE *app.SDA2.EyeMeasure.Eye*

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String

View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the X axis of the view being persisted.

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The Eye diagram is placed on the top left grid, named "YT1" by the SDA2 software.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.EyeMeasure.Eye.Out.Result

EYE2FAIL

app.SDA2.EyeMeasure.Eye2Fail

AxisXRotation	Integer
AxisYRotation	Integer

ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT *app.SDA2.EyeMeasure.Eye2Fail.Out.Result*

EYEFAIL

app.SDA2.EyeMeasure.EyeFail

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation

Integer

Range From -90 to 90 step 1

AxisYRotation

Integer

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition

String

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText

String

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.EyeMeasure.EyeFail.Out.Result

ISOBER

app.SDA2.EyeMeasure.IsoBER

IsoBER curves connect points of equal probability that the eye will close to those points. So, if IsoBER is set to draw curves from -12 to -12, then one curve is drawn at probability 10E-12. If this curve does not violate the mask, that predicts that 10E12 bits could be accumulated and there should not be any mask violations. The IsoBER curves are drawn by measuring the distribution of points in a slice from the center of the eye out through the eye at various angles, and extrapolating based on sigma. This implies that the expected distribution in the slice is Gaussian. If that is not true, then sigma may be exagerated and the IsoBER is likely to show a "glitch" at that point. Such features can be ignored.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation

Integer

Range From -90 to 90 step 1

AxisYRotation

Integer

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 software controls the grid that the IsoBER will use, it makes it the same grid as the Eye diagram that they are associated with. The user should not change this control.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT *app.SDA2.EyeMeasure.IsoBER.Out.Result*

MASK *app.SDA2.EyeMeasure.Mask*

ClearSweeps	Action
UseGrid	String
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software controls which grid the Mask will use, so that it appears on the same grid as the Eye diagram that it is associated with. The user should not change this control.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.EyeMeasure.Mask.Out.Result*

MASK2FAILURES

app.SDA2.EyeMeasure.Mask2Failures

Mask2Failures are the red circle cursors from the simple mask test of the accumulated persistence map in Eye2, that is enabled by selecting "Show Failures" under EyeMeasure.

ClearSweeps	Action
UseGrid	String
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

UseGrid

String

Range Any number of characters

Description

The SDA2 software assigns which grid the cursors should appear, so that they are on the same grid as the Eye diagram they are associated with. The user should not change this setting.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Mask2Failures.Out.Result

MASKFAILURES

app.SDA2.EyeMeasure.MaskFailures

MaskFailures are the red circle cursors from the simple mask test of the accumulated persistence map in Eye, that is enabled by selecting "Show Failures" under EyeMeasure.

ClearSweeps	Action
UseGrid	String
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

UseGrid

String

Range Any number of characters

Description

The SDA2 software assigns which grid the cursors should appear, so that they are on the same grid as the Eye diagram they are associated with. The user should not change this setting.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.MaskFailures.Out.Result

PARAMETERS

app.SDA2.EyeMeasure.Parameters

These controls correspond to the checkboxes in the Eye Parameters right dialog for the Eye Measure menu. Each one turns one a parameter. If any are on, a new parameter table titled "SDA Eye" appears with the selected parameters. (If a dual eye mode is selected, two parameters appear: one whose name begins "Eye" and the other whose name begins "Eye2"). Since there are 11 parameters, and only 8 slots in a parameter table, any parameter checked after the table is filled cannot be displayed in the table. If another parameter is turned off, the table fills that slot with what was previously the 9th parameter, etc. In a Dual Eye mode, turning on four parameters will fill the table. Most of the eye vertical parameters work by analyzing a slice through the eye. The SliceWidth control (app.SDA2.EyeMeasure.SliceWidth) adjusts the width of that slice in units of percent of a UI. Therefore, 100% spans from grid line 2 on the left to 8 on the right. The default setting is 20%. The slice is centered in the UI.

ShowAvgPower	Bool
ShowBER	Bool
ShowExtinctionRatio	Bool
ShowEyeAmplitude	Bool
ShowEyeCrossing	Bool
ShowEyeHeight	Bool
ShowEyeOneLevel	Bool
ShowEyeWidth	Bool
ShowEyeZeroLevel	Bool
ShowMaskHits	Bool
ShowMaskOut	Bool

ShowAvgPower

Bool

Description

Average power is calculated over the entire UI. This parameters name reflects that it is meant to be used for an optical signal, which is measured in Watts. For such a signal, since every upward transition must be followed by a downward transition at some later time, the average power of the Eye diagram should be half height of the Eye. In a Dual Eye mode that is still true for the Eye, however the average power in Eye2 depends on the unknown ratio of 1 bits to 0 bits included in that eye. For

example, there might be fewer 1 bits in Eye2 if the one state often lasted only 1 UI, more often than the zero state lasted only 1 UI.

ShowBER *Bool*

Description

Shows the probability that the diamond in the center of the eye will be violated. For a good signal this should be less than 1e-12, possibly much less.

ShowExtinctionRatio *Bool*

Description

This parameter only applies to optical signals, which have vertical units of Watts, and will not produce a value on waveforms with other vertical units such as Volts.

ShowEyeAmplitude *Bool*

Description

EyeAmplitude are the difference between top and base deteminded from the slice in the middle of the eye (see app.SDA2.EyeMeasure.SliceWidth). See also EyeHeight.

ShowEyeCrossing *Bool*

Description

Shows the crossing level as a percent of the eye height. If the crossing level is very far from 50% the parameter may not be able to find it, in which case it will display an error status icon (something other than a green check) and its status will include the bit meaning "Not an NRZ Eye"; the value it shows will be 50% but the status indicates that value is not valid. If the status is OK, then the value is meaningful.

ShowEyeHeight *Bool*

Description

EyeHeight is [EyeOne level minus 3 sigma] minus [EyeZero level plus 3 sigma], where sigma is found from the distribution of hits in the persistence map in the vertical slice about the center that is analyzed (See app.SDA2.EyeMeasure.SliceWidth). This number is always less than EyeAmplitude. The subtraction of 3 sigma on each side is an attempt to show how much the eye will be open after a couple of thousand UI are included; on each side there is a 0.1% probability of being closer to the center than 3 sigma (assuming the distribution is Gaussian). This was meant to be a predictor, in the days when sampling scopes built an eye with perhaps twenty sweeps per second. The speed of the SDA2 means that more than several thousand UI can be included per second, so EyeHeight may not longer be needed as a predictor of eye closure after a couple of thousand UI, since the SDA2 can measure that very quickly.

ShowEyeOneLevel *Bool*

Description

EyeOne is the "top" level, derived from the distribution of points in the vertical slice through the pmap at the center of the screen (see app.SDA2.EyeMeasure.SliceWidth). See also EyeZero, and EyeAmplitude.

ShowEyeWidth *Bool*

Description

This is the horizontal equivalent of the vertical EyeHeight parameter. It evaluates the left and right distributions in a narrow horizontal strip across the center of the Eye diagram. (The width of that strip is not changeable, it must be narrow.) The EyeWidth value reported is right cross time minus 3 sigma - left cross time plus 3 sigma, where sigma is derived from the inner part of each crossing's distribution. See EyeHeight for a discussion of "3 sigma" offsets.
In a Dual eye mode, Eye2Width will also appear. Note that in Dual Eye Transition / Non Transition mode, Eye2 is the "non-transition" eye which by definition has no crossing on the left. Iin that mode, Eye2Width cannot produce a value, its status is "invalid". It shows on the screen as "- - -". That is normal, when Eye2 is the non-transition eye.

ShowEyeZeroLevel *Bool*

Description

EyeZero is the "bottom" level, derived from the distribution of points in the vertical slice through the pmap at the center of the screen (see app.SDA2.EyeMeasure.SliceWidth). See also EyeOne, and EyeAmplitude.

ShowMaskHits *Bool*

Description

MaskHits and MaskOut are derived from the simple mask test on the accumulated persistence map. MaskHits gives the number of samples in the Eye persistence map that overlap the mask. This parameter will be correct as long as a mask is defined, it need not be shown. Note that if each UI has one or more samples that fail the mask, then this number will quickly get huge, since on each sweep tens of thousands of UI may be added to the Eye diagram.
In a Dual Eye mode, Mask2Hits will also appear when ShowMaskHits is true.

ShowMaskOut *Bool*

Description

MaskHits and MaskOut are derived from the simple mask test on the accumulated persistence map. MaskOut gives the number of samples in the Eye persistence map that do not overlap the mask. This parameter will be correct as long as a mask is defined, it need not be shown. Note that since each UI probably has several samples that do not violate the mask, this number will quickly get huge, since on each sweep tens of thousands of UI may be added to the Eye diagram.
In a Dual Eye mode, Mask2Out will also appear when ShowMaskOut is true.

EYE2AMPL *app.SDA2.EyeMeasure.Parameters.Eye2Ampl*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.Eye2Ampl.Out.Result

EYE2AVGPWR

app.SDA2.EyeMeasure.Parameters.Eye2AvgPwr

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.Eye2AvgPwr.Out.Result

EYE2BER

app.SDA2.EyeMeasure.Parameters.Eye2BER

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.Eye2BER.Out.Result

EYE2CROSS

app.SDA2.EyeMeasure.Parameters.Eye2Cross

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.Eye2Cross.Out.Result

EYE2ER

app.SDA2.EyeMeasure.Parameters.Eye2ER

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.EyeMeasure.Parameters.Eye2ER.Out.Result*

Extinction Ratio. This measurement is meant to be used for optical signals.

EYE2HEIGHT *app.SDA2.EyeMeasure.Parameters.Eye2Height*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.EyeMeasure.Parameters.Eye2Height.Out.Result*

EYE2ONE *app.SDA2.EyeMeasure.Parameters.Eye2One*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.Eye2One.Out.Result

EYE2WIDTH

app.SDA2.EyeMeasure.Parameters.Eye2Width

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.Eye2Width.Out.Result

EYE2ZERO

app.SDA2.EyeMeasure.Parameters.Eye2Zero

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.Eye2Zero.Out.Result

EYEAMPL

app.SDA2.EyeMeasure.Parameters.EyeAmpl

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeAmpl.Out.Result

EYEAVGPWR

app.SDA2.EyeMeasure.Parameters.EyeAvgPwr

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeAvgPwr.Out.Result

EYEBER

app.SDA2.EyeMeasure.Parameters.EyeBER

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeBER.Out.Result

EYECROSS

app.SDA2.EyeMeasure.Parameters.EyeCross

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeCross.Out.Result

EYEER

app.SDA2.EyeMeasure.Parameters.EyeER

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeER.Out.Result

EYEHEIGHT

app.SDA2.EyeMeasure.Parameters.EyeHeight

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeHeight.Out.Result

EYEONE

app.SDA2.EyeMeasure.Parameters.EyeOne

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeOne.Out.Result

EYEWIDTH

app.SDA2.EyeMeasure.Parameters.EyeWidth

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeWidth.Out.Result

EYEZERO

app.SDA2.EyeMeasure.Parameters.EyeZero

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.Parameters.EyeZero.Out.Result

MASK2HITS

app.SDA2.EyeMeasure.Parameters.Mask2Hits

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.EyeMeasure.Parameters.Mask2Hits.Out.Result*

MASK2OUT *app.SDA2.EyeMeasure.Parameters.Mask2Out*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.EyeMeasure.Parameters.Mask2Out.Out.Result*

MASKHITS *app.SDA2.EyeMeasure.Parameters.MaskHits*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.EyeMeasure.Parameters.MaskHits.Out.Result*

MASKOUT *app.SDA2.EyeMeasure.Parameters.MaskOut*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.EyeMeasure.Parameters.MaskOut.Out.Result*

THISSWEEPMASK2FAILURES *app.SDA2.EyeMeasure.ThisSweepMask2Failures*

ClearSweeps	Action
UseGrid	String
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

UseGrid *String*

Range Any number of characters

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.ThisSweepMask2Failures.Out.Result

THISSWEEPMASKFAILURES

app.SDA2.EyeMeasure.ThisSweepMaskFailures

ClearSweeps	Action
UseGrid	String
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

UseGrid

String

Range Any number of characters

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.EyeMeasure.ThisSweepMaskFailures.Out.Result

FSBACGATE

app.SDA2.FSBACGate

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool

Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.FSBACGate.Out.Result

FSBTCOGATE

app.SDA2.FSBTcoGate

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String

LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid

String

Range Any number of characters

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels

Bool

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.FSBTcoGate.Out.Result

JITTERMEASURE

app.SDA2.JitterMeasure

ConstantRj	Double
ShowJitterMeasure	Bool
UseConstantRj	Bool

ConstantRj

Double

Range From 0 to 1e-006 step 1e-015

ShowJitterMeasure

Bool

Description

This control corresponds to the checkbox titled "Enable Jitter Meas" on the left of SDA2's Jitter Measure dialog. Setting this control to True causes the "SDA Jitter" parameter table to be displayed. That table contains at least Tj, Rj and Dj. Each parameter name is followed by more detail about how it was computed, for example "Tj(1e-12)" means Tj was computed for the probability of error of 1e-12; "Rj(sp)" and "Dj(sp)" mean that the jitter decomposition was done using the spectral method. Other measurements can be added to the "SDA Jitter" parameter table (see app.SDA2.JitterMeasure.Parameters etc).

UseConstantRj

Bool

FILTER

app.SDA2.JitterMeasure.Filter

This feature allows jitter values from TIE to be passed through a bandpass (or low pass) filter before being further analyzed. See FilterMode, below, for more detail.

FilterMode	Enum
HighFreqPass	Double
LowFreqPass	Double
TransitionWidth	Double

FilterMode

Enum

Description

When FilterMode is set to On, jitter values from TIE are passed through a bandpass (or low pass) filter before being further analyzed. If the Low Pass(band) Cutoff minus the transition width is too low, for example if it is below 0, then a bandpass filter cannot be made; a low pass filter is automatically used instead; we count on the use of PLL to eliminate low frequency jitter.

Values

Off	
On	

HighFreqPass *Double*

Range From 10 to 1e+011 step 1

Description

The higher frequency limit of the pass band.

LowFreqPass *Double*

Range From 10 to 1e+011 step 1

Description

The lower frequency limit of the pass band.

TransitionWidth *Double*

Range From 0 to 1e+011 step 1

Description

Width of the transition region on each side of the passband, between pass band and stop band.

HISTOGRAM *app.SDA2.JitterMeasure.Histogram*

ShowBathtub1	Bool
ShowLogCDF	Bool
ShowNQScaleFit	Bool
ShowRjBUjHisto	Bool
ShowTIEHisto	Bool

ShowBathtub1 *Bool*

Description

Consider a histogram of jitter (see ShowRjBUjHisto and ShowTIEHisto). It should be clear that the tail on the left causes eye closure from the right crossing of the eye, and the tail on the right causes eye closure from the left crossing of the eye. Now, if we added up all the bins in the histogram from fartherst outlier back to the center, we would get a Cumulative Distribution Function (see ShowLogCDF). The Bathtub curve shows the left side CDF against the right side of the grid, and the right side CDF against the left side of the grid. The horizontal scaling of the grid is one UI across. The vertical scaling is probability in factors of 100 per division. So the top line is probability 1; one division down is 1E-2, and the bottom of the grid is 1e-16. Therefore, the bathbub curve shows how much eye closure must be tolerated for any bit error rate. The width between the curves on each side, at 6 divisions down from the top, is the remaining eye opening for 1E-12 probability of error - that is, if the receiver can tolerate that small an eye opening, then 1E-12 BER should be acheivable.

ShowLogCDF *Bool*

Description

If we add up all the bins in a histogram from fartherst outlier back to the center, we would get a Cumulative Distribution Function for both sides. Taking the log of the values of the CDF makes it easy to see the tails of the distributions. The CDF shown when ShowLogCDF is set true is calculated from the RjBUj histogram - DDj has been removed. (The histogram with all the jitter, including DDj, is the TIE histogram, see ShowTIEHisto.)

ShowNQScaleFit

Bool

Description

Q scale is a coordinate transformation of the CDF (see ShowLogCDF, above) such that for a Gaussian distribution, the Q scale lines should be straight, with a slope of 1/sigma, and intercept with Q = 0 (the top of the grid) at the mean of the Gaussian. If there is only one Guassian (no DJ) then the left and right sides include the entire populiation, that is, they sum to a total probability of 1.
NQScale is Normalized Q Scale; it is normalized to allow the left and right side tails to each have arbitrary total probability. If more than one Gaussian is present (that is, if DJ is not zero) then the NQScale white lines on the left and right will intersect Q=0 with a distance between them that equals DJ, because they intersect Q=0 at the means of the right and left Gaussians. In addition to the fit lines, red curves are shown which actually are the right and left CDF transformed to Q Scale. If the white lines overlap the red curves well, then the right and left sides truly are Gaussian.
Sigma (which is Rj) and rho (which is the fraction of total population used for normalization) are annotated on the cursor lines.
The default jitter decomposition technique used by SDA2 is Spectral, due to its wide acceptance in the industry. In general, Spectral decomposition and NQ Scale decomposition will agree well. In the presense of broad band cross talk (bounded, uncorrelated jitter) Spectral can be fooled into counting that as RJ. NQ Scale is not fooled by that. If Spectral decomp reads much higher RJ(sp) than NQ Scale's sigma, it probably indicates the presence of broad band bounded uncorrelated jitter. That is one reason to look at the NQScale cursors - the sigma values should be close to Rj(sp).
NQ Scale can be used to do the jitter decomposition for the parameters, instead of Spectral, see app.SDA2.JitterMeasure.Parameters.JitterModel.

ShowRjBUjHisto

Bool

Description

This jitter histogram include random jitter (Rj) and bounded uncorrelated jitter (BUj) which includes periodic jitter (Pj). It does not include data dependent jitter (DDj), which includes intersymbol interference and duty cycle distortion. The diference between this histogram and the TIE histogram shows the effect of DDj. See ShowTIEHisto, below.

ShowTIEHisto

Bool

Description

This is the histogram of Time Interval Error values. It shows all the jitter. Compare this histogram to the RjBUj histogram - on the same horizontal scale - to see the effect of DDJ (which is not present in the RjBUj histogram).

BATHTUB

app.SDA2.JitterMeasure.Histogram.BathTub

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum

ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software sets this control so that the BathTub curves appear on the same grid as the RjBUj histogram. You should not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.BathTub.Out.Result

CDFDD

app.SDA2.JitterMeasure.Histogram.CDFdd

The Dual Dirac model could be called "unnormalized Qscale". It assumes exactly two Gaussians with equal population. Dual Dirac is a restrictive model, therefore it is often not appropriate. SDA2 software does not show

CDFdd. You can view it by selecting it as the source of a zoom.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software sets this control so that the CDF will appear on the same grid as the RjBUj histogram. You should not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.CDFdd.Out.Result

CDFNQ

app.SDA2.JitterMeasure.Histogram.CDFnq

CDFnq is the CDF computed using the Normalized Q Scale. For a description of Normalized Q Scale, see app.SDA2.JitterMeasure.Histogram.ShowNQScaleFit and app.SDA2.JitterMeasure.Parameters.JitterModel. When the jitter decomposition model selected is NQ Scale, CDFnq is shown when ShowCDF is True. See app.SDA2.JitterMeasure.Histogram.CDFTotal. It can be viewed at any time by selecting it as the source of a zoom.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation

Integer

Range From -90 to 90 step 1

AxisYRotation

Integer

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software sets this control so that the CDF will appear on the same grid as the RjBUj histogram. You should not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.CDFnq.Out.Result

CDFSP

app.SDA2.JitterMeasure.Histogram.CDFsp

CDFsp is the CDF computed using the spectral jitter decomposition. When the jitter decomposition method selected is Spectral, CDFsp is shown when ShowCDF is True. See app.SDA2.JitterMeasure.Histogram.CDFTotal. (Due to a bug, in firmware 6.0 and previous, when in Spectral jitter decomposition CDFdd was shown). CDFsp can be viewed at any time by assigning it as the source of a zoom.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software sets this control so that the CDF will appear on the same grid as the RjBUj histogram. You should not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.CDFsp.Out.Result

CDFTOTAL

app.SDA2.JitterMeasure.Histogram.CDFtotal

This is the CDF that the SDA2 will show when ShowCDF is set to True. See CDFnq and CDFsp, above.

AxisXRotation	Integer

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software sets this control so that the CDF will appear on the same grid as the RjBUj histogram. You should not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.CDFtotal.Out.Result

ZOOM

app.SDA2.JitterMeasure.Histogram.CDFtotal.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos

Double

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom

Double

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom

Action

Description

Resets the zoom settings to their default values.

VariableHorZoom

Bool

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom

Bool

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos

Double

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

NQFIT *app.SDA2.JitterMeasure.Histogram.NQFit*

NQ Scale Fit cursors. See also: app.SDA2.JitterMeasure.Histogram.ShowNQScaleFit.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software sets this control so that the NQScale fit cursors appear on the same grid as the RjBUj histogram. You should not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.NQFit.Out.Result

RJBUJHIST

app.SDA2.JitterMeasure.Histogram.RjBUjHist

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

The SDA2 software sets this control so that RjBUj Histogram, NQ Scale cursors, CDF and bathtub curve (when enabled) will all appear on the same grid. You should not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.RjBUjHist.Out.Result

ZOOM

app.SDA2.JitterMeasure.Histogram.RjBUjHist.Zoom

HorPos	Double

HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

TIEHIST

app.SDA2.JitterMeasure.Histogram.TIEHist

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 sets this control to place the TIE Histogram on a particular grid. We recommend that you do not change this control.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Histogram.TIEHist.Out.Result

ZOOM

app.SDA2.JitterMeasure.Histogram.TIEHist.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos

Double

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom

Double

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom

Action

Description

Resets the zoom settings to their default values.

VariableHorZoom

Bool

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom

Bool

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos

Double

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

PARAMETERS *app.SDA2.JitterMeasure.Parameters*

BERPow10	Integer
ClearJitterParams	Action
JitterModel	Enum
ShowBitrate	Bool
ShowDCD	Bool
ShowDDj	Bool
ShowISI	Bool
ShowPj	Bool

BERPow10 *Integer*

Range From -16 to -1 step 1

Description

This control corresponses to the control labeled "log10 BER" on the Jitter Paremeters right side dialog. This value specifies the probability (of error) at which TJ should be calculated.

ClearJitterParams *Action*

Description

This action control corresponds to the button "Turn Off All" on the Jitter Parameters right side dialog. It sets False all the cvars in this group with names starting "Show". They are ShowDCD, ShowDDj, ShowISI, ShowBitRate, and ShowPj.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

app.SDA2.JitterMeasure.Parameters.ClearJitterParams
```

JitterModel *Enum*

Description

Most jitter measurements are extrapolated to probability 10e-12, as if we had seen at least one trillion UI. In order to extrapolate, jitter must be decomposed into DJ, which does not grow as more UI are observed, and RJ, which does. How much of the jitter is attributed to Rj therefore affects the value of Tj. In most cases, the Jitter Model choice is not significant. Our default is Spectral. But in some cases NQ Scale might be preferred.
There is a discussion of NQ Scale in the description of app.SDA2.JitterMeasure.Histogram.ShowNQScaleFit.
Q scale is a coordinate transformation of the CDF (see ShowLogCDF) such that for a Gaussian distribution, the Q scale lines should be straight, with a slope of 1/sigma (note: sigma is Rj), and intercept with Q = 0 (the top of the grid) at the mean of the Gaussian. If there is only one Guassian (no DJ) then the left and right sides include the entire populiation, that is, they sum to a total probability of 1.
NQScale is Normalized Q Scale; it is normalized to allow the left and right side tails to have arbitrary total probability. If more than one Gaussian is present (that is, if DJ is not zero) then the NQScale fit lines on the left and right will intersect Q=0 with a distance between them that equals DJ, because they intersect Q=0 at the means of the right and left Gaussians.
The default jitter decomposition technique used by SDA2 is Spectral, due to its wide acceptance in the industry. In general, Spectral decomposition and NQ Scale decomposition will agree well. In the presense of broad band cross talk (or other broad band bounded, uncorrelated jitter) Spectral can be fooled into counting that as RJ. NQ Scale is not fooled by that. If Spectral decomp reads much higher RJ(sp) than NQ Scale's sigma, it probably indicates the presence of broad band bounded uncorrelated jitter. That is one reason compare NQScale decomposition to Spectral - Rj(nq) should be close to Rj(sp), if Rj(sp) is higher then the signal was probably affected by cross talk or some form of broad band, bounded uncorrelated jitter.
Note that both jitter models have "Dual-Dirac" in their names. This is because, once Rj and Dj are separated, they are combined to yield a Tj number according to the Dual Dirac model, that is TJ = DJ + n*RJ, where n is a factor determined by the probability of error specified (see BERPow10, above).

Values

DDSpec	
NQS	

ShowBitrate *Bool*

Description

Causes the BitRate (as shown in the ClockRecovery dialog) to be displayed.

ShowDCD *Bool*

Description

Causes Duty Cycle Distortion to be displayed as a parameter in the SDA Jitter parameter table.

ShowDDj *Bool*

Description

Causes Data Dependent Jitter (ISI + DCD) to be displayed as a parameter in the SDA Jitter parameter table.

ShowISI *Bool*

Description

Causes Inter-Symbol Interference to be displayed as a parameter in the SDA Jitter parameter table.

ShowPj

Bool

Description

Causes Periodic Jitter to be displayed as a parameter in the SDA Jitter parameter table. Pj does not include DDj, PJ is uncorrelated periodic jitter.

BITRATE

app.SDA2.JitterMeasure.Parameters.BitRate

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.BitRate.Out.Result

DCD

app.SDA2.JitterMeasure.Parameters.DCD

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.DCD.Out.Result

DDJ

app.SDA2.JitterMeasure.Parameters.DDj

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.DDj.Out.Result

DJ

app.SDA2.JitterMeasure.Parameters.Dj

This parameter shows Dj as computed using the currently selected jitter decomposition method.

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.Dj.Out.Result

DJDD

app.SDA2.JitterMeasure.Parameters.DjDD

DjDD is Dj computed according to the Dual Dirac model that assumes RJ is Gaussian and DJ is at exactly two

positions, with equal probability. In most real cases the Dual Dirac model violates Albert Einstein's famous quote, which applies to any model, that everything should be made "as simple as possible, but not simpler". SDA2 never shows DjDD as DJ. It is accessible by automation.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.DjDD.Out.Result*

DJNQ *app.SDA2.JitterMeasure.Parameters.DjNQ*

DjNQ is Dj computed from the Normalized Qscale jitter decomposition. SDA2 shows this value when app.SDA2.JitterMeasure.Parameters.JitterModel is set to "Dual-Dirac NQ-Scale". For a description of Normalized Qscale please see app.SDA2.JitterMeasure.Parameters.JitterModel and app.SDA2.JitterMeasure.Histogram.ShowNQScaleFit.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.DjNQ.Out.Result*

DJSP

app.SDA2.JitterMeasure.Parameters.Djsp

Djsp is Dj calculated from Spectral jitter decomposition, according to the Dual Dirac model. SDA2 displays this value as DJ when app.SDA2.JitterMeasure.Parameters.JitterModel is set to Dual-Dirac Spectral.

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.Djsp.Out.Result

ISI

app.SDA2.JitterMeasure.Parameters.ISI

This value is Inter-Symbol Interference, one of the components of DDJ. The SDA2 computes this value directly from the waveform, independent of the setting of app.SDA2.JitterMeasure.Parameters.JitterModel. ISI and DCD constitute DDj.

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.ISI.Out.Result

PATTLEN

app.SDA2.JitterMeasure.Parameters.PattLen

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

PJ

app.SDA2.JitterMeasure.Parameters.Pj

Pj is uncorrelated periodic (or sinusoidal) jitter. It is always computed from a spectrum of jitter after DDj terms have been removed. (If the Jitter Method is Spectral, then in addition Rj is computed from the spectrum as all the energy that was not in identified PJ peaks. See app.SDA2.JitterMeasure.Parameters.JitterModel for more information about that).

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.Pj.Out.Result

RJ

app.SDA2.JitterMeasure.Parameters.Rj

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.Rj.Out.Result*

RJBUJ *app.SDA2.JitterMeasure.Parameters.RjBUj*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.RjBUj.Out.Result*

RJDD *app.SDA2.JitterMeasure.Parameters.RjDD*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.RjDD.Out.Result

RJNQ

app.SDA2.JitterMeasure.Parameters.RjNQ

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.RjNQ.Out.Result

RJSP

app.SDA2.JitterMeasure.Parameters.Rjsp

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.Rjsp.Out.Result*

RJSPRAW *app.SDA2.JitterMeasure.Parameters.RjspRaw*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.RjspRaw.Out.Result*

TIE *app.SDA2.JitterMeasure.Parameters.TIE*

TIE, Time Interval Error, is the jitter relative to a recovered or to an ideal clock. When using a PLL to recover the clock, TIE is the jitter that the PLL did not track. TIE is the basic jitter measurement that is at the beginning of the process for computing all other jitter parameters. SDA2 can show a track (time aligned trace) of TIE values.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.TIE.Out.Result

TIEBAR

app.SDA2.JitterMeasure.Parameters.TIEbar

When TIE is computed using a recovered clock, TIEbar is the jitter (and wander) that did not appear in TIE because the PLL tracked it. SDA2 can show a track (time aligned trace) of TIEbar values.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.TIEbar.Out.Result

TIEEYE

app.SDA2.JitterMeasure.Parameters.TIEeye

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.TIEeye.Out.Result*

TIERAW *app.SDA2.JitterMeasure.Parameters.TIEraw*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Parameters.TIEraw.Out.Result*

TJ *app.SDA2.JitterMeasure.Parameters.Tj*

Tj, Total Jitter, is an extrapolation based on Rj and Dj computed according to the jitter decomposition model (see app.SDA2.JitterMeasure.Parameters.JitterModel), and combined according to the usual Dual Dirac formula: TJ = DJ + n * RJ, where n is a function of the probability of error set by the user. In many standards TJ is computed at a probability of error of 1*10^-12. See app.SDA2.JitterMeasure.Parameters.BERPow10.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.Tj.Out.Result

TJDD

app.SDA2.JitterMeasure.Parameters.TjDD

TjDD is Tj computed from DjDD and RjDD, that is, computed according to the simple Dual Dirac model that assumes RJ is Gaussian and DJ is at exactly two positions, with equal probability. SDA2 never shows TjDD as TJ. It is accessible by automation.

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.TjDD.Out.Result

TJNQ

app.SDA2.JitterMeasure.Parameters.TjNQ

TjNQ is TJ computed from DjNQ and RnNQ, that is when the Jitter Model is "Dual-Dirac NQ-Scale". See app.SDA2.JitterMeasure.Parameters.JitterModel.

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.TjNQ.Out.Result

TJSP

app.SDA2.JitterMeasure.Parameters.Tjsp

Tjsp is Tj computed from Rjsp and Djsp, that is, when the Jitter Model is set to "Dual-Dirac Spectral". See app.SDA2.JitterMeasure.Parameters.JitterModel.

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.JitterMeasure.Parameters.Tjsp.Out.Result

PATTERN

app.SDA2.JitterMeasure.Pattern

AutoClear	Bool
AutoFindPattern	Bool
ClearSweeps	Action
DDjEdgesToHist	Enum
FindPattern	Action
HexPattern	String
ISINumBits	Integer
IsRepeating	Bool
MinAverages	Integer
PatternLength	Integer

PatternShiftLeft	Action
PatternShiftRight	Action
PatternShiftStep	Integer
ShowDDjHisto	Bool
ShowISIPlot	Bool
ShowPattern	Bool
ShowSnCycle	Bool
Strip	Bool
TransitionDensity	Double

AutoClear *Bool*

Description

If this control is set to True, the pattern analysis will automatically do Clear Sweeps (see ClearSweeps, below) on every update. The visible result of this is that the DDj Histogram will not accumulate; it will contain only results from the last sweep. The removal of DDj from the jitter spectrum depends on the pattern analysis, so AutoClear makes that depend only on the last acqusition also. The default for this setting is False, which allows information to be accumulated over multiple sweeps. If acquisitions are short enough that 100 pattern repetitions cannot be observed in one sweep then it is not advisable to set AutoClear True since by default Pattern Analysis requires 100 patterns before deciding that its results are valid.

AutoFindPattern *Bool*

Description

AutoFindPattern makes the pattern analysis look at every sweep to try and identify the pattern. The first thing it tries is the same pattern previously identified, so this does not take long. The default for this control is True. When this is True, if the pattern changes the old Pattern Analysis result will automatically be discarded and a new results derived only from the new pattern.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

DDjEdgesToHist *Enum*

Description

This control is not revealed on SDA2's graphical user interface. The default setting, Both, means that all edges are included in the DDj Histogram (see ShowDDjHisto). The other choices select only positive going or only negative going edges for inclusion in the DDj Histogram.

Values

Both	
Neg	
Pos	

FindPattern

Action

Description

Forces pattern analysis to be run. If AutoFindPattern is True, as it is by default, then it probably will not be necessary to use this action control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

app.SDA2.JitterMeasure.Pattern.FindPattern
```

HexPattern

String

Range Any number of characters

Description

This string is shown on the Jitter Measure menu's Pattern Analysis right side dialog "Pattern" tab. If the pattern is a recognized, nameable pattern then this string will contain that name, for example "PRBS7" or "PRBS7 inverted". If the pattern is not a known, nameable pattern then the hex for the pattern is shown. The hex is formatted such that the lsb is used. Since hex characters represent four bits, some of the bits represented by the leftmost hex character may not be used. The length of the identified pattern, in bits, is put into PatternLength (see PatternLength, below). This string cvar s just text to be read.

ISINumBits

Integer

Range From 3 to 12 step 1

Description

This control sets the number of bits considered for display of the ISI Plot. It is accessible on SDA2's Jitter Measure menu "Pattern" tab on the right side diallog, when ISIPlot is displayed. For the ISI Plot SDA2 sorts groups of bits by pattern, and averages together segments of the input waveform that have the same pattern. This control specifies how many bits are considered together. Default value for this control is 6, which means the SDA2 must keep track of 2^6 = 64 six UI long patterns. The ISI plot shows the next to last UI of each pattern, all overlapped. After a sufficient number of occurances of each pattern random noise has been greatly attenuated by averaging, leaving thin lines whose placement is due to ISI. The ISI Plot is only for display, it is informational; no jitter measurements are derived from the ISI plot. A somewhat similar algorithm of sorting patterns is used to determine DDJ in non-repetetive pattern mode, see NumberOfBits, below.

IsRepeating

Bool

Description

This controls which algorithm is used to identify DDJ. You, the user, should set this as appropriate. When a precisely repeating pattern is expected this control should be set to True, which is its default value. When the data pattern does not repeat within one acqusition, then this control should be set to False. Note that some standards use very long patterns such as PRBS 23 which may require us to treat them as non-repeating data. With no added overhead, PRBS 23 is 2^23-1 = 8388607 UI long; at a reasonable sample rate of 5 samples per UI that requires 41,943,035 samples to capture one complete pattern; to see a repetition therefore would require a 100MS acquisition. After fifty 100MS acqusitions the default "MinAverages" of 100 would be satisfied and other jitter results, that depend on DDj being known, would appear. Clearly, use of such a long pattern is meant to resemble the absence of a repating pattern, even if your scope can do 100MS acquisitions there is a more reasonable approach: in such a case use a reasonable length acqusition and set "IsRepeating" to False. See ISINumBits, above.

MinAverages *Integer*

Range From 10 to 1000 step 1

Description

DDJ is determined from the means of the distributions of edges within a pattern. In order to identify those means with adequate precision, a reasonable number of occurances of the pattern must be observed. This control sets that number. Until this number of occurances are observed the results of Pattern Analysis will not be valid.

PatternLength *Integer*

Range From 1 to 2000000 step 1

Description

This read-only control tells whoever reads it the length of the currently detected repeating pattern. For example, for a PRBS 7, this control would be set to 127 by SDA2.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

patternlength = app.SDA2.JitterMeasure.Pattern.PatternLength
```

PatternShiftLeft *Action*

Description

When the SDA2 displays a sequence of hex digits as the pattern in HexPattern (see HexPattern, above) then it may be helpful to the user to shift the starting bit of the pattern so that the hex characters are recognizable to the user. This control allows the user to shift the starting bit to the left. See also: PatternShiftStep, below.
If HexPattern displays a pattern name, such as PRBS7, then this control has no discernable affect.

PatternShiftRight *Action*

Description

When the SDA2 displays a sequence of hex digits as the pattern in HexPattern (see HexPattern, above) then it may be helpful to the user to shift the starting bit of the pattern so that the hex characters are recognizable to the user. This control allows the user to shift the starting bit to the right. See also: PatternShiftStep, below.
If HexPattern displays a pattern name, such as PRBS7, then this control has no discernable affect.

PatternShiftStep *Integer*

Range From 1 to 100 step 1

Description

This sets the number of bits that the HexPattern display is shifted by PatternShiftLeft and PatternShiftRight. Default is 1 bit.

ShowDDjHisto *Bool*

Description

This control corresponds to the "ShowDDj Histogram" checkbox on the Pattern Analysis right side dialog. Setting this control to True enables display of the DDj Histogram, which shows the offsets from 0 time of the mean edge positions for all edges in the pattern. For example, for a PRBS7, which is 127 bits long and has a transition density of 0.5, the DDjHiso has a total population of 64 - one value for each of the 64 edges in that pattern. For more information on DDJ see "NumberOfBits", above,

ShowISIPlot

Bool

Description

When set to True, this control turns on the display of the ISI Plot. The ISI Plot is for display only, no jitter measurements are derived from it. See ISINumBits for more information.
It is worth noting that the list of patterns detected, which is displayed on the Pattern tab of the right side dialog when ISI Plot is displayed, is the range of a hidden enum cvar, "Patterns". The value of that cvar is the integer, in lsb first order, corresponding to the highlighted pattern in the ISI Plot. The next to last bit is diplayed by the ISI Plot, lower value bits precede it and the most significant bit (in the length specified in ISINumBits) follows it. Since the highlighted pattern only affects the GUI that hidden cvar is not listed elsewhere in this manual. Its path is app.SDA2.JitterMeasure.Pattern.Patterns. It is used in the example below.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

app.SDA2.JitterMeasure.Pattern.ShowISIPlot
app.SDA2.JitterMeasure.ISINumBits = 6     ' the default value
app.SDA2.JitterMeasure.Pattern.Patterns = 16   ' selects pattern 000010,
the 1 is displayed
```

ShowPattern

Bool

Description

This control corresponds to the "Show DigPatt" checkbox on the Pattern Analysis right side dialog. Setting this control True enables the display of the currently found pattern as a digital (synthesized) waveform of 1 and 0 bits. Where one state persists for multiple UI, the displayed waveform has small bumps at the UI boundaries to enable easy identification of the number of UI included in that time span.

ShowSnCycle

Bool

Description

This control corresponds to the checkbox "Show DDjPlot" on the Pattern Analysis right side dialog. The name of this control is an abbreviation for Synchronous n-cycle, which is an old name for this plot. "DDj Plot" is more descriptive, this description will use the new name. This shows a plot of mean edge offset from expected time vertically, vs UI number horizontally. Where the data persists in one state for multiple UI the DDJ Plot has a straight line spanning that time. Where the line changes slope there actually was an edge. For short patterns the DDJ Plot has an bold dot at each UI boundary time. The DDJ Plot shows the same information as the DDJ Histogram (see ShowDDjHisto, above) but in time order and not binned to the DDj Histogram's bin size.

Strip

Bool

Description

This cvar probably should be hidden, but, unfortunately, it is not. It controls whether DDJ (that is jitter correlated to the data pattern) is removed from each edge's jitter so that PJ detects only uncorrelated periodic jitter, and so that the RjBUj histogram and track actually show only Rj and Bounded Uncorrelated jitter. This cvar should be hidden because correct jitter processing depends on this control being true. Although it might be interesting to turn it off and see how much worse the jitter numbers get, we encourage you not to do that. Like all documented cvars this setting is stored in saved setups, so if you do play with it be sure to set it True again; if left False it will stay false even through power cycles because the scope saves its current setup automatically and restores its previous setup at power on. Bottom line: This control should always be True for proper operation.

TransitionDensity *Double*

Range From 0.1 to 1 step 0.01

Description

This cvar is set by SDA2 when it finds the pattern. You should only read, and never set, this cvar. Changing it from the true transition density to some other value will subtly affect jitter measurements. Therefore, do not set this control.

DDJHIST *app.SDA2.JitterMeasure.Pattern.DDjHist*

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

This control is set by SDA2 to place the DDj Histogram on a particular grid. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Pattern.DDjHist.Out.Result

ZOOM

app.SDA2.JitterMeasure.Pattern.DDjHist.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

DDJPLOT

app.SDA2.JitterMeasure.Pattern.DDjPlot

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

This control is set by SDA2 to place the DDj Plot on a particular grid. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Pattern.DDjPlot.Out.Result

ZOOM

app.SDA2.JitterMeasure.Pattern.DDjPlot.Zoom

HorPos	Double
HorZoom	Double

ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

DIGPAT

app.SDA2.JitterMeasure.Pattern.DigPat

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

This control is set by SDA2 to place the digital pattern (syntheized waveform) on a particular grid. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Pattern.DigPat.Out.Result

ZOOM

app.SDA2.JitterMeasure.Pattern.DigPat.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos

Double

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom

Double

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom

Action

Description

Resets the zoom settings to their default values.

VariableHorZoom

Bool

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom

Bool

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos

Double

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

ISIPATTERN *app.SDA2.JitterMeasure.Pattern.ISIPattern*

ClearSweeps	Action
UseGrid	String
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

UseGrid *String*

Range Any number of characters

Description

This control is set by SDA2 to place the highlighted (selected) pattern on the same grid as the ISIPlot. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.JitterMeasure.Pattern.ISIPattern.Out.Result*

ISIPLOT *app.SDA2.JitterMeasure.Pattern.ISIPlot*

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool

PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

This control is set by SDA2 to place the ISI Plot on a particular grid, the same grid as the highlighted ISIPattern. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Pattern.ISIPlot.Out.Result

SPECTRUM

app.SDA2.JitterMeasure.Spectrum

AnnotatePeaks	Bool

MagLogLin	Enum
OneClickLarger	Bool
RescaleSpectrum	Action
ShowFFTofTIE	Bool
ShowPeakThreshold	Bool
ShowPjIFFT	Bool

AnnotatePeaks *Bool*

Description

This control corresponds to the "Show Peaks" checkbox on the Jitter Spectrum right side dialog. If this control is set to True then when ShowFFTofTIE is set to True, the highest 10 peaks in the RjBUj spectrum will be marked with a blue-gray circle and X cursor, and the frequency of the peak will be annotated above and to the right of that cursor.

MagLogLin *Enum*

Description

This controls whether the vertical scale of the jitter spectrum is linear (ie, ps) or logathmic (ie, dB). The default is linear, because that makes the peaks much more visible.
For the jitter spectrum when vertical axis is dB, dB is computed as 20 log10 (peak value in seconds). For example, a 50fs (that is, 50e-15) shown in Lin would be -266dB, when shown in dB.

Values

dB	Logarithmic vertical scale, dB computed as 20 log10 (peak value in seconds)
Lin	Linear vertical scale

OneClickLarger *Bool*

Description

This is an input to the Reframe operation. It only affects the display. We recommend you leave this false, as forcing the reframe operation to select "one click larger" than it wants to is generally not a good idea for a spectrum.

RescaleSpectrum *Action*

Description

The jitter spectrum's vertical scale is automatically established. If the spectrum changes sufficiently that you would like SDA2 to establish the best vertical scale again, use this action control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

app.SDA2.JitterMeasure.Spectrum.RescaleSpectrum
```

ShowFFTofTIE *Bool*

Description

At this point in the processing, DDJ has been stripped out of TIE, so this displays jitter spectrum containing only Rj and bounded uncorrelated jitter. This control corresponds to the "Show RjBUj Spectrum" checkbox on the Jitter Spectrum right side dialog.

ShowPeakThreshold *Bool*

Description

A yellow line showing the threshold for detecting a peak is placed on the jitter spectrum when this control is set to True. Peaks that break the threshold are considered PJ; in Spectral jitter decomposition energy below the threshold is considered random jitter. (Note that any sufficiently broadband jitter source, that raises the entire floor from DC or some very low frequency to some higher freuqency, may raise the threshold and therefore be counted as RJ in Spectral decomposition. Cross talk can be such a broadband source. See app.SDA2.JitterMeasure.Parameters.JitterModel for more information.)

ShowPjIFFT *Bool*

Description

When this control is set to True, an inverse FFT of the PJ spectrum is displayed. Since the PJ spectrum is windowed, the overall envelope will be the window function's shape. If there is dominant low frequency component in PJ it should be clearly visible in the PJ IFFT. The peak-to-peak of the PJ IFFT will agree with the PJ parameter exactly. Looking at the PJ IFFT might be able to show if several PJ frequencies actually are harmonics, in that case the shape in the PJ IFFT will be repeating.

PJINVFFT *app.SDA2.JitterMeasure.Spectrum.PjInvFFT*

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition

String

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText

String

Range Any number of characters

Persist3DQuality

Enum

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 sets this control to place the PJ IFFT on a particular grid. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Spectrum.PjInvFFT.Out.Result

ZOOM

app.SDA2.JitterMeasure.Spectrum.PjInvFFT.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

PKTHRESH

app.SDA2.JitterMeasure.Spectrum.PkThresh

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool

UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 software sets this control to place the peak threshold on the same grid as the jitter spectrum. Do not set this control.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Spectrum.PkThresh.Out.Result

ZOOM

app.SDA2.JitterMeasure.Spectrum.PkThresh.Zoom

HorPos	Double

HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

RJBUJSPECT

app.SDA2.JitterMeasure.Spectrum.RjBUjSpect

The RjBUj spectrum is turned on by app.SDA2.JitterMeasure.Spectrum.ShowFFTofTIE. At this point in the processing DDJ has been removed from the jitter, so only Rj and Bounded Uncorrelated jitter remain.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 sets this control to place the RjBUj spectrum (which, it must be noted, is turned on by ShowFFTofTIE) on a particular grid, which is the same grid as the Peak Threshold and peak annotation. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Spectrum.RjBUjSpect.Out.Result

ZOOM

app.SDA2.JitterMeasure.Spectrum.RjBUjSpect.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos

Double

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom

Double

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom

Action

Description

Resets the zoom settings to their default values.

VariableHorZoom

Bool

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom

Bool

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos

Double

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom

Double

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

SSCTRKX

app.SDA2.JitterMeasure.Spectrum.SSCTrkx

SSCTrk1 and SSCTrk2 are selectable from the graphical user interface when the signal type is set to "PCIE Compliance". We recommend using the higher level controls to enable these results, not (for example) SSCTrk1.View, because the setup for these functions is not at this level.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation

Integer

Range From -90 to 90 step 1

AxisYRotation

Integer

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 software sets this control to place the SSC Track (SSCTrk1 or SSCTrk2) on a particular grid. Do not set this control.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Spectrum.SSCTrkx.Out.Result

TRACK

app.SDA2.JitterMeasure.Track

ShowPLLTrack	Bool
ShowRjBUjTrack	Bool
ShowTIETrack	Bool

ShowPLLTrack *Bool*

Description

The PLLTrack is a time domain trace of PLL frequency. Its shape reflects the jitter and wander that the PLL tracked, and therefore does not appear in jitter values. (The PLL Track trace is automatically framed for the display; if you turn this on and the trace is not visible, probably the Zoom is not reset - the zoom state persists and may no longer be appropriate. Click on the PLLTrack descriptor box, that brings up the Zoom of PLLTrack tab on the right side dialog. Look at the Zoom of PLLTrack settings, and press Reset Zoom.)

ShowRjBUjTrack

Bool

Description

When this control is set to True the RjBUj Track is displayed. The RjBUj track is a time domain waveform spanning the same time as the input waveform, and with vertical units of time. It shows the random jitter and the bounded uncorrelated jitter (but not the DDJ, which is correlated to the data pattern). Compare this to the TIE track, which includes all the jitter. They may look visually the same, but chances are the TIE track is at a larger vertical scale. TIE track is always greater than or equal to the RjBUj track.

ShowTIETrack

Bool

Description

When this control is set to True the TIE Track is displayed. TIE Track is a time domain waveform, spanning (almost) the same time as the input waveform, and with vertical units of time. TIE Track shows all the jitter that was in the input signal. Compare it to RjBUj track, see ShowRjBUjTrack, above.

PLLTRACK

app.SDA2.JitterMeasure.Track.PLLTrack

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation

Integer

Range From -90 to 90 step 1

AxisYRotation

Integer

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid

String

Range Any number of characters

Description

SDA2 software sets this control to place the PLLTrack on a particular grid. Do not set this control.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels

Bool

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Track.PLLTrack.Out.Result

ZOOM

app.SDA2.JitterMeasure.Track.PLLTrack.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos

Double

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

RJBUJTRACK

app.SDA2.JitterMeasure.Track.RjBUjTrack

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool

UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 software sets this control to place the RjBUj Track on a particular grid, which is the same grid as the PLL track. Do not set this control.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Track.RjBUjTrack.Out.Result

ZOOM

app.SDA2.JitterMeasure.Track.RjBUjTrack.Zoom

HorPos	Double

HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

TIETRACK

app.SDA2.JitterMeasure.Track.TIETrack

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 software sets this control to place the TIETrack on a particular grid. Do not change this setting.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.JitterMeasure.Track.TIETrack.Out.Result

ZOOM

app.SDA2.JitterMeasure.Track.TIETrack.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos

Double

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom

Double

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom

Action

Description

Resets the zoom settings to their default values.

VariableHorZoom

Bool

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom

Bool

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos

Double

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

PCIE *app.SDA2.PCIe*

PCIeMask	Enum
PCIeMeasurement	Enum
PCIeStandard	Enum
ShowPCIeMeasure	Bool

PCIeMask *Enum*

Description

Selects the appropriate mask. The user should select the mask based on where the connection to the signal is.

Values

RXAddInConn	
RXPkgPins	
RXSysConn	
TXAddInConn	
TXPkgPins	
TXSysConn	

PCIeMeasurement *Enum*

Description

SDA2 has several sets of measurments from the PCIE Base spec. Most of these measurements are not included in compliance testing. Some of these measurements may require probing at the TX pins (or using the software option EyeDr2 to de-embed the fixture). See also ShowPCIeMeasure, below.

Values

LanesSkew	
None	
SSC	
Timing	
Voltage	

PCIeStandard *Enum*

Description

The PCIe Signal Quality (electrical compliance) test can be selected for PCIE 1.0a or PCIE 1.1

Values

PCIExpress1.0a	
PCIExpress1.1	

ShowPCIeMeasure *Bool*

Description

When this control is set to True, the measurement set selected in PCIeMeasurement is calculated and displayed.

PARAMETERS

app.SDA2.PCIe.Parameters

PCIeTestGroup	Enum

PCIeTestGroup *Enum*

Description

This control selects either PCIeMeasurements (see that, on the previous page) or the Signal Quality test (electrical compliance test).

Values

PCIEMeasurement	
PCIESignalQuality	

SD2SKEW

app.SDA2.PCIe.Parameters.SD2Skew

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.SD2Skew.Out.Result

SSC1FREQ

app.SDA2.PCIe.Parameters.SSC1Freq

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.SSC1Freq.Out.Result

SSC1MAX

app.SDA2.PCIe.Parameters.SSC1Max

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.SSC1Max.Out.Result

SSC1MIN

app.SDA2.PCIe.Parameters.SSC1Min

ClearSweeps	Action

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.SSC1Min.Out.Result*

SSC2FREQ *app.SDA2.PCIe.Parameters.SSC2Freq*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.SSC2Freq.Out.Result*

SSC2MAX *app.SDA2.PCIe.Parameters.SSC2Max*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.SSC2Max.Out.Result

SSC2MIN

app.SDA2.PCIe.Parameters.SSC2Min

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.SSC2Min.Out.Result

SSCDIFF

app.SDA2.PCIe.Parameters.SSCDiff

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.SSCDiff.Out.Result*

TXFALLDM *app.SDA2.PCIe.Parameters.TxFallDm*

This is the fall time on the "minus" data line.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.TxFallDm.Out.Result*

TXFALLDP *app.SDA2.PCIe.Parameters.TxFallDp*

This is the fall time on the "plus" data line, that is, the plus side of the differential signal.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.TxFallDp.Out.Result*

TXRISEDM *app.SDA2.PCIe.Parameters.TxRiseDm*

Rise time on the "minus" data line, that is, the minus side of the differential signal.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.TxRiseDm.Out.Result*

TXRISEDP *app.SDA2.PCIe.Parameters.TxRiseDp*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.TxRiseDp.Out.Result*

VDIFF *app.SDA2.PCIe.Parameters.Vdiff*

Vdiff amplitude as defined in the PCIe 1.1 and 2.0 base specifications.

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.SDA2.PCIe.Parameters.Vdiff.Out.Result*

VDIFFPP *app.SDA2.PCIe.Parameters.VdiffPP*

ClearSweeps	Action
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.VdiffPP.Out.Result

VTXCM

app.SDA2.PCIe.Parameters.VTxCm

Transmitter common mode voltage

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.VTxCm.Out.Result

VTXDE

app.SDA2.PCIe.Parameters.VTxDe

De-emphasis in dB. This measurement should be made at the transmitter's pins, otherwise what is being measured is the remaining de-emphasis after some is used up by the fixture or channel.

ClearSweeps	Action
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SDA2.PCIe.Parameters.VTxDe.Out.Result

PCIECOMP

app.SDA2.PCIeComp

AbortAfterFailures	Integer
NonTransLowerRail	Double
NonTransUpperRail	Double
NonTransX1	Double
NonTransX2	Double
NonTransX3	Double
NonTransX4	Double
NonTransY1	Double
NonTransY2	Double
NonTransY3	Double
NonTransY4	Double
PCIeCleanClock	Bool
PCIeFormFactor	Enum
PCIeSignalMode	Enum
PCIeSignalModeNT	Enum
SingleEyeLowerRail	Double
SingleEyeUpperRail	Double
SingleEyeX1	Double
SingleEyeX2	Double
SingleEyeX3	Double
SingleEyeX4	Double
SingleEyeY1	Double
SingleEyeY2	Double
SingleEyeY3	Double
SingleEyeY4	Double
SplitEyeOn	Bool
TransLowerRail	Double
TransUpperRail	Double
TransX1	Double
TransX2	Double
TransX3	Double
TransX4	Double
TransY1	Double

TransY2	Double
TransY3	Double
TransY4	Double
UIsPerEye	Double

AbortAfterFailures *Integer*

Range From 0 to 50000 step 1

NonTransLowerRail *Double*

Range From -2 to 0 step 1e-006

NonTransUpperRail *Double*

Range From 0 to 2 step 1e-006

NonTransX1 *Double*

Range From 0 to 1 step 1e-006

NonTransX2 *Double*

Range From 0 to 1 step 1e-006

NonTransX3 *Double*

Range From 0 to 1 step 1e-006

NonTransX4 *Double*

Range From 0 to 1 step 1e-006

NonTransY1 *Double*

Range From -2 to 2 step 1e-006

NonTransY2 *Double*

Range From -2 to 2 step 1e-006

NonTransY3 *Double*

Range From -2 to 2 step 1e-006

NonTransY4 *Double*

Range From -2 to 2 step 1e-006

PCIeCleanClock *Bool*

PCIeFormFactor *Enum*

Values

Desktop	
Mobile	

PCIeSignalMode *Enum*

Values

RX	
TXNonTrans	
TXTrans	

PCIeSignalModeNT *Enum*

Values

RX	
TXNonTrans	
TXTrans	

SingleEyeLowerRail *Double*

Range From -2 to 0 step 1e-006

SingleEyeUpperRail *Double*

Range From 0 to 2 step 1e-006

SingleEyeX1 *Double*

Range From 0 to 1 step 1e-006

SingleEyeX2 *Double*

Range From 0 to 1 step 1e-006

SingleEyeX3 *Double*

Range From 0 to 1 step 1e-006

SingleEyeX4 *Double*

Range From 0 to 1 step 1e-006

SingleEyeY1 *Double*

Range From -2 to 2 step 1e-006

SingleEyeY2 *Double*

Range From -2 to 2 step 1e-006

SingleEyeY3 *Double*

Range From -2 to 2 step 1e-006

SingleEyeY4 *Double*

Range From -2 to 2 step 1e-006

SplitEyeOn *Bool*

TransLowerRail *Double*

Range From -2 to 0 step 1e-006

TransUpperRail *Double*

Range From 0 to 2 step 1e-006

TransX1 *Double*

Range From 0 to 1 step 1e-006

TransX2 *Double*

Range From 0 to 1 step 1e-006

TransX3 *Double*

Range From 0 to 1 step 1e-006

TransX4 *Double*

Range From 0 to 1 step 1e-006

TransY1 *Double*

Range From -2 to 2 step 1e-006

TransY2 *Double*

Range From -2 to 2 step 1e-006

TransY3 *Double*

Range From -2 to 2 step 1e-006

TransY4 *Double*

Range From -2 to 2 step 1e-006

UIsPerEye *Double*

Range From 1 to 2.5 step 0.01

PCIEEYE

app.SDA2.PCIeComp.PCIeEye

RESULT

app.SDA2.PCIeComp.PCIeEye.Out.Result

PCIEEYENT

app.SDA2.PCIeComp.PCIeEyeNT

RESULT

app.SDA2.PCIeComp.PCIeEyeNT.Out.Result

PCIEPARAMETERS

app.SDA2.PCIeParameters

PCIeShowStatistics	Bool

PCIeShowStatistics

Bool

Description

Turns on statistics (min, max, mean, sigma, n) for the PCIe measurements.

PCIEPARAMETER1

app.SDA2.PCIeParameters.PCIeParameter1

RESULT

app.SDA2.PCIeParameters.PCIeParameter1.histo.Result

RESULT

app.SDA2.PCIeParameters.PCIeParameter1.last.Result

This is the last individual value produced by the parameter.

RESULT

app.SDA2.PCIeParameters.PCIeParameter1.max.Result

This is the maximum value (of n counted in statistics) returned by the parameter.

RESULT

app.SDA2.PCIeParameters.PCIeParameter1.mean.Result

This is the mean (of n counted in statistics) values returned by the parameter.

RESULT

app.SDA2.PCIeParameters.PCIeParameter1.min.Result

This is the minimum (of n values counted in statistics) value returned by the parameter.

RESULT

app.SDA2.PCIeParameters.PCIeParameter1.num.Result

This is 'n', the number of values included in statistics.

PCIEPARMETERSSTATISTICS

app.SDA2.PCIeParameters.PCIeParameter1.PCIeParmetersStatistics

RESULT

app.SDA2.PCIeParameters.PCIeParameter1.sdev.Result

This is the standard deviation of the values included in statistics for this parameter.

REFCLKINPUT

app.SDA2.RefClkInput

Deskew	Double
FrequencyMultiplier	Double
InputClkRef	Enum
RefPercentLevel	Double
RefSource	Enum
RefSourceBar	Enum
RefThresholdFind	Action
RefThresholdType	Enum
UpSampleRefClk	Integer

Deskew

Double

Range From -1e-008 to 1e-008 step 1e-012

Description

When an explicit reference clock is supplied, SDA2 does not know the skew between the Reference Clock and the data signal. The user must adjust this control to align the data and the clock. If the data

and clock are meant to be coincident then just adjust this to position the eye on horizontal grid lines 2 and 8, that is, to center the eye. This control may also be used to compensate for a delay between the clock and the data: dial in the nominal delay, and then adjust to center the eye on the display.

FrequencyMultiplier *Double*

Range From 1 to 1 step 1

Description

This is the multiplication factor used to multiply up a sub-rate clock to the data rate. For example, for 5Gb/s data and 100MHz clock, set this to 50.
Note: when an explicit reference clock is not being used, the range on this control is change to have a maximum of 1, to force the adapted value of FrequencyMultiplier to be 1. If an explicit reference is selected at a later time, the range is restored and the adapted value will return to the last requested value. When in use, the max is set to 1000.

InputClkRef *Enum*

Description

This control determines whether the clock is on a single input, or on two inputs (a differential clock signal). If "Clock+ and Clock-" is selected those inputs are subtracted to get the clock signal.

Values

Diff	The clock is differential, on two inputs.
Single	The clock signal is on only one input

RefPercentLevel *Double*

Range From 0 to 100 step 1

Description

When RefThresholdType (see below) is set to Percent, this control specifies the level in percent from base (0) to top (100). The default of 50% should be correct, since only one slope of the clock is used.

RefSource *Enum*

Description

This control specifies the source for the "plus" side of a differential reference clock, or the only signal for a single ended reference clock.

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
M1	
M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

RefSourceBar *Enum*

Description

This control specifies the source for the "minus" side of a differential reference clock signal.

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
M1	
M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

RefThresholdFind *Action*

Description

When this action control is activated it sets the Percent level to 50% and then sets the Absolute level to correspond, that is, halfway between base and top of the reference clock waveform.

RefThresholdType *Enum*

Description

This control chooses whether the threshold level is specified as an abolute value in vertical units of the reference clock signal, or as a percent of base (0%) to top (100%). See also RefAbsLevel and RefPercentLevel, above.

Values

Absolute	
Percent	

UpSampleRefClk *Integer*

Range From 1 to 50 step 1

Description

In some (rare) cases the clock signal may have a very fast edge relative to the scope's sample rate, such that there are fewer than four samples on an edge. If that is so, it may help to reduce jitter on the recovered clock to "upsample" the reference clock input. Determining the edge time uses cubic interpolation, which works best when there are at least four samples on the edge. This control allows you to specify the upsampling factor for the reference clock. In most cases, no upsampling is needed. Nonetheless the default value for this control is 5, which should always be sufficient.

SDAREFCLK *app.SDA2.RefClkInput.SDARefClk*

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid

String

Range Any number of characters

Description

SDA2 software does not attempt to display the reference clock. To display the reference clock,we recommend you use this as the source of a Zoom or Math function, then the view of the Zoom or Math can be controlled from the graphical user interface. However, it is possible to set UseGrid (this control) to "YT1" (the first = top left grid) and set "View" to True, to establish a view of the reference clock. Since SDA2 is not managing this view, it is up to you to turn it off.

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels

Bool

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.RefClkInput.SDARefClk.Out.Result

SDASTATUS

app.SDA2.SDAStatus

DataSource	Enum
SignalFrequency	Double

DataSource

Enum

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
M1	

M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

SignalFrequency *Double*

Range From 90000 to 4e+010 step 1

SIGNALINPUT *app.SDA2.SignalInput*

DataSource	Enum
DataSourceBar	Enum
FindLevel	Action
InputSUT	Enum
LevelType	Enum
PercentLevel	Double
SignalType	Enum
TIESignalType	Enum
UpSampleSUT	Integer

DataSource *Enum*

Description

This control specifies the source of the "plus" side of the differential data signal, or the source of the only connection of a single ended data signal.

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	

F8	
M1	
M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

DataSourceBar *Enum*

Description

This control specifies the soure of the "minus" side of the differential data signal. See also "InputSUT" below.

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
M1	
M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

FindLevel *Action*

Description

When this action control is used, SDA2 will set the PercentLevel to 50% and will set the AbsLevel to halfway between the base and top of the input signal.

InputSUT *Enum*

Description

This control specifies whether the input Signal Under Test is single ended (from one source, such as C2) or differential (from a pair of sources, such as C2 and C3).

Values

Diff	gnal, a "plus" and "minus" side, from two sources; SDA2 will calculate the difference.
Single	Single ended signal, in one source

LevelType *Enum*

Description

This control sets whether PercentLevel or AbsLevel is used to define the threshold for detecting transitions in the input signal.

Values

Absolute	
Percent	

PercentLevel *Double*

Range From 0 to 100 step 1

Description

When LevelType is set to Percent, this control specifies the threshold level. Its value is percent from base (0%) to top (100%).

SignalType *Enum*

Description

This control selects the predefined signal type of the input signal. If the input signal isn't any of the predefined types, select "Custom". If the input signal is a clock, select "Clock". This list is defined in a couple of external databases, in D:\Masks. We add to that list as new standards are released, it is likely to have more entries than you see listed below. For example, we know we will soon add USB3 and PCIe 3.0 at 8Gb/s. Please look on your scope to see what choices are available.
When this is set to a known signal type, the bit rate is set to nominal for that standard; the allowed choices of defined masks is set; and, for PCIE, some PCIE CEM spec defined choices of PLL settings are allowed.
Custom does not have any defined masks or a known nominal data rate. So, for Custom you must find or set the bit rate; and of course you can't do mask testing without a mask. All other measurements work normally. It is possible to edit our mask database to define a type of signal we didn't include, you can specify the mask as coordinates; then your signal type will be like any other predefined signal type. The tool for editing the EyeMaskProperties database is Maskdatabaseeditor.exe, it is installed on your scope. Please see documentation for that program, for more information.

Values

1000BaseCX	
1000BaseLX	
1000BaseSX	
10G10.4	
10G9.9	
10GBASELX4	
10GbEFEC	
10GFCX4	
10XFC	
10XFCFEC	
Clock	
Custom	
DisplayPort1.62Gbs	
DisplayPort2.7Gbs	
DVI	
FBDIMM3.2Gbs	
FBDIMM4.0Gbs	
FBDIMM4.8Gbs	
FC1063	
FC133	
FC2125	
FC266	
FC4250	
FC531	
FEC10.664	
FEC10.709	
FEC12.5	
FlexRay10.0Mbitss	
FlexRay2.5Mbitss	
FlexRay5.0Mbitss	

FSB533Mhz	
FSB667Mhz	
FSB800Mhz	
HDMI1.3148.5MHz	
HDMI1.3222.75MHz	
HDMI1.325MHz	
HDMI1.327MHz	
HDMI1.374.25MHz	
IEEE1394b	
Infini2.5Gbs	
InfiniBand	
OC1	
OC12	
OC192	
OC3	
OC48	
PCIe1.0a	
PCIe1.0aMobile	
PCIe1.1	
PCIe2.02.5GTs	
PCIe2.05GTs	
PCIeCompliance	
RapidIOLPSerial	
RapidIOParallel	
SerialATA1.0a	
SerialATAII	
SerialAttachedSCSI	
STM16	
STM1Optical	
STM4Optical	
STS1Eye	
STS3	
USB2.0	
USB3.0SS	
VSR5	
XAUI	

TIESignalType *Enum*

Description

This control specifies whether the input signal is data or a clock.

Values

Clock	
Data	

UpSampleSUT

Integer

Range From 1 to 50 step 1

Description

This control specifies how much upsampling should be applied. Upsampling creates more samples using a quite accurate sin(x)/x interpolation. There are two reasons you might want to upsample. The first is, internally, our transition time measurement uses cubic interpolation (and more) to find the time of the threshold crossing. For cubic interpolation it is ideal to have 4 or more samples on the transition. At 40GS/s, spacing between samples is 25ps, so 100ps edge will have four samples on the edge; faster edges than that might benefit from upsampling by 2 or more if required. The second reason to upsample is that some signals, like PCIE at 5Gb/s, are at an exact submultiple of the scope's sampling rate. At 40GS/s, there are exactly 8 samples per UI on a 5Gb/s signal. The scopes sample clock is calibrated and, in SDA scopes, temperature stabilized. It is extremely accurate. If the signal does not have SSC and is also extremely accurately clocked, then all the points will occur at 8 horizontal positions in an 8 diagram; the eye will not form closed curves. This is more likely to be noticable if the acquisition size is fairly short. For example: if the acqusition size is 100,000 UI long then without upsampling, each of the 8 positions must drift to the next position to form the eye; that requires 1/100000 / 8 = 1.25 ppm frequency difference. But with the default upsampling of 5, the samples fall at 8 x 5 = 40 horizontal positions in the eye; so that requires only 10ppm / 40 = 0.25ppm frequency difference to form the eye. The eye is much more likely to be completely formed. (Please note that in general we recommend long acquisitions for SDA2 analysis, longer acquistions than used in the example above reduce the likelyhood of needing upsampling.)

SDAINPUT

app.SDA2.SignalInput.SDAInput

Input signal used by SDA2. If the signal under test was differential, this is after the subtraction.

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation

Integer

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

Description

SDA2 software does not display its input signal (after the subtraction, if the input was differential) but it is available as the source of a Zoom or Math trace. Or, you could set "Use Grid" (this control) to "YT1" (the top left grid) and set View to True. If you do that, remember that SDA2 is not managing that view, it is up to you to turn it off again.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SDA2.SignalInput.SDAInput.Out.Result

SERIALDECODE

app.SerialDecode

The Serial Decode Tab is the entry point for all of the decoders supported in LeCroy scopes

AnnotationPositionPreference	Enum
LinkedToTrigger1	Bool
LinkedToTrigger2	Bool
LinkedToTrigger3	Bool
LinkedToTrigger4	Bool
SelectDecoder	Enum

AnnotationPositionPreference *Enum*

Values

OnNoisyTrace	
OnTrace	

LinkedToTrigger1 *Bool*

LinkedToTrigger2 *Bool*

LinkedToTrigger3 *Bool*

LinkedToTrigger4 *Bool*

SelectDecoder *Enum*

Values

Decode1	
Decode2	
Decode3	
Decode4	

8B10B

app.SerialDecode.Decode[n].Protocol (Protocol = "8B10B")

BitRate	Double
ColumnState	String
FilteredSymbolList	String
LevelPercent	Double
LevelType	Enum
PrimitiveFile	FileName
PrimitiveSource	Enum
ViewingMode	Enum

BitRate *Double*

Range From 1000 to 1e+010 step 0.0001

ColumnState *String*

Range Any number of characters

FilteredSymbolList *String*

Range Any number of characters

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

PrimitiveFile *FileName*

Range Any number of characters

PrimitiveSource *Enum*

Values

8b10b	
Others	
PCIE	
PCIE20	
SAS	
SATA	
USB3	
XAUI	

ViewingMode *Enum*

Values

Hexadecimal	
Symbolic	

AUDIOI2S

app.SerialDecode.Decode[n].Protocol (Protocol = "AudioI2S")

Annotate	Enum
BitOrder	Enum
BitsInChannel	Integer
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum

ClockPhase	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSOffset	Integer
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
IgnoreCS	Bool
MinSamplesPerBit	Integer
ViewingMode	Enum

Annotate *Enum*

Values

All	
Left	
Right	

BitOrder *Enum*

Values

LSB	
MSB	

BitsInChannel *Integer*

Range From 1 to 32 step 1

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

Negative	
Positive	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Falling	
Rising	

CSOffset *Integer*

Range From 0 to 31 step 1

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

IgnoreCS *Bool*

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

ViewingMode *Enum*

Values

Binary	
dB	
Dec	
Hex	

AUDIOLJ

app.SerialDecode.Decode[n].Protocol (Protocol = "AudioLJ")

Annotate	Enum
BitOrder	Enum
BitsInChannel	Integer
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSOffset	Integer
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
IgnoreCS	Bool
MinSamplesPerBit	Integer
ViewingMode	Enum

Annotate

Enum

Values

All	
Left	
Right	

BitOrder

Enum

Values

LSB	
MSB	

BitsInChannel

Integer

Range From 1 to 32 step 1

BitsPerByte

Integer

Range From 2 to 32 step 1

ByteSlicer

Enum

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent

Double

Range From 0 to 100 step 0.1

ClockLevelType

Enum

Values

Absolute	
Percent	

ClockPhase

Enum

Values

Negative	
Positive	

ColumnState

String

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Falling	
Rising	

CSOffset *Integer*

Range From 0 to 31 step 1

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

IgnoreCS *Bool*

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

ViewingMode *Enum*

Values

Binary	
dB	
Dec	
Hex	

AUDIORJ

app.SerialDecode.Decode[n].Protocol (Protocol = "AudioRJ")

Annotate	Enum
BitOrder	Enum
BitsInChannel	Integer
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSOffset	Integer
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
IgnoreCS	Bool
MinSamplesPerBit	Integer
ViewingMode	Enum

Annotate *Enum*

Values

All	
Left	
Right	

BitOrder *Enum*

Values

LSB	
MSB	

BitsInChannel *Integer*

Range From 1 to 32 step 1

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

Negative	
Positive	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Falling	
Rising	

CSOffset *Integer*

Range From 0 to 31 step 1

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

IgnoreCS *Bool*

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

ViewingMode *Enum*

Values

Binary	
dB	
Dec	
Hex	

AUDIOTDM

app.SerialDecode.Decode[n].Protocol (Protocol = "AudioTDM")

Annotate	Enum

BitOrder	Enum
BitsInChannel	Integer
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSOffset	Integer
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
IgnoreCS	Bool
MinSamplesPerBit	Integer
ViewingMode	Enum

Annotate *Enum*

Values

All	
Audio1	
Audio2	
Audio3	
Audio4	
Audio5	
Audio6	
Audio7	
Audio8	

BitOrder *Enum*

Values

LSB	
MSB	

BitsInChannel *Integer*

Range From 1 to 32 step 1

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

Negative	
Positive	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Falling	
Rising	

CSOffset *Integer*

Range From 0 to 31 step 1

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

IgnoreCS *Bool*

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

ViewingMode *Enum*

Values

Binary	
dB	
Dec	
Hex	

CAN

app.SerialDecode.Decode[n].Protocol (Protocol = "CAN")

BitRate	Double
ColumnState	String
GMLAN	Bool
LevelPercent	Double
LevelType	Enum
ShowStuffBits	Bool
Tolerance	Double

ViewingMode	Enum

BitRate *Double*

Range From 10 to 2e+007 step 1

ColumnState *String*

Range Any number of characters

GMLAN *Bool*

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

ShowStuffBits *Bool*

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

Hexadecimal	

CANHL

app.SerialDecode.Decode[n].Protocol (Protocol = "CANHL")

BitRate	Double
ColumnState	String
GMLAN	Bool
LevelPercent	Double
LevelType	Enum
ShowStuffBits	Bool
Tolerance	Double
ViewingMode	Enum

BitRate *Double*

Range From 10 to 2e+007 step 1

ColumnState *String*

Range Any number of characters

GMLAN *Bool*

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

ShowStuffBits *Bool*

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

Hexadecimal	

FLX

app.SerialDecode.Decode[n].Protocol (Protocol = "FLX")

BitRate	Double
Channel	Enum
ColumnState	String
LevelHighPercent	Double
LevelHighType	Enum
LevelLowPercent	Double
LevelLowType	Enum
Tolerance	Double
ViewingMode	Enum

BitRate *Double*

Range From 1e+006 to 2e+007 step 1000

Channel *Enum*

Values

A	
B	

ColumnState *String*

Range Any number of characters

LevelHighPercent *Double*

Range From 0 to 100 step 0.1

LevelHighType *Enum*

Values

Absolute	
Percent	

LevelLowPercent *Double*

Range From 0 to 100 step 0.1

LevelLowType *Enum*

Values

Absolute	
Percent	

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

Hex	
Symbolic	

GMCANHL

app.SerialDecode.Decode[n].Protocol (Protocol = "GMCANHL")

BitRate	Double
ColumnState	String
GMLAN	Bool
LevelPercent	Double
LevelType	Enum
ShowStuffBits	Bool
Tolerance	Double
ViewingMode	Enum

BitRate *Double*

Range From 10 to 2e+007 step 1

ColumnState *String*

Range Any number of characters

GMLAN *Bool*

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

ShowStuffBits *Bool*

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

Hexadecimal	

GMCANLAN

app.SerialDecode.Decode[n].Protocol (Protocol = "GMCANLAN")

BitRate	Double
ColumnState	String
GMLAN	Bool
LevelPercent	Double
LevelType	Enum
ShowStuffBits	Bool
Tolerance	Double
ViewingMode	Enum

BitRate *Double*

Range From 10 to 2e+007 step 1

ColumnState *String*

Range Any number of characters

GMLAN *Bool*

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

ShowStuffBits *Bool*

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

Hexadecimal	

I2C

app.SerialDecode.Decode[n].Protocol (Protocol = "I2C")

AddressWithRW	Bool
BitRate	Double
ClockLevelPercent	Double
ClockLevelType	Enum
ColumnState	String
DataLevelPercent	Double
DataLevelType	Enum
Tolerance	Double
ViewingMode	Enum

AddressWithRW *Bool*

BitRate *Double*

Range From 10 to 2e+006 step 1

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ColumnState *String*

Range Any number of characters

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

ASCII	
Binary	
Dec	
Hex	

LIN

app.SerialDecode.Decode[n].Protocol (Protocol = "LIN")

BitRate	Double
ColumnState	String
LevelPercent	Double
LevelType	Enum
LINVersion	Enum
Tolerance	Double

BitRate *Double*

Range From 1000 to 20000 step 1

ColumnState *String*

Range Any number of characters

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

LINVersion *Enum*

Values

ALL	
J2602	
Rev1.3	
Rev2.x	

Tolerance *Double*

Range From 0.01 to 10 step 0.01

MIL1553

app.SerialDecode.Decode[n].Protocol (Protocol = "MIL1553")

BitRate	Double
ColumnState	String
FBO	Double
HalfSyncWidth	Double
LevelHAbsolute	Double
LevelHType	Enum
LevelLAbsolute	Double
LevelLType	Enum
MinSamplesPerBit	Integer
NPproximity	Double
TableMode	Enum
ViewingMode	Enum

BitRate *Double*

Range From 1000 to 2e+007 step 50

ColumnState *String*

Range Any number of characters

FBO *Double*

Range From 0 to 50 step 0.1

HalfSyncWidth *Double*

Range From 4e-008 to 0.025 step 1e-008

LevelHAbsolute *Double*

Range From -10 to 10 step 0.05

LevelHType *Enum*

Values

Absolute	
Percent	

LevelLAbsolute *Double*

Range From -10 to 10 step 0.05

LevelLType *Enum*

Values

Absolute	
Percent	

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

NPproximity *Double*

Range From 1e-009 to 0.005 step 1e-009

TableMode *Enum*

Values

Transfer	
Word	

ViewingMode *Enum*

Values

Binary	
Hex	

PCIE1X1

app.SerialDecode.Decode[n].Protocol (Protocol = "PCIE1X1")

BitRate	Double
CurrentBitRate	Double
InputIsDescrambled	Bool
Lane	Integer
LevelPercent	Double
LevelType	Enum
LinkToProtoColAnalyzer	Bool
ScramblingOn	Bool

SpeedChangeAt	Double
ViewMode	Enum

BitRate *Double*

Range From 1e+008 to 2e+010 step 1000

CurrentBitRate *Double*

Range From 1e+008 to 2e+010 step 1000

InputIsDescrambled *Bool*

Lane *Integer*

Range From 0 to 15 step 1

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

LinkToProtoColAnalyzer *Bool*

ScramblingOn *Bool*

SpeedChangeAt *Double*

Range From -100 to 100 step 1e-009

ViewMode *Enum*

Values

PCIE1X2

app.SerialDecode.Decode[n].Protocol (Protocol = "PCIE1X2")

BitRate	Double
CurrentBitRate	Double
InputIsDescrambled	Bool
Lane	Integer
LevelPercent	Double
LevelType	Enum
LinkToProtoColAnalyzer	Bool
ScramblingOn	Bool
SpeedChangeAt	Double

ViewMode	Enum

BitRate *Double*

Range From 1e+008 to 2e+010 step 1000

CurrentBitRate *Double*

Range From 1e+008 to 2e+010 step 1000

InputIsDescrambled *Bool*

Lane *Integer*

Range From 0 to 15 step 1

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

LinkToProtoColAnalyzer *Bool*

ScramblingOn *Bool*

SpeedChangeAt *Double*

Range From -100 to 100 step 1e-009

ViewMode *Enum*

Values

PCIE4X1

app.SerialDecode.Decode[n].Protocol (Protocol = "PCIE4X1")

BitRate	Double
CurrentBitRate	Double
InputIsDescrambled	Bool
LevelPercent	Double
LevelType	Enum
LinkToProtoColAnalyzer	Bool
ScramblingOn	Bool
SpeedChangeAt	Double
ViewMode	Enum

BitRate *Double*

Range From 1e+008 to 2e+010 step 1000

CurrentBitRate *Double*

Range From 1e+008 to 2e+010 step 1000

InputIsDescrambled *Bool*

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

LinkToProtoColAnalyzer *Bool*

ScramblingOn *Bool*

SpeedChangeAt *Double*

Range From -100 to 100 step 1e-009

ViewMode *Enum*

Values

RS232

app.SerialDecode.Decode[n].Protocol (Protocol = "RS232")

BitRate	Double
ByteOrderUI	Enum
ColumnState	String
DataBitsUI	Integer
LevelPercent	Double
LevelType	Enum
Parity	Enum
ParityUI	Enum
PolarityUI	Enum
StopBitsUI	Enum
Tolerance	Double
ViewingMode	Enum

BitRate *Double*

Range From 30 to 5e+008 step 1

ByteOrderUI *Enum*

Values

LSB	
MSB	

ColumnState *String*

Range Any number of characters

DataBitsUI *Integer*

Range From 5 to 16 step 1

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

Parity *Enum*

Values

Even	
Mark	
None	
Odd	
Space	

ParityUI *Enum*

Values

Even	
None	
Odd	

PolarityUI *Enum*

Values

IdleHigh	
IdleLow	

StopBitsUI *Enum*

Values

1	
2	

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

ASCII	
Binary	
Hex	

SIOP

app.SerialDecode.Decode[n].Protocol (Protocol = "SIOP")

BitOrder	Enum
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ClockPolarity	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
DDR	Bool
IgnoreCS	Bool
InterFrameSetup	Enum
InterFrameTime	Double
MinSamplesPerBit	Integer
TDMChannel	Integer
ViewingMode	Enum

BitOrder *Enum*

Values

LSB	

MSB	

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

0	
1	

ClockPolarity *Enum*

Values

0	
1	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Both	
Falling	
Rising	

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

DDR *Bool*

IgnoreCS *Bool*

InterFrameSetup *Enum*

Values

Auto	
Manual	

InterFrameTime *Double*

Range From 1e-009 to 10 step 1e-009

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

TDMChannel

Integer

Range From 1 to 8 step 1

ViewingMode

Enum

Values

ASCII	
Binary	
Dec	
Hex	

SPI

app.SerialDecode.Decode[n].Protocol (Protocol = "SPI")

BitOrder	Enum
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ClockPolarity	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
DDR	Bool
IgnoreCS	Bool
InterFrameSetup	Enum
InterFrameTime	Double
MinSamplesPerBit	Integer
TDMChannel	Integer
ViewingMode	Enum

BitOrder

Enum

Values

LSB	
MSB	

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

0	
1	

ClockPolarity *Enum*

Values

0	
1	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Both	
Falling	
Rising	

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

DDR *Bool*

IgnoreCS *Bool*

InterFrameSetup *Enum*

Values

Auto	
Manual	

InterFrameTime *Double*

Range From 1e-009 to 10 step 1e-009

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

TDMChannel *Integer*

Range From 1 to 8 step 1

ViewingMode *Enum*

Values

ASCII	
Binary	
Dec	
Hex	

SPICUSTOM

app.SerialDecode.Decode[n].Protocol (Protocol = "SPICustom")

BitOrder	Enum
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ClockPolarity	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
DDR	Bool
IgnoreCS	Bool
InterFrameSetup	Enum
InterFrameTime	Double
MinSamplesPerBit	Integer
TDMChannel	Integer
ViewingMode	Enum

BitOrder *Enum*

Values

LSB	
MSB	

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

0	
1	

ClockPolarity *Enum*

Values

0	
1	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Both	
Falling	
Rising	

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

DDR *Bool*

IgnoreCS *Bool*

InterFrameSetup *Enum*

Values

Auto	
Manual	

InterFrameTime *Double*

Range From 1e-009 to 10 step 1e-009

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

TDMChannel *Integer*

Range From 1 to 8 step 1

ViewingMode

Enum

Values

ASCII	
Binary	
Dec	
Hex	

SPIDDR

app.SerialDecode.Decode[n].Protocol (Protocol = "SPIDDR")

BitOrder	Enum
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ClockPolarity	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
DDR	Bool
IgnoreCS	Bool
InterFrameSetup	Enum
InterFrameTime	Double
MinSamplesPerBit	Integer
TDMChannel	Integer
ViewingMode	Enum

BitOrder

Enum

Values

LSB	
MSB	

BitsPerByte

Integer

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

0	
1	

ClockPolarity *Enum*

Values

0	
1	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Both	
Falling	
Rising	

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

DDR *Bool*

IgnoreCS *Bool*

InterFrameSetup *Enum*

Values

Auto	
Manual	

InterFrameTime *Double*

Range From 1e-009 to 10 step 1e-009

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

TDMChannel *Integer*

Range From 1 to 8 step 1

ViewingMode *Enum*

Values

ASCII	
Binary	
Dec	
Hex	

SSPI *app.SerialDecode.Decode[n].Protocol (Protocol = "SSPI")*

BitOrder	Enum
BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ClockPolarity	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
DDR	Bool
IgnoreCS	Bool
InterFrameSetup	Enum
InterFrameTime	Double
MinSamplesPerBit	Integer
TDMChannel	Integer
ViewingMode	Enum

BitOrder *Enum*

Values

LSB	
MSB	

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

0	
1	

ClockPolarity *Enum*

Values

0	
1	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Both	
Falling	
Rising	

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

DDR *Bool*

IgnoreCS *Bool*

InterFrameSetup *Enum*

Values

Auto	
Manual	

InterFrameTime *Double*

Range From 1e-009 to 10 step 1e-009

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

TDMChannel *Integer*

Range From 1 to 8 step 1

ViewingMode *Enum*

Values

ASCII	
Binary	
Dec	
Hex	

UART

app.SerialDecode.Decode[n].Protocol (Protocol = "UART")

BitRate	Double
ByteOrderUI	Enum
ColumnState	String
DataBitsUI	Integer
LevelPercent	Double
LevelType	Enum
Parity	Enum
ParityUI	Enum
PolarityUI	Enum
StopBitsUI	Enum
Tolerance	Double
ViewingMode	Enum

BitRate *Double*

Range From 30 to 5e+008 step 1

ByteOrderUI *Enum*

Values

LSB	
MSB	

ColumnState *String*

Range Any number of characters

DataBitsUI *Integer*

Range From 5 to 16 step 1

LevelPercent *Double*

Range From 0 to 100 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	

Parity *Enum*

Values

Even	
Mark	
None	
Odd	
Space	

ParityUI *Enum*

Values

Even	
None	
Odd	

PolarityUI *Enum*

Values

IdleHigh	
IdleLow	

StopBitsUI *Enum*

Values

1	
2	

Tolerance *Double*

Range From 0.01 to 10 step 0.01

ViewingMode *Enum*

Values

ASCII	
Binary	
Hex	

USART

app.SerialDecode.Decode[n].Protocol (Protocol = "USART")

BitOrder	Enum

BitsPerByte	Integer
ByteSlicer	Enum
ClockLevelPercent	Double
ClockLevelType	Enum
ClockPhase	Enum
ClockPolarity	Enum
ColumnState	String
Conversion	Enum
CSLevelPercent	Double
CSLevelType	Enum
CSLockMode	Enum
CSPolarity	Enum
DataLevelPercent	Double
DataLevelType	Enum
DDR	Bool
IgnoreCS	Bool
InterFrameSetup	Enum
InterFrameTime	Double
MinSamplesPerBit	Integer
TDMChannel	Integer
ViewingMode	Enum

BitOrder *Enum*

Values

LSB	
MSB	

BitsPerByte *Integer*

Range From 2 to 32 step 1

ByteSlicer *Enum*

Values

CSbased	
CSbasedMulti	
HolebasedMulti	
NoHole	
Std	
UserCol	

ClockLevelPercent *Double*

Range From 0 to 100 step 0.1

ClockLevelType *Enum*

Values

Absolute	
Percent	

ClockPhase *Enum*

Values

0	
1	

ClockPolarity *Enum*

Values

0	
1	

ColumnState *String*

Range Any number of characters

Conversion *Enum*

Values

Binary	
Binary2Cpl	

CSLevelPercent *Double*

Range From 0 to 100 step 0.1

CSLevelType *Enum*

Values

Absolute	
Percent	

CSLockMode *Enum*

Values

Both	
Falling	
Rising	

CSPolarity *Enum*

Values

ActiveHigh	
ActiveLow	

DataLevelPercent *Double*

Range From 0 to 100 step 0.1

DataLevelType *Enum*

Values

Absolute	
Percent	

DDR *Bool*

IgnoreCS *Bool*

InterFrameSetup *Enum*

Values

Auto	
Manual	

InterFrameTime *Double*

Range From 1e-009 to 10 step 1e-009

MinSamplesPerBit *Integer*

Range From 4 to 100 step 1

TDMChannel *Integer*

Range From 1 to 8 step 1

ViewingMode *Enum*

Values

ASCII	
Binary	
Dec	
Hex	

DECODEX

app.SerialDecode.Decodex

AnnotationPosition	Enum
DataSource	Enum

OutputFile	FileName
Protocol	Enum
View	Bool
ViewDecode	Bool

AnnotationPosition

Enum

Values

Bottom	
Centered	
OnNoisyTrace	
OnTrace	
Top	

DataSource *Enum*

Description

The Data Source has to be entered here. The source can be any channel, function or memory. The Data Source is required for every protocol supported whereas Clock and Chip Select might not be

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
D0	
D1	
D10	
D11	
D12	
D13	
D14	
D15	
D16	
D17	
D18	
D19	
D2	
D20	
D21	
D22	
D23	
D24	
D25	
D26	
D27	
D28	
D29	
D3	
D30	
D31	
D32	
D33	
D34	
D35	
D4	

D5	
D6	
D7	
D8	
D9	
DDjHist	
DDjPlot	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	
PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	

SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

OutputFile

FileName

Range Any number of characters

Description

The name and path of the File used to export the Decoded Table

Protocol *Enum*

Description

The protocol currently decoded by this Decoder. At the time of this writing (July of 2007) we support 7 protocols:8b10, CAN, FlexRay, I2C, LIN, UART, SPI. The options purchased govern the list of visible protocol in this field.

Values

8B10B	
AudioI2S	
AudioLJ	
AudioRJ	
AudioTDM	
CAN	
CANHL	
FLX	
GMCANHL	
GMCANLAN	
I2C	
LIN	
MIL1553	
PCIE1X1	
PCIE1X2	
PCIE4X1	
RS232	
SIOP	
SPI	
SPICustom	
SPIDDR	
SSPI	
UART	
USART	

View *Bool*

Description

Turns the Table View on and off.

ViewDecode *Bool*

Description

Turns the Annotation View on and off.

DECODE

app.SerialDecode.Decodex.Decode

BitRate	Double
ColumnState	String
FilteredSymbolList	String
LevelPercent	Double

LevelType	Enum
PrimitiveFile	FileName
PrimitiveSource	Enum
ViewingMode	Enum

BitRate *Double*

Range From 1000 to 1e+010 step 0.0001

Description

The Bitrate of the data stream to be decoded

ColumnState *String*

Range Any number of characters

Description

This variable lists the visibility state of the columns in the decoded table
Each column is named, followed by an equal sign and the state on or off.
On turns on the column, off turns it off.

Example

```
The following command would show 3 columns
Time=on|Data=on|DataLength=on
whereas this comand would only show Time and DataLength
Time=on|Data=on|DataLength=off
```

FilteredSymbolList *String*

Range Any number of characters

LevelPercent *Double*

Range From 0 to 100 step 0.1

Description

The threshold between zeros and ones expressed in Percent of the distance between top and base.

LevelType *Enum*

Description

The selection between absolute and relative threshold mode

Values

Absolute	
Percent	

PrimitiveFile *FileName*

Range Any number of characters

PrimitiveSource *Enum*

Values

8b10b	
Others	
PCIE	
PCIE20	
SAS	
SATA	
USB3	
XAUI	

ViewingMode *Enum*

Description

Selects viewing mode, usually between Binary,Hexadecimal, ASCII

Values

Hexadecimal	
Symbolic	

RESULT *app.SerialDecode.Decodex.Out.Result*

FLEXRAYMEASURE *app.SerialDecode.FlexRayMeasure*

AsymmetricDelay	Bool
Bitrate	Double
Channel	Enum
FrameTSSLengthChange	Bool
Jitter	Bool
NodeM	Enum
NodeN	Enum
ProbeOn	Enum
PropagationDelay	Bool
SIVoting	Bool

AsymmetricDelay *Bool*

Bitrate *Double*

Range From 1000 to 1e+012 step 1000

Channel *Enum*

Values

A	
B	

FrameTSSLengthChange *Bool*

Jitter *Bool*

NodeM *Enum*

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
M1	
M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

NodeN *Enum*

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
M1	
M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

ProbeOn *Enum*

Values

BPBM	
RXDTXD	

PropagationDelay *Bool*

SIVoting *Bool*

FLXEYE

app.SerialDecode.FLXEye

AxisXRotation	Integer
AxisYRotation	Integer
Bitrate	Double
Channel	Enum
ClearSweeps	Action
LabelsPosition	String

LabelsText	String
MaskTestOn	Bool
MaskType	Enum
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
Source	Enum
StopOnViolation	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

Bitrate *Double*

Range From 1000 to 1e+012 step 1000

Channel *Enum*

Values

A	
B	

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

MaskTestOn *Bool*

MaskType *Enum*

Values

bitrate10Mbps	
bitrate2p5Mbps	
bitrate5Mbps	

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

Source

Enum

Values

C1	
C2	
C3	
C4	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
M1	
M2	
M3	
M4	
Z1	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

StopOnViolation

Bool

UseGrid

String

Range Any number of characters

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels

Bool

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT

app.SerialDecode.FLXEye.Out.Result

MEASURE

app.SerialDecode.Measure

P1	Enum
P2	Enum
P3	Enum
P4	Enum
P5	Enum
P6	Enum
ViewCANParam	Bool

P1

Enum

Values

Amplitude	
CANLoad	
CANMsgBR	
CANMsgNum	
CANtoAnalog	
CANtoCAN	
CANtoValue	
Fall	
Fall8020	
FallAtLevel	
FullWidthAtHalfMaximum	
FullWidthAtXX	
HistogramBase	
HistogramMaximum	
HistogramMean	
HistogramMedian	
HistogramMid	
HistogramMinimum	
HistogramRms	
HistogramSdev	
HistogramTop	
MaximumPopulation	

Mode	
Null	
OvershootNegative	
OvershootPositive	
Peaks	
Percentile	
PopulationAtX	
Range	
Rise	
Rise2080	
RiseAtLevel	
TimeAtCAN	
TotalPopulation	
XAtPeak	

P2 ***Enum***

Values

Amplitude	
CANLoad	
CANMsgBR	
CANMsgNum	
CANtoAnalog	
CANtoCAN	
CANtoValue	
Fall	
Fall8020	
FallAtLevel	
FullWidthAtHalfMaximum	
FullWidthAtXX	
HistogramBase	
HistogramMaximum	
HistogramMean	
HistogramMedian	
HistogramMid	
HistogramMinimum	
HistogramRms	
HistogramSdev	
HistogramTop	
MaximumPopulation	
Mode	
Null	
OvershootNegative	
OvershootPositive	
Peaks	
Percentile	
PopulationAtX	
Range	
Rise	
Rise2080	
RiseAtLevel	
TimeAtCAN	
TotalPopulation	
XAtPeak	

P3 ***Enum***

Values

Amplitude	
CANLoad	
CANMsgBR	
CANMsgNum	
CANtoAnalog	
CANtoCAN	
CANtoValue	
Fall	
Fall8020	
FallAtLevel	
FullWidthAtHalfMaximum	
FullWidthAtXX	
HistogramBase	
HistogramMaximum	
HistogramMean	
HistogramMedian	
HistogramMid	
HistogramMinimum	
HistogramRms	
HistogramSdev	
HistogramTop	
MaximumPopulation	
Mode	
Null	
OvershootNegative	
OvershootPositive	
Peaks	
Percentile	
PopulationAtX	
Range	
Rise	
Rise2080	
RiseAtLevel	
TimeAtCAN	
TotalPopulation	
XAtPeak	

P4 ***Enum***

Values

Amplitude	
CANLoad	
CANMsgBR	
CANMsgNum	
CANtoAnalog	
CANtoCAN	
CANtoValue	
Fall	
Fall8020	
FallAtLevel	
FullWidthAtHalfMaximum	
FullWidthAtXX	
HistogramBase	
HistogramMaximum	
HistogramMean	
HistogramMedian	
HistogramMid	
HistogramMinimum	
HistogramRms	
HistogramSdev	
HistogramTop	
MaximumPopulation	
Mode	
Null	
OvershootNegative	
OvershootPositive	
Peaks	
Percentile	
PopulationAtX	
Range	
Rise	
Rise2080	
RiseAtLevel	
TimeAtCAN	
TotalPopulation	
XAtPeak	

P5 ***Enum***

Values

Amplitude	
CANLoad	
CANMsgBR	
CANMsgNum	
CANtoAnalog	
CANtoCAN	
CANtoValue	
Fall	
Fall8020	
FallAtLevel	
FullWidthAtHalfMaximum	
FullWidthAtXX	
HistogramBase	
HistogramMaximum	
HistogramMean	
HistogramMedian	
HistogramMid	
HistogramMinimum	
HistogramRms	
HistogramSdev	
HistogramTop	
MaximumPopulation	
Mode	
Null	
OvershootNegative	
OvershootPositive	
Peaks	
Percentile	
PopulationAtX	
Range	
Rise	
Rise2080	
RiseAtLevel	
TimeAtCAN	
TotalPopulation	
XAtPeak	

P6 *Enum*

Values

Amplitude	
CANLoad	
CANMsgBR	
CANMsgNum	
CANtoAnalog	
CANtoCAN	
CANtoValue	
Fall	
Fall8020	
FallAtLevel	
FullWidthAtHalfMaximum	
FullWidthAtXX	
HistogramBase	
HistogramMaximum	
HistogramMean	
HistogramMedian	
HistogramMid	
HistogramMinimum	
HistogramRms	
HistogramSdev	
HistogramTop	
MaximumPopulation	
Mode	
Null	
OvershootNegative	
OvershootPositive	
Peaks	
Percentile	
PopulationAtX	
Range	
Rise	
Rise2080	
RiseAtLevel	
TimeAtCAN	
TotalPopulation	
XAtPeak	

ViewCANParam *Bool*

SPECANALYZER

app.SpecAnalyzer

ActualResolutionBandwidth	Double

AutoResolutionBandwidth	Bool
CenterFreq	Double
Enable	Bool
ENBW	Double
MarkerToCenterFreq	Action
MaxFrequency	Double
MaxPeaks	Integer
Mode	Enum
ReferenceFreq	Double
ReferenceLevel	Double
ResolutionBandwidth	DoubleLockstep
ShowPeakTable	Bool
Source	Enum
SpanFreq	Double
SpanMode	Enum
VerticalScale	DoubleLockstep
Window	Enum

ActualResolutionBandwidth *Double*

Range From 0.1 to 1e+011 step 0.1

Description

Read-only control which reflects the current resolution bandwidth.
Note that this may differ from the ResolutionBandwidth control in cases where the user-requested resolution bandwidth cannot be achieved.

AutoResolutionBandwidth *Bool*

Description

If set to TRUE, the resolution bandwidth will be automatically determined, based on 1/1000th of the frequency span requested.

CenterFreq *Double*

Range From 100 to 1e+010 step 100

Description

Spectrum center frequency.

Enable *Bool*

Description

Enable/Disable Spectrum Analyzer mode.

ENBW *Double*

Range From 0.1 to 10 step 0.001

Description

Readout of the current Equivalent Noise Bandwidth (ENBW).

MarkerToCenterFreq *Action*

Description

Center the spectrum on the current market frequency.

MaxFrequency *Double*

Range From 100000 to 1e+011 step 1

Description

Read-only control, reflects the maximum frequency of the spectrum. Calculated as 1/2 the scope sample rate.

MaxPeaks *Integer*

Range From 1 to 100 step 1

Description

Define the maximum number of peaks which will be measured, and presented in the table.

Mode *Enum*

Description

Define the spectrum analyzer mode.

Values

Average	Average a number of traces, specified in the NumAverages control.
MaxHold	Record the maximum value in each frequency bin.
Normal	Normal Mode.

ReferenceFreq *Double*

Range From 0 to 1e+010 step 1

Description

Defines the reference frequency, at which point a vertical marker (cursor) will be displayed.

ReferenceLevel *Double*

Range From -200 to 200 step 0.0001

Description

Define the vertical reference level, that is the level in dBm, that is shown at the top of the graticule.

ResolutionBandwidth *DoubleLockstep*

Range From 0.1 to 1e+009 step 1000, locked to 1 3 5, fine grain allowed=false, on=false

Description

When not in Auto Resolution Bandwidth mode, this control is used to request a specific resolution bandwidth.
Note that the requested resolution bandwidth is not always achieveable, so a second control, ActualResolutionBandwidth is available to verify that the actual resolution bandwidth is acceptable.

ShowPeakTable *Bool*

Description

If TRUE, the table of detected peaks, and their respective amplitudes, is shown beside the spectral plot.

Source *Enum*

Description

Define the Source trace. Note that only acquisition channels may be used as sources to the spectrum analyzer.

Values

C1	
C2	
C3	
C4	

SpanFreq *Double*

Range From 100 to 1e+010 step 100

Description

Define the Span Frequency, valid when the SpanMode control is in CenterSpan mode.

SpanMode *Enum*

Description

Define the way in which the span of the spectrum is controlled, either as a Center and Span frequency, or as a Start and Stop frequency.

Values

CenterAndSpan	
StartAndStop	

VerticalScale *DoubleLockstep*

Range From 0.1 to 100 step 0.2, locked to 1 2 5, fine grain allowed=false, on=false

Description

Define the vertical scale of the spectrum, in units of dB.

Window *Enum*

Description

Define the window function used to compute the FFT of the input signal.

Values

BlackmanHarris	
FlatTop	
Hamming	
VonHann	

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

UseGrid *String*

Range Any number of characters

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT *app.SpecAnalyzer.SpecAn.Out.Result*

SPECANTABLE

app.SpecAnalyzer.SpecAnTable

ClearSweeps	Action
TableLocation	String
View	Bool

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

TableLocation

String

Range Any number of characters

View

Bool

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT

app.SpecAnalyzer.SpecAnTable.Out.Result

SYSTEMCONTROL

app.SystemControl

FrontPanelEventTimestamp	String
ModalDialogTimeout	Integer
PersistentMessage	String

FrontPanelEventTimestamp

String

Range Any number of characters

ModalDialogTimeout

Integer

Range From 0 to 120 step 1

Description

Set a timeout, in units of seconds, used to auto-dismiss modal dialogs, with their default responses.

PersistentMessage

String

Range Any number of characters

TRIGGERSCAN

app.TriggerScan

TriggerScan may be used to automatically scan through a list of stored trigger setups, while looking for anomolous events.
The list of stored setups may be derived automatically from a sample 'good' acquisition using the Trainer feature.

AddNewSetup	Action
DeleteAll	Action
DeleteSelected	Action
DwellTime	Double
IsActive	Bool
LoadSelected	Action
LoadSetup	Action
SaveSetup	Action
SetupFileName	FileName
StartScan	Action
StartTraining	Action
StopOnTrigger	Bool
StopScan	Action
TrainEdges	Bool
TrainerSource	Enum
TrainGlitches	Bool
TrainIntervals	Bool
TrainRunts	Bool
TrainWidths	Bool
TriggerList	Enum
UpdateSelected	Action

AddNewSetup *Action*

Description

Append the current trigger setup to the list of TriggerScan triggers.

DeleteAll *Action*

Description

Delete all stored trigger setups from the trigger list.

DeleteSelected *Action*

Description

Delete the selected trigger setup from the trigger list.

DwellTime *Double*

Range From 0.1 to 100 step 0.1

Description

Specify the dwell time, the time that TriggerScan waits, after loading a new trigger setup, before moving on to the next setup.
During this time, the scope is armed, and waiting for new trigger events.

IsActive *Bool*

Description

True if TriggerScan is currently active.

LoadSelected *Action*

Description

Load the trigger setup selected in the trigger list into the current trigger setup.

LoadSetup *Action*

Description

Load the trigger list from the file specified in the SetupFileName control.

SaveSetup *Action*

Description

Save the current trigger list into the file specified in the SetupFileName control.

SetupFileName *FileName*

Range Any number of characters

Description

Full pathname to a file which will be used by the LoadSetup/SaveSetup controls to load/save triggerscan setups.

StartScan *Action*

Description

Start scanning. Places the scope in Normal trigger mode, and starts walking down the list of trigger setups.

StartTraining *Action*

Description

Start Training. This will take an acquisition on the channel specified in the TrainerSource control, and depending upon the state of the TrainEdges, TrainGlitches, TrainIntervals, TrainRunts, TrainWidths controls, creates a list of trigger setups.

StopOnTrigger *Bool*

Description

If True, TriggerScan will stop scanning/acquiring upon the first trigger that occurs while scanning.

StopScan *Action*

Description

Stop Scanning.

TrainEdges *Bool*

Description

If True, Edge Trigger setups will be created during the training process.

TrainerSource *Enum*

Description

Source channel used for TriggerScan training.

Values

C1	
C2	
C3	
C4	

TrainGlitches *Bool*

Description

If True, Glitch Trigger setups will be created during the training process.

TrainIntervals *Bool*

Description

If True, Interval Trigger setups will be created during the training process.

TrainRunts *Bool*

Description

If True, Runt Trigger setups will be created during the training process.

TrainWidths *Bool*

Description

If True, Width Trigger setups will be created during the training process.

TriggerList *Enum*

Description

The current list of triggerscan setups.

Values

UpdateSelected *Action*

Description

Update the currently selected TriggerScan setup with the current trigger setup.

DATETIMESETUP

app.Utility.DateTimeSetup

This set of variables controls user the date and time setup. In addition to manual controls for hh/mm/ss, dd/mm/yy, there is the ability to set the time and date from an Internet clock using the SNTP protocol.

CurrentDateAndTime	String
Day	Integer
Hour	Integer
Minute	Integer
Month	Integer
Second	Integer

SetFromSNTP	Action
Validate	Action
Year	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set time/date from the NIST Internet clock
app.Utility.DateTimeSetup.SetFromSNTP
```

CurrentDateAndTime *String*

Range Any number of characters

Description

Reads the current date and time from the real-time calendar and clock.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the current date and time from the real-time calendar and clock.
app.Utility.DateTimeSetup.CurrentDateAndTime
```

Day *Integer*

Range From 1 to 31 step 1

Description

Sets/Queries the day of the month setting of the real-time clock as a number. The value will not be accepted by the clock until app.Utility.DateTimeSetup.Validate is sent. All time/date controls are validated at the same time.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the day of the month as 21.
app.Utility.DateTimeSetup.Day = 21
app.Utility.DateTimeSetup.Validate
```

Hour *Integer*

Range From 0 to 23 step 1

Description

Sets/Queries the hours setting of the real-time clock as a number. The value will not be accepted by the clock until app.Utility.DateTimeSetup.Validate is sent. All time/date controls are validated at the same time.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the hour as 13.
app.Utility.DateTimeSetup.Hour = 13
app.Utility.DateTimeSetup.Validate
```

Minute

Integer

Range From 0 to 59 step 1

Description

Sets/Queries the minutes setting of the real-time clock as a number.
The value will not be accepted by the clock until app.Utility.DateTimeSetup.Validate is sent. All time/date controls are validated at the same time.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the minute as 34.
app.Utility.DateTimeSetup.Minute = 34
app.Utility.DateTimeSetup.Validate
```

Month

Integer

Range From 1 to 12 step 1

Description

Sets/Queries the month setting of the real-time clock as a number.
The value will not be accepted by the clock until app.Utility.DateTimeSetup.Validate is sent. All time/date controls are validated at the same time.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the month as August.
app.Utility.DateTimeSetup.Month = 8
app.Utility.DateTimeSetup.Validate
```

Second

Integer

Range From 0 to 59 step 1

Description

Sets/Queries the seconds setting of the real-time clock as a number.
The value will not be accepted by the clock until app.Utility.DateTimeSetup.Validate is sent. All time/date controls are validated at the same time.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the seconds as 55.
app.Utility.DateTimeSetup.Second = 55
app.Utility.DateTimeSetup.Validate
```

SetFromSNTP *Action*

Description

Sets the real time clock from the simple network time protocol.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the real time clock from the simple network time protocol.
app.Utility.DateTimeSetup.SetFromSNTP
```

Validate *Action*

Description

Validates any new settings. This action is equivalent to clicking 'Validate Changes' on the Date/Time page.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the day, hour, and minute, and validate.
app.Utility.DateTimeSetup.Day = 3
app.Utility.DateTimeSetup.Hour = 5
app.Utility.DateTimeSetup.Minute = 8

app.Utility.DateTimeSetup.Validate
```

Year *Integer*

Range From 2000 to 2037 step 1

Description

Sets/Queries the year setting of the real-time clock as a number.
The value will not be accepted by the clock until app.Utility.DateTimeSetup.Validate is sent. All time/date controls are validated at the same time.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the year as 2003.
app.Utility.DateTimeSetup.Year = 2003
app.Utility.DateTimeSetup.Validate
```

OPTIONS *app.Utility.Options*

Options subsystem, contains controls to query the list of installed software and hardware options.

InstalledHWOptions	String
InstalledSWOptions	String
ScopeID	String

InstalledHWOptions *String*

Range Any number of characters

Description

Shows a list of the installed hardware options.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the list of installed hardware options and present
' in a popup dialog
MsgBox app.Utility.Options.InstalledHWOPtions
```

InstalledSWOptions *String*

Range Any number of characters

Description

Shows list of installed software options.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the list of installed software options and display
' in a popup dialog
MsgBox app.Utility.Options.InstalledSWOPtions
```

ScopeID *String*

Range Any number of characters

Description

Queries the ID of the instrument. This ID should be specified when purchasing software options for your instrument.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Read the ID of the instrument.
MsgBox app.Utility.Options.ScopeID
```

REMOTE *app.Utility.Remote*

Controls related to the remote control section of the instrument. Note that in this context Automation is not considered part of 'Remote'. Remote control currently includes control using ASCII remote commands from GPIB or TCP/IP.

Assistant	Enum
Interface	Enum
RestrictControl	Enum
SetToErrorsOnlyAndClearAtStartup	Bool

Assistant *Enum*

Description

Sets/Queries the setting of the remote assistant.

Values

EO	Log errors only
FD	Log all remote commands/queries
OFF	Turn the assistant off

Interface *Enum*

Description

Sets/Queries the currently selected type of currently selected remote control interface.

Values

LXI	
Off	
TCPIP	

RestrictControl *Enum*

Description

Sets/Queries whether remote control is restricted to certain hosts, where the host name is defined either by IP address, or dns name.

Values

No	
Yes	

SetToErrorsOnlyAndClearAtStartup *Bool*

Description

Enable the resetting of the remote assistant to 'Errors Only' mode when the instrument is reset. Also ensure s that the remote assistant log is cleared upon startup.
This control is set by default to lower the risk that the remote assistant will be set to 'Full Dialog' mode and be forgotten, causing a decrease in remote control performance.

CIOPORTU3GPIB *app.Utility.Remote.IOManager.CIOPortU3GPIB*

GpibAddress	Integer

GpibAddress *Integer*

Range From 1 to 30 step 1

CLSIBPORT *app.Utility.Remote.IOManager.CLSIBPort*

WAVESCAN *app.WaveScan*

This is the root of the WaveScan automation hierarchy.

WaveScan enables you to search for unusual events in a single capture, or to scan for an event in many acquisitions over a long period of time.

It may be considered a kind of software trigger.

Enable	Bool
FindRare1Sigma	Action
FindRare3Sigma	Action
FindRare5Sigma	Action
FindUseMean	Action
ShowTimes	Bool

Enable *Bool*

Description

Sets/Queries the WaveScan enabled state.

FindRare1Sigma *Action*

Description

Preset the filter limit and delta to find rare events. Uses the history of measurements since the last Clear Sweeps, or control change, to set the limit and delta to capture +/- 1 sigma events.

FindRare3Sigma *Action*

Description

Preset the filter limit and delta to find rare events. Uses the history of measurements since the last Clear Sweeps, or control change, to set the limit and delta to capture +/- 3 sigma events.

FindRare5Sigma *Action*

Description

Preset the filter limit and delta to find rare events. Uses the history of measurements since the last Clear Sweeps, or control change, to set the limit and delta to capture +/- 5 sigma events.

FindUseMean *Action*

Description

Setup the filter to find measurements with values > the current statistical mean.

ShowTimes *Bool*

SCANDECODE *app.WaveScan.ScanDecode*

ClearSweeps	Action
TableLocation	String
View	Bool

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

TableLocation *String*

Range Any number of characters

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.WaveScan.ScanDecode.Out.Result*

SCANHISTO *app.WaveScan.ScanHisto*

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

LabelsPosition

String

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText

String

Range Any number of characters

Persist3DQuality

Enum

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined

Bool

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted

Bool

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

HISTOGRAM *app.WaveScan.ScanHisto.Histogram*

AutoFindScale	Bool
Bins	DoubleLockstep
BufferSize	Integer
Center	Double
ClearSweeps	Action
FindScale	Action
HorScale	DoubleLockstep
Values	Integer
VerScaleType	Enum

AutoFindScale *Bool*

Description

Defines whether the histogram horizontal axis is automatically scaled when sufficient data has been accumulated.
The FindScale control may be used to manually find the scale, if this control is set to False.

Bins *DoubleLockstep*

Range From 20 to 2000 step 1, locked to 1 2 5, fine grain allowed=false, on=false

Description

Number of bins in the histogram.

BufferSize *Integer*

Range From 200 to 50000 step 1

Description

Size of the buffer which stores incoming parameter values, ready to be histogrammed.
Not to be confused with the 'Values' control, which defines the number of values from the buffer which are currently rendered in the histogram.

Center *Double*

Range From -1e+010 to 1e+010 step 1e-012

Description

Defines the value of the bin which is centered horizontally within the graticule.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

FindScale *Action*

Description

Automatically determine an appropriate horizontal scale for the histogram, using the values currently in the histogram buffer.

HorScale *DoubleLockstep*

Range From 1e-012 to 1e+012 step 0.01, locked to 1 2 5, fine grain allowed=false, on=false

Description

Horizontal scale of the histogram, per division of the graticule.

Values *Integer*

Range From 20 to 2000000000 step 1

Description

Size of the buffer in which all values currently histogrammed are queued.

VerScaleType *Enum*

Description

Vertical Scale mode of the histogram, Linear, or 'Linear with Constant Maximum'.

Values

LinConstMax	
Linear	

RESULT

app.WaveScan.ScanHisto.Out.Result

ZOOM

app.WaveScan.ScanHisto.Zoom

HorPos	Double
HorZoom	Double
ResetZoom	Action
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom *Bool*

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos *Double*

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom *Double*

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

SCANOVERLAY

app.WaveScan.ScanOverlay

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
EnablePersistence	Bool
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
View	Bool

AxisXRotation

Integer

Range From -90 to 90 step 1

AxisYRotation

Integer

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps

Action

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

EnablePersistence

Bool

Description

Set to place the WaveScan 'ScanOverlay' in persistence mode, as opposed to 'overlay' mode (where all contributing sub-waveforms are overlaid)

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.
If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d *Bool*

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome *Bool*

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation *Integer*

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime *Enum*

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace *Bool*

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

RESULT *app.WaveScan.ScanOverlay.Out.Result*

WEBEDITOR *app.WebEditor*

This set of variables controls the web-editor which show the paths for data flow in the instrument.
This feature is not supported on all instruments. Currently it is supported on DDA and SDA models, and models with XMAP and/or XMATH software options.

AddConnection([in] VARIANT destProcessor, [in] VARIANT destInputPin, [in] VA	Method
AddPreview([in] VARIANT sourceProcessor, [in] VARIANT sourcePin, [in] BSTR	Method
AddProcessor([in] VARIANT processorOrClassId, [in] BSTR requestedName, [in]	Method

ClearSweeps	Action
GetProcessor([in] VARIANT processor)	Method
RemoveAll()	Method
RemoveConnection([in] VARIANT destProcessor, [in] VARIANT destInputPin)	Method
RemovePreview([in] VARIANT processor)	Method
RemoveProcessor([in] VARIANT processor)	Method

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Enter auto-trigger mode
app.Acquisition.TriggerMode = "Auto"

' Show the web editor and remove all processors from it
app.ActiveView = "WebEdit"
app.WebEditor.RemoveAll

' Crea
```

AddConnection([in] VARIANT destProcessor, [in] VARIANT destInputPin, [in] VARIANT sourceProcessor, [in] VARIANT sourceOutputPin) *Method*

Description

Add a connection between two 'pins' of nodes placed within the Web Editor.
Pins are described by the name of the node, and the zero-based index of the pin on that node.

AddPreview([in] VARIANT sourceProcessor, [in] VARIANT sourcePin, [in] BSTR previewName, [in] double xPosition, [in] double yPosition, [in] BSTR associatedExecName) *Method*

Description

Add a Preview to the specified pin of the specified node. The coordinates specify where the preview will appear on the Web, with 0,0 being the top left-hand corner.

AddProcessor([in] VARIANT processorOrClassId, [in] BSTR requestedName, [in] double xPosition, [in] double yPosition) *Method*

Description

Add a named 'processor' to the web. To determine the name of a processor just place it on the web using the GUI and hover the mouse over the node. The 'ProgID' of the node, in the format 'LeCroy.<procName>' will appear. Note that when adding processors from automation there is no distinction between Measure, Math, and Pass/Fail processors.

ClearSweeps *Action*

Description

Clear any accumulated data for nodes such as Average, Persistence, etc. that reside in the processing web.

GetProcessor([in] VARIANT processor) *Method*

Description

Retrieve a reference to a processor that has been added to the Web. This reference may then be used to access the processor's controls. See the Math/Measure control reference section of this manual for a list of the available controls for each processor.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Show the web editor and remove all processors from it
app.ActiveView = "WebEdit"
app.WebEditor.RemoveAll

' Create a Waveform Averager, name it "MyAvg", and place it at x=200, y=30
app.WebEditor.AddProcessor "LeCroy.Average", "MyAvg", 200, 30

' Retrieve a pointer to the averager and set it's number of sweeps
' to the value 1234
set myAverager = app.WebEditor.GetProcessor("MyAvg")
myAverager.Sweeps = 1234
```

RemoveAll() *Method*

Description

Remove all processors from the web.

RemoveConnection([in] VARIANT destProcessor, [in] VARIANT destInputPin) *Method*

Description

Remove a connection between two pins on the web.

RemovePreview([in] VARIANT processor) *Method*

Description

Remove the named preview display.

RemoveProcessor([in] VARIANT processor) *Method*

Description

Remove the named processor from the Web.

XPORT *app.XPort*

ZOOM *app.Zoom*

ConnectedToSuperKnob	Bool
GoToEnd	Action
GoToStart	Action
HorZoomIn	Action
HorZoomOut	Action

MultiZoomOn	Bool
QuickZoom	Action
ResetAll	Action
ResetZoom	Action
VariableHorZoom	Bool

ConnectedToSuperKnob *Bool*

GoToEnd *Action*

Description

When in multi-zoom mode, scroll to the end of the source waveform, who's last point will be centered on the graticule.

GoToStart *Action*

Description

When in multi-zoom mode, scroll to the start of the source waveform, who's first point will be centered on the graticule.

HorZoomIn *Action*

Description

Horizontally zoom in all the traces included in MultiZoom.

HorZoomOut *Action*

Description

Horizontally zoom out all the traces included in MultiZoom.

MultiZoomOn *Bool*

Description

Turn MultiZoom On and includes all the Zx automatically if any viewed.

QuickZoom *Action*

Description

Zoom all Cx that are on at an horizontal factor of 10.

ResetAll *Action*

Description

Reset all Zx to their default settings.

ResetZoom *Action*

Description

Resets the zoom settings to their default values.

VariableHorZoom *Bool*

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

ZX

app.Zoom.Zx

AxisXRotation	Integer
AxisYRotation	Integer
ClearSweeps	Action
DoStoreToMemoryTrace	Action
Equation	String
LabelsPosition	String
LabelsText	String
Persist3DQuality	Enum
PersistDotJoined	Bool
Persisted	Bool
Persistence3d	Bool
PersistenceMonoChrome	Bool
PersistenceSaturation	Integer
PersistenceTime	Enum
ShowLastTrace	Bool
Source	Enum
UseGrid	String
View	Bool
ViewLabels	Bool

AxisXRotation *Integer*

Range From -90 to 90 step 1

AxisYRotation *Integer*

Range From -90 to 90 step 1

Description

This control is used only when Persisted is true and Persistence3d is true. It controls rotation about the Y axis of the view being persisted.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

DoStoreToMemoryTrace *Action*

Description

Store the content of Zx into the corresponding Memory Slot (Mx).

Equation *String*

Range Any number of characters

Description

Same as app.Math.Fx.Equation.

LabelsPosition *String*

Range Any number of characters

Description

Sets / Queries the horizontal position of the label attached to the acquisition trace Cx. The unit of measurement is the unit of the horizontal scale. The measurement is made from the trigger point. Note that this control is a string, not a numeric value. This allows multiple labels to be positioned, as shown in the example below.

LabelsText *String*

Range Any number of characters

Persist3DQuality *Enum*

Description

This control only has an effect when Persisted is true and Persistence3D is true. It controls whether the 3D view is shown as a wire frame (which can be monochrome or color graded), a solid (also can be monochrome or color graded), or a shaded solid (always monochrome). For WireFrame or Solid, if monochrome the brightness increases with height; if color graded the color changes from puple to red with height. "Shaded" present the solid as if it were lit from the upper left.

Values

Shaded	
Solid	
WireFrame	

PersistDotJoined *Bool*

Description

If this control is false (the default state), then samples are put into the persistence map as dots. The advantage of that is that any lit pixel in the pmap actually corresponds to a sample of the data taken at that time. The disadvantage of dots is that there is no way to associate a dot with any other dot; there is no history of which dots were part of the same acquisition. If this control is set to true, then each acquisition draws lines into the persistence map that connect the dots at the sample positions. Clearly the advantage of that is that it is now possible to see if some outlier samples were all part of the same acquisition, or not. The disadvantage is that lit points in the persistence map no longer correspond to actual samples, the lines between the samples are also lit. If the persistence map is going to be analyzed it is probably preferable to leave Dot Joined off so that only actual samples are considered in the analysis.

If there are very few points in a persistence map, there may columns with no points, that is, there are gaps horizontally between points. Dot Joined will connect them starting with the last trace, and for all subsequence traces accumulated. The action of turning on or off Dot Joined clears the accumulated persistence map.

Persisted *Bool*

Description

Sets/Queries the persisted state of the waveform. If the Display.LockPersistence control is set to 'AllLocked' then the persisted state of all displayed waveforms will be the same. If the Display.LockPersistence control is set to 'PerTrace' then the persisted state of each waveform may be independently controlled.

Persistence3d

Bool

Description

Changes the persistence map from a two-dimensional surface with brightness or color indicating the third dimension, to a perspective rendering of a three dimensional object, where the third dimension is shown as height above the surface formed by points which are not lit. In 3d, that surface is same color or brightness as points with one or very few hits so that the surface is visible; but that means points with one or very few hits cannot be distinguished from the background. See also Persist3DQuality, which controls the appearance of the 3D object.

PersistenceMonoChrome

Bool

Description

When this control is false (the default state), persistence is color graded. When this control is set to true, persistence is monochrome, in the color of the trace, and increasing number of hits is shown as increasing brightness. This control only has an effect when Persisted is true.

PersistenceSaturation

Integer

Range From 0 to 100 step 1

Description

Sets/Queries the saturation threshold for persisted waveforms.
All information at this level or above will be recorded with the same color or intensity.
See the general description above for a discussion of the locked and unlocked persistence modes.

PersistenceTime

Enum

Description

Sets/Queries the state of the Persistence Time control. Controls the persistence decay time for this trace. See the general description above for a discussion of the locked and unlocked persistence modes.

Values

0.5s	
10s	
1s	
20s	
2s	
5s	
Infinite	

ShowLastTrace

Bool

Description

Sets/Queries the state of the Show Last Trace control. If True then when this trace is displayed in persistence mode the last acquired waveform will be superimposed on the accumulating persistence map.
See the general description above for a discussion of the locked and unlocked persistence modes.

Source

Enum

Description

Zoom source trace.

Values

BathTub	
C1	
C2	
C3	
C4	
CDFdd	
CDFnq	
CDFsp	
CDFtotal	
DDjHist	
DDjPlot	
Digital1	
Digital2	
Digital3	
Digital4	
DigPat	
ET	
Eye	
Eye2	
Eye2Fail	
EyeFail	
F1	
F2	
F3	
F4	
F5	
F6	
F7	
F8	
FLXEye	
FSBACGate	
FSBTcoGate	
ISIPlot	
IsoBER	
IsoBER2	
M1	
M2	
M3	
M4	
NQFit	
PCIeEye	

PCIeEyeNT	
PjInvFFT	
PkThresh	
PLLTrack	
RjBUjHist	
RjBUjSpect	
RjBUjTrack	
ScanHisto	
ScanOverlay	
SDAIn2	
SDAInput	
SDARefClk	
SigQual	
SpecAn	
SSCTrk1	
SSCTrk2	
stCk	
stCkN	
stCkP	
stEye	
stIn	
stInN	
stInP	
stNonTrans	
stTrans	
TIEHist	
TIERawTrack	
TIETrack	
Z2	
Z3	
Z4	
Z5	
Z6	
Z7	
Z8	

UseGrid

String

Range Any number of characters

Description

Sets/Queries the grid in use for the zoom trace Zx.
See also app.Acquisition.Cx.UseGrid.

View *Bool*

Description

Sets/Queries the trace's 'Viewed' state. When true, the trace is displayed on one of the display graticules. Note that even when a trace is not visible, it may be used as a source for Math, Measure, etc.

ViewLabels *Bool*

Description

Sets/Queries whether the user-defined labels for the trace are visible.
See Also: LabelsPosition and LabelsText controls.

RESULT *app.Zoom.Zx.Out.Result*

ZOOM *app.Zoom.Zx.Zoom*

CenterSelectedSegment	Integer
HorPos	Double
HorZoom	Double
NumSelectedSegments	DoubleLockstep
VariableHorZoom	Bool
VariableVerZoom	Bool
VerPos	Double
VerZoom	Double

CenterSelectedSegment *Integer*

Range From 1 to 1 step 1

HorPos *Double*

Range From -0.5 to 0.5 step (8 digits)

Description

Horizontal Position of the trace, normalized to a value between -0.5 and 0.5. A value of zero is the default, and indicates no position change relative to the source trace.

HorZoom *Double*

Range From 0.1 to 1e+006 step (8 digits)

Description

Horizontal Zoom setting. Locked to a 1, 2, 5 sequence unless VariableHorZoom is set to True .

NumSelectedSegments *DoubleLockstep*

Range From 1 to 1 step 1, locked to 1 2 5, fine grain allowed=true, on=false

VariableHorZoom

Bool

Description

Enable/Disable the variable Horizontal Zoom control. If enabled, the HorZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VariableVerZoom

Bool

Description

Enable/Disable the variable Vertical Zoom control. If enabled, the VerZoom control may be set to a value other than the standard 1, 2, 5 sequence.

VerPos

Double

Range From -1.5 to 1.5 step (8 digits)

Description

Vertical Position of the trace, normalized to a value between -1.5 and 1.5. A value of zero is the default, and indicates no position change relative to the source trace.

VerZoom

Double

Range From 0.1 to 100 step (8 digits)

Description

Vertical Zoom setting. Locked to a 1, 2, 5 sequence unless VariableVerZoom is set to True .

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ALTNCYCLE

app.Math.Fx.OperatorYSetup (Operator = "AltNcycle")

BitRate	Double
CalcType	Enum
ClearSweeps	Action
EdgeRate	Double
FindBitRate	Action
FindLevel	Action
FindLevelConfirm	Action
FindPattern	Action
FindPatternConfirm	Action
HexPattern	String
HystLSBs	Double
Interleave	Integer
InvertPattern	Bool
LevelType	Enum
MakeAverage	Bool
OutputUnits	Enum
PatternLength	Integer
PatternRepeat	Integer
PatternShiftLeft	Action
PatternShiftRight	Action
PatternShiftStep	Integer
PatternStatus	String
PercentLevel	Double
PLLprompt	String
PLLType	Enum
PRBSeq	Enum
RelToFirst	Bool
Slope	Enum
Source	Enum
SynchToPattern	Bool
TransitionDensity	Double
TweakBitRate	Action
UIavg	Integer
UIOffset	Integer
UsePLL	Bool
WarnStatus	String

BitRate

Double

Range From 1 to 1e+011 step 1000

CalcType *Enum*

Values

DDmean	
DDsdev	
Mean	
Sdev	

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

EdgeRate *Double*

Range From 0 to 10 step 0.01

FindBitRate *Action*

FindLevel *Action*

FindLevelConfirm *Action*

FindPattern *Action*

FindPatternConfirm *Action*

HexPattern *String*

Range Any number of characters

HystLSBs *Double*

Range From 1 to 100 step 0.25

Interleave *Integer*

Range From 1 to 50 step 1

InvertPattern *Bool*

LevelType *Enum*

Values

Absolute	
Percent	

MakeAverage *Bool*

OutputUnits *Enum*

Values

S	
UI	

PatternLength *Integer*

Range From 1 to 2000000 step 1

PatternRepeat *Integer*

Range From 1 to 13 step 1

PatternShiftLeft *Action*

PatternShiftRight *Action*

PatternShiftStep *Integer*

Range From 1 to 100 step 1

PatternStatus *String*

Range Any number of characters

PercentLevel *Double*

Range From 0 to 100 step 1

PLLprompt *String*

Range Any number of characters

PLLType *Enum*

Values

Custom	
DVI	
FBDIMM	
GOLDEN	
PCIEXPRESS	

PRBSeq *Enum*

Values

PRBS10	
PRBS11	
PRBS12	
PRBS13	
PRBS14	
PRBS15	
PRBS5	
PRBS6	
PRBS7	
PRBS8	
PRBS9	

RelToFirst *Bool*

Slope *Enum*

Values

Both	
Neg	
Pos	

Source *Enum*

Values

Pattern	
PRBS	

SynchToPattern *Bool*

TransitionDensity *Double*

Range From 0.1 to 1 step 0.01

TweakBitRate *Action*

UIavg *Integer*

Range From 2 to 500 step 1

UIOffset *Integer*

Range From 0 to 10000 step 1

UsePLL *Bool*

WarnStatus *String*

Range Any number of characters

AVERAGE

app.Math.Fx.OperatorYSetup (Operator = "Average")

Waveform Averaging.

AverageType	Enum
ClearSweeps	Action
InvalidInputPolicy	Bool
Sweeps	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Turn trace F1 on and setup to average the data from C1
' Average mode is set to Continuous
app.Math.F1.View = True
app.Math.F1.Operator1 = "Average"
app.Math.F1.MathMode = "OneOpe
```

AverageType *Enum*

Description

Sets / Queries the averaging mode. Continuous and Summation modes are supported.

Values

Continuous	
Summed	

ClearSweeps *Action*

Description

Clears all averaged sweeps.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Clear sweeps for average in trace F1.
app.Math.F1.Operator1Setup.ClearSweeps
```

InvalidInputPolicy *Bool*

Sweeps *Integer*

Range From 1 to 1000000 step 1

Description

Sets / Queries the number of sweeps to be averaged when trace Fx is set to averaging - continuous or summed.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set number of sweeps to be averaged in trace F1 as 20.
app.Math.F1.Operator1Setup.Sweeps = 20
```

BOXCAR

app.Math.Fx.OperatorYSetup (Operator = "Boxcar")

Rectangular BoxCar filter (local running average) of specified length.

Length	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the filter length for the boxcar function in trace F1
app.Math.F1.View = True
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Boxcar"
app.Math.F1.Operator1Setup.
```

Length *Integer*

Range From 2 to 5000 step 1

Description

Sets / Queries the length, in samples, of the boxcar FIR filter (i.e. the running average of a local set of "length" points)

COPY

app.Math.Fx.OperatorYSetup (Operator = "Copy")

BatchSize	Integer
ResetCount	Action
WfCount	Double
WfCountText	String

BatchSize *Integer*

Range From 128 to 10000000 step 128

ResetCount *Action*

WfCount *Double*

Range From 0 to 1e+009 step 1

WfCountText *String*

Range Any number of characters

CORRELATION

app.Math.Fx.OperatorYSetup (Operator = "Correlation")

Correlate a portion of one waveform with another.

CorrLength	Double
CorrStart	Double

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure correlation in F3 using a length of 3.5 divisions,
' starting at the first division.
app.Math.F3.View = True
app.Math.F3.Operator1 = "Correlation"
app.Math.F3.Operator1S
```

CorrLength *Double*

Range From 0.001 to 10 step 0.001

Description

Sets / Queries the length in graticule divisions of the section of the first input trace that is used in the calculation of correlation.

CorrStart *Double*

Range From 0 to 9.999 step 0.001

Description

Sets/Queries the position in graticule divisions of the start of the section of trace 1 that is used in the correlation function in trace Fx.

CTLE

app.Math.Fx.OperatorYSetup (Operator = "CTLE")

Boost	Double
CTLEMode	Enum
GainDC	Double
NominalBitRate	Double
Pole1Freq	Double
Pole2Freq	Double

ZeroFreq	Double

Boost *Double*

Range From 2 to 15 step 0.01

CTLEMode *Enum*

Values

Auto	
Custom	

GainDC *Double*

Range From 0.1 to 10 step 0.001

NominalBitRate *Double*

Range From 90000 to 4e+010 step 10

Pole1Freq *Double*

Range From 1e+008 to 2e+010 step 1e+006

Pole2Freq *Double*

Range From 1e+008 to 2e+010 step 1e+006

ZeroFreq *Double*

Range From 1e+008 to 2e+010 step 1e+006

DEMODULATE

app.Math.Fx.OperatorYSetup (Operator = "Demodulate")

Bandwidth	Double
CarrierFrequency	Double
DecimateBy	Integer
MaxCoefficients	Integer
SummaryText	String
Type	Enum

Bandwidth *Double*

Range From 100000 to 1e+011 step 1000

CarrierFrequency *Double*

Range From 1e+006 to 1e+011 step 1

DecimateBy *Integer*

Range From 1 to 1000 step 1

MaxCoefficients *Integer*

Range From 9 to 8193 step 1

SummaryText *String*

Range Any number of characters

Type *Enum*

Values

Amplitude	
Frequency	
Imaginary	
Phase	
Real	
Time	
WideBandAM	

DERIVATIVE

app.Math.Fx.OperatorYSetup (Operator = "Derivative")

Computes the derivative of the waveform (next_sample_value - this_sample_value) / horizontal_sample_interval.

EnableAutoScale	Bool
FindScale	Action
VerOffset	Double
VerScale	DoubleLockstep

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Start a find scale operation for derivative function trace F1
app.Math.F1.View = True
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Derivative"
app.Math.F1.Operato
```

EnableAutoScale *Bool*

Description

Sets/Queries whether the autoscale function is enabled for the derivative function trace Fx. If enabled, an auto-scale operation is performed whenever the setup changes.

FindScale *Action*

Description

Initiates a Find Scale action, to set a suitable vertical scale for the derivative function trace Fx.

VerOffset *Double*

Range From -1e+006 to 1e+006 step 1e-009

Description

Sets/Queries the vertical offset of the derivative function trace Fx.

VerScale *DoubleLockstep*

Range From 1e-012 to 1e+013 step 10000, locked to 1 2 5, fine grain allowed=false, on=false

Description

Sets/Queries the vertical scale of the derivative function Fx.

DESKEW

app.Math.Fx.OperatorYSetup (Operator = "Deskew")

Deskew waveform by shifting it in time.

WaveDeskew	Double

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set the displacement of the trace F3 to 3.7e-9
app.Math.F3.View = True
app.Math.F3.MathMode = "OneOperator"
app.Math.F3.Operator1 = "Deskew"
app.Math.F3.Operator1Setup.WaveDeskew
```

WaveDeskew *Double*

Range From -2.5e-008 to 2.5e-008 step 1e-012

Description

Sets/Queries the displacement in time of the trace Fx. A positive value delays the signal: a negative one makes it appear earlier.

ENHANCEDRESOLUTION

app.Math.Fx.OperatorYSetup (Operator = "EnhancedResolution")

Bits	Enum

Bits *Enum*

Description

Number of bits of enhanced resolution. ERES is a FIR filter with a gaussian frequency response.

Values

0.5	Enhance by 0.5 bits
1	Enhance by 1 bits
1.5	Enhance by 1.5 bits
2	Enhance by 2 bits
2.5	Enhance by 2.5 bits
3	Enhance by 3 bits

ENVELOPE

app.Math.Fx.OperatorYSetup (Operator = "Envelope")

Envelope of minimum and maximum values for an ensemble of sweeps, or 'Extrema'

ClearSweeps	Action
LimitNumSweeps	Bool
Sweeps	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F3 to be an envelope of C1
app.Math.F3.View = True
app.Math.F3.Source1 = "C1"
app.Math.F3.MathMode = "OneOperator"
app.Math.F3.Operator1 = "Envelope"
app.Math.F3.Operat
```

ClearSweeps *Action*

Description

Initiates a Clear Sweeps operation for envelope function trace Fx.

LimitNumSweeps *Bool*

Sweeps *Integer*

Range From 1 to 1000000 step 1

Description

Sets/Queries the maximum number of sweeps to be used by the envelope function trace Fx.

EXCELMATH

app.Math.Fx.OperatorYSetup (Operator = "ExcelMath")

Perform Math in Excel. Transfers 1 or 2 waveforms into Excel and reads the resulting waveform.

AddChart	Action
AddLabels	Action
Advanced	Bool
ClearSheet	Action
CreateDemoSheet	Action

FindScale	Action
NewSheet	Bool
OutputCell	String
OutputEnable	Bool
OutputHeaderCell	String
Scaling	Enum
Source1Cell	String
Source1Enable	Bool
Source1HeaderCell	String
Source2Cell	String
Source2Enable	Bool
Source2HeaderCell	String
SpreadsheetFilename	FileName
Status	String
WithHeader	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F3 to process C1 in Excel using a demo-sheet
app.Math.F3.View = True
app.Math.F3.Source1 = "C1"
app.Math.F3.MathMode = "OneOperator"
app.Math.F3.Operator1 = "ExcelMath"
```

AddChart *Action*

Description

Adds a chart to the current Excel spreadsheet.

AddLabels *Action*

Description

Adds labels to the cells of the array headers in the Excel spreadsheet.

Advanced *Bool*

Description

Enables/Disables/Queries the advanced Excel settings. By default, the cell ranges used to store the input waveform, and to retrieve the calculated waveform, are preset. Advanced mode allows these to be changed.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function trace F3 to be an Excel function.
app.Math.F3.Operator1 = "ExcelMath"

' Enable the use of the advanced settings.
app.Math.F3.Operator1Setup.Advanced = True
```

ClearSheet *Action*

Description

Clears the contents of the current Excel spreadsheet.

CreateDemoSheet *Action*

Description

Creates a 'demo sheet', an excel spreadsheet pre-labelled, and with the output column equation preset to invert the input data.

FindScale *Action*

Description

Set a suitable scale for the output data from Excel on the instrument graticule when scaling has been set to manual.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function trace F3 to be an Excel function.
app.Math.F3.Operator1 = "ExcelMath"

' Set the scaling from the Excel spreadsheet to automatic.
app.Math.F3.Operator1Setup.Scaling = "Manual"

' Find a suitable scale for the output data
' on the instrument graticule.
app.Math.F3.Operator1Setup.FindScale
```

NewSheet *Bool*

Description

Enables/Disables/Queries the creation of a new Excel spreadsheet. If a new sheet is not to be created, an existing file name must be specified in the SpreadsheetFilename control.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function trace F3 to be an Excel function.
app.Math.F3.Operator1 = "ExcelMath"

' Enable the creation of a new Excel spreadsheet.
app.Math.F3.Operator1Setup.NewSheet = True
```

OutputCell *String*

Range Any number of characters

Description

Sets/Queries the cell label for output in the Excel function Fx. This cell marks the start (top) of the array of data to be taken from Excel into the instrument.

OutputEnable *Bool*

Description

Enables/Disables/Queries the transfer of output data from Excel to the instrument. If a one-way computation is required, where results of the Excel processing are not required, this should be set to False to increase performance.

OutputHeaderCell *String*

Range Any number of characters

Description

Sets/Queries the header cell label for output in the Excel function Fx. This is the starting cell for the header which carries setup information about the output waveform, from Excel to the instrument. Only used if the WithHeader control is set to True.

Scaling *Enum*

Description

Sets/Queries the method of scaling the output trace from the Excel spreadsheet.

Values

Automatic	Automatically scale the output waveform to full-scale
FromSheet	Retrieve scaling information from the output header in the spreadsheet
Manual	Manually auto-scale when FindScale is pressed

Source1Cell *String*

Range Any number of characters

Description

Sets/Queries the cell label for source 1 in the Excel function Fx. This cell marks the start (top) of the array into which data from the first source waveform is transferred.

Source1Enable *Bool*

Description

Enables/Disables/Queries the transfer of source 1 data from the instrument to Excel.

Source1HeaderCell *String*

Range Any number of characters

Description

Sets/Queries the header cell label for source 1 in the Excel function Fx. This is the starting cell for the header which carries setup information about waveform 1, from the instrument to Excel. This information includes waveform length, vertical and horizontal units, vertical and horizontal framing information, and horizontal scaling and offset information. Only used when the WithHeader control is set to True.

Source2Cell

String

Range Any number of characters

Description

Sets/Queries the cell label for source 2 in the Excel function Fx. This cell marks the start (top) of the array into which data from the second source waveform is transferred.

Source2Enable

Bool

Description

Enables/Disables/Queries the transfer of source 2 data from the instrument to Excel.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function trace F1 to be an Excel function.
app.Math.F1.Operator1 = "ExcelMath"
' Enable the transfer of source 2 data from the instrument to Excel.
app.Math.F1.Operator1Setup.Source2Enable = True
```

Source2HeaderCell

String

Range Any number of characters

Description

Sets/Queries the header cell label for source 2 in the Excel function Fx. This is the starting cell for the header which carries setup information about waveform 2, from the instrument to Excel. This information includes waveform length, vertical and horizontal units, vertical and horizontal framing information, and horizontal scaling and offset information. Only used when the WithHeader control is set to True.

SpreadsheetFilename

FileName

Range Any number of characters

Description

Sets/Queries the file name of the current Excel spreadsheet.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function trace F3 to be an Excel function.
app.Math.F3.Operator1 = "ExcelMath"

' Disable the creation of a new Excel spreadsheet.
app.Math.F3.Operator1Setup.NewSheet = False

' Select the filename of the existing Excel spreadsheet to be used.
app.Math.F3.Operator1Setup.SpreadsheetFilename = "C:\Sheet17.xls"
```

Status *String*

Range Any number of characters

Description

Inspects the status of the Excel and instrument combination. Examples are "OK", or "Excel not installed".

WithHeader *Bool*

Description

Enables/Disables/Queries the presence of headers with the waveform data.

FASTWAVEPORT

app.Math.Fx.OperatorYSetup (Operator = "FastWavePort")

MaxSize	Integer
PortName	String
Timeout	Double

MaxSize *Integer*

Range From 0 to 100000000 step 1

PortName *String*

Range Any number of characters

Timeout *Double*

Range From 0 to 100 step 1

FFT

app.Math.Fx.OperatorYSetup (Operator = "FFT")

Fast Fourier Transform of waveform data.

Algorithm	Enum
FillType	Enum
SuppressDC	Bool
Type	Enum
Window	Enum

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F3 to perform an FFT of C1
app.Math.F3.View = True
app.Math.F3.Source1 = "C1"
app.Math.F3.MathMode = "OneOperator"
```

```
app.Math.F3.Operator1 = "FFT"
app.Math.F3.Operator1Se
```

Algorithm *Enum*

Description

Sets/Queries the algorithm for the FFT in function trace Fx.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function trace F4 to FFT.
app.Math.F4.Operator1 = "FFT"
' Set the FFT algorithm to power of two.
app.Math.F4.Operator1Setup.Algorithm = "Power2"
```

Values

LeastPrime	
Power2	

FillType *Enum*

Description

Sets/Queries the type of trace fill to use in the FFT function trace Fx.

Values

Truncate	
ZeroFill	

SuppressDC *Bool*

Description

Enables/Disables suppression of the value at zero frequency in the FFT spectrum.

Type *Enum*

Description

Sets/Queries the type of FFT spectrum for function trace Fx.

Values

Imaginary	Imaginary part of the complex spectrum
Magnitude	Magnitude with linear vertical scale
MagSquared	
Phase	Phase
PowerDensity	Power Density
PowerSpectrum	Power Spectrum
Real	Real part of the complex spectrum

Window *Enum*

Description

Sets/Queries the type of window for the FFT function trace Fx.

Values

BlackmanHarris	
FlatTop	
Hamming	
Rectangular	
VonHann	

FFTFILTER

app.Math.Fx.OperatorYSetup (Operator = "FFTFILTER")

CornerFreq	Double
dBperOctave	Double
FitAlways	Bool
SimFiltType	Enum

CornerFreq *Double*

Range From 0 to 1e+010 step 1000

dBperOctave *Double*

Range From 6 to 180.6 step 0.1

FitAlways *Bool*

SimFiltType *Enum*

Values

HighPass	
LowPass	
PCIeG2Hhi	
PCIeG2Hlo	

FILTER

app.Math.Fx.OperatorYSetup (Operator = "Filter")

Processes waveform using specified digital filter.

AutoLength	Bool
FilterKind	Enum
FIRMissingPointsLocation	Enum
FirOrIir	Enum

FitAlways	Bool
LowFreqPass	Double
NumberOfTaps	Integer
PassBandRipple	Double
ReframeOutput	Bool
SampleRateText	String
StopBandAttenuation	Double
TransitionWidth	Double

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to filter C1
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Filter"
app.Math.F1.Operator1Setup.FirO
```

AutoLength *Bool*

Description

Enables/Disables/Queries status of the auto-length feature for the filter Fx.

FilterKind *Enum*

Description

Sets/Queries kind of filter to use in function Fx.

Values

BandPass	
BandStop	
Custom	
Gaussian	
HighPass	
LowPass	
RaisedCosine	
RaisedRootCosine	

FIRMissingPointsLocation *Enum*

Values

Left	
LeftRight	
Right	

FirOrIir *Enum*

Description

Sets/Queries whether the filter Fx is an FIR filter or an IIR filter.

Values

FIR	Finite Impulse Response Filter
IIR	Infinite Impulse Response Filter

FitAlways *Bool*

LowFreqPass *Double*

Range From 1000 to 1e+011 step 1

Description

Sets/Queries the lower cut-off frequency for the band-pass filter Fx.

NumberOfTaps *Integer*

Range From 3 to 2001 step 1

Description

Sets/Queries the number of taps in the filter Fx. Valid only when the AutoLength control is set to False.

PassBandRipple *Double*

Range From 0.5 to 20 step 0.1

Description

Sets/Queries the pass-band ripple.

ReframeOutput *Bool*

SampleRateText *String*

Range Any number of characters

StopBandAttenuation *Double*

Range From 10 to 100 step 0.001

Description

Sets/Queries the stop-band attenuation of the filter Fx.

TransitionWidth *Double*

Range From 0 to 1e+011 step 1

Description

Sets/Queries the width of the transition in the frequency spectrum of filter Fx.

FLOOR

app.Math.Fx.OperatorYSetup (Operator = "Floor")

Most negative or minimum values for an ensemble of sweeps, or "Floor"

ClearSweeps	Action
LimitNumSweeps	Bool
Sweeps	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to measure the Floor of the first 1000
' sweeps of C1
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1
```

ClearSweeps *Action*

Description

Initiates a clear sweeps action for the Floor function trace Fx.

LimitNumSweeps *Bool*

Sweeps *Integer*

Range From 1 to 1000000 step 1

Description

Sets/Queries the maximum number of sweeps for the Floor function trace Fx.

HISTOGRAM

app.Math.Fx.OperatorYSetup (Operator = "Histogram")

Histogram of the values of a parameter, or if a waveform is used as the input, histogram the waveform sample amplitudes.

AutoFindScale	Bool
Bins	DoubleLockstep
Center	Double
ClearSweeps	Action
FindScale	Action
HorScale	DoubleLockstep
Values	Integer
VerScaleType	Enum

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to histogram the first 200000 sample
' values from source waveform C1 into 50 bins.
' Auto find-scale is enabled.
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
```

AutoFindScale *Bool*

Description

Enables/Disables automatic scale setting for the histogram function Fx.

Bins

DoubleLockstep

Range From 20 to 2000 step 1, locked to 1 2 5, fine grain allowed=false, on=false

Description

Sets/Queries the number of bins in the histogram function Fx.

Center

Double

Range From -1e+010 to 1e+010 step 1e-012

Description

Sets/Queries the horizontal value at the center of the graticule of the histogram function Fx.

ClearSweeps

Action

Description

Clears the contents of all the bins of the histogram function Fx.

FindScale

Action

Description

Creates a suitable horizontal position and scale to include all the non-empty bins of the histogram Fx.

HorScale

DoubleLockstep

Range From 1e-012 to 1e+012 step 0.01, locked to 1 2 5, fine grain allowed=false, on=false

Description

Sets/Queries the horizontal scale in units per division for the histogram function Fx. Use the FindScale control to automatically determine the scale by looking at the non-zero populated bins.

Values

Integer

Range From 20 to 2000000000 step 1

Description

Sets/Queries the maximum number of values from the source result to include in the histogram function Fx.

VerScaleType *Enum*

Description

Sets/Queries the way that the vertical scale is calculated as the histogram Fx grows.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function F1 as histogram.
app.Math.F1.Operator1 = "Histogram"
' Set the vertical scale type to linear with constant maximum.
app.Math.F1.Operator1Setup.VerScaleType = "LinConstMax"
```

Values

LinConstMax	Linear scale with constant maximum value
Linear	Linear scale

HTIE2BER

app.Math.Fx.OperatorYSetup (Operator = "Htie2BER")

Format	Enum
Frequency	Double
MaxPopInFit	DoubleLockstep
PercentileUsed	DoubleLockstep
TransitionDensity	Double
UseValInput	Bool
UseWeights	Bool

Format *Enum*

Values

Bathtub	
EstTIE	
LogEstTIE	
LogTIE	
TjGaussian	
TotalJitter	

Frequency *Double*

Range From 100000 to 1e+011 step 1

MaxPopInFit *DoubleLockstep*

Range From 10 to 1e+009 step 20, locked to 1 2 5, fine grain allowed=false, on=false

PercentileUsed *DoubleLockstep*

Range From 0.001 to 20 step 0.001, locked to 1 2 5, fine grain allowed=false, on=false

TransitionDensity *Double*

Range From 0.1 to 1 step 0.01

UseValInput *Bool*

UseWeights *Bool*

INTEGRAL

app.Math.Fx.OperatorYSetup (Operator = "Integral")

Integral of the linearly rescaled (multiplier and adder) input.

Adder	Double
AutoFindScale	Bool
FindScale	Action
Multiplier	Double
VerOffset	Double
VerScale	DoubleLockstep

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to integrate C1
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Integral"
app.Math.F1.Operator1Setup
```

Adder *Double*

Range From -1e-009 to 1e-009 step 1e-012

Description

Sets/Queries the additive A for the integral function Fx, where Fx = M . Input + A.

AutoFindScale *Bool*

Description

Set/Query the state of the 'AutoFindScale' cvar, which enables the automatic scaling of the Integral when the acquisition setup changes.

FindScale *Action*

Description

Initiates an action to find suitable vertical offset and scale for the integral function trace Fx.

Multiplier *Double*

Range From -1e+006 to 1e+006 step 1e-006

Description

Sets/Queries the multiplying constant M for the integral function Fx, where Fx = M . Input + A

VerOffset *Double*

Range From -1e+006 to 1e+006 step 1e-015

Description

Sets/Queries the vertical offset for the integral function trace Fx.

VerScale *DoubleLockstep*

Range From 1e-012 to 1e+007 step 0.01, locked to 1 2 5, fine grain allowed=false, on=false

Description

Sets/Queries the vertical scale for the integral function trace Fx.

INTERPOLATE

app.Math.Fx.OperatorYSetup (Operator = "Interpolate")

Interpolate, producing more points in the resulting waveform using linear, cubic, or weighted sin(x)/x algorithms.

DownFactor	Action
Expand	DoubleLockstep
HalfWidth	Integer
InterpolateType	Enum
KaiserBeta	Double
NoiseGain	Double
UpFactor	Action
USE_1_2_5	Bool
WindowType	Enum

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to interpolate C1
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Interpolate"
app.Math.F1.Operator1
```

DownFactor *Action*

Expand *DoubleLockstep*

Range From 2 to 50 step 0.1, locked to 1 2 5, fine grain allowed=false, on=false

Description

Sets/Queries the sampling expansion ratio for the interpolation function Fx.

HalfWidth *Integer*

Range From 4 to 128 step 1

InterpolateType *Enum*

Description

Sets/Queries the type of interpolation for the function trace Fx.

Values

Cubic	
Linear	
SinXX	

KaiserBeta *Double*

Range From 2 to 11 step 0.1

NoiseGain *Double*

Range From 0.01 to 4 step 0.01

UpFactor *Action*

USE_1_2_5 *Bool*

WindowType *Enum*

Values

Blackman	
BlackmanHarris	
Hamming	
Kaiser	
Rectangular	
VonHann	

ISB

app.Math.Fx.OperatorYSetup (Operator = "ISB")

DecBER	Action
ExtraBinsArb	Integer
ExtraBinsH	Integer
ExtraBinsV	Integer
IncBER	Action
Log2Angles	Integer
LogBERmax	Double
LogBERmin	Double
ScanType	Enum
SetToCenter	Action

SetToWidest	Action
ShowNQEZ	Bool
XStart	Double
YStart	Double

DecBER *Action*

ExtraBinsArb *Integer*

Range From 0 to 10 step 1

ExtraBinsH *Integer*

Range From 0 to 20 step 1

ExtraBinsV *Integer*

Range From 0 to 10 step 1

IncBER *Action*

Log2Angles *Integer*

Range From 2 to 8 step 1

LogBERmax *Double*

Range From -21 to -3 step 1

LogBERmin *Double*

Range From -21 to -3 step 1

ScanType *Enum*

Values

All	
Horizontal	
Radial	
Vertical	

SetToCenter *Action*

SetToWidest *Action*

ShowNQEZ *Bool*

XStart *Double*

Range From 0 to 10 step 0.02

YStart *Double*

Range From 0 to 10 step 0.02

ISIPATT

app.Math.Fx.OperatorYSetup (Operator = "ISIPatt")

AutoClearSweeps	Bool
BitRate	Double
ClearSweeps	Action
DelayPct	Double
NumberOfBits	Integer
Resample	Bool
UpdateVoltageTrack	Bool
UseBitRate	Bool
Width	Double

AutoClearSweeps *Bool*

BitRate *Double*

Range From 99000 to 2e+010 step 1000

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

DelayPct *Double*

Range From 0 to 100 step 0.01

NumberOfBits *Integer*

Range From 3 to 12 step 1

Resample *Bool*

UpdateVoltageTrack *Bool*

UseBitRate *Bool*

Width *Double*

Range From 1e-011 to 0.1 step 1e-012

JITTERFILTER

app.Math.Fx.OperatorYSetup (Operator = "JitterFilter")

Frequency	Double
HighFreqPass	Double
LowFreqPass	Double
TransitionWidth	Double

Frequency *Double*

Range From 100000 to 1e+011 step 1

HighFreqPass *Double*

Range From 10 to 1e+011 step 1

LowFreqPass *Double*

Range From 10 to 1e+011 step 1

TransitionWidth *Double*

Range From 0 to 1e+011 step 1

JITTERSIM

app.Math.Fx.OperatorYSetup (Operator = "JitterSim")

AddH2	Bool
AddH3	Bool
AddH4	Bool
AddH5	Bool
Alpha	Double
Amplitude	Double
BitsToOutput	Integer
DataInFrame	Bool
ErrorRate	Double
FixedErrorBit	Integer
FixPatLength	Integer
FixPatPeakPeak	Double
FrameLength	Integer
FramePattern	String
Frequency	Double
Hamp2	Double
Hamp3	Double
Hamp4	Double
Hamp5	Double
HorBounded	Double
HorBType	Enum
HorGaussian	Double
HorJitterOn	Bool

Hphs2	Double
Hphs3	Double
Hphs4	Double
Hphs5	Double
ICPNCutOff1	Double
ICPNCutOff2	Double
ICPNOn	Bool
ICPNOrder1	Enum
ICPNOrder2	Enum
ICPNSigma1	Double
ICPNSigma2	Double
LockToSeq	Bool
ModFrequency	Double
ModFrequency2	Double
ModFrequency3	Double
ModPeakPeak	Double
ModPeakPeak2	Double
ModPeakPeak3	Double
OEPeakPeak	Double
Offset	Double
OvershootN	Double
OvershootP	Double
Pattern	String
PRBSSequence	Enum
Restart	Action
RiseFallRatio	Double
RiseTime	Double
SamplerEffects	Bool
SamplerGains	String
SamplerOffsets	String
SamplerSummary	String
SamplerTimes	String
SamplingModeOn	Bool
Seed	Integer
SignalType	Enum
Source	Enum
Spike	Double
SyncPhase	Bool
TriggerPos	Enum
VerBounded	Double
VerBType	Enum
VerGaussian	Double
VerNoiseOn	Bool

AddH3 *Bool*

AddH4 *Bool*

AddH5 *Bool*

Alpha *Double*

Range From 0.05 to 1 step 0.05

Amplitude *Double*

Range From 0 to 3 step 0.001

BitsToOutput *Integer*

Range From 4 to 16 step 1

DataInFrame *Bool*

ErrorRate *Double*

Range From 0 to 0.001 step 1e-015

FixedErrorBit *Integer*

Range From -1 to 100000000 step 1

FixPatLength *Integer*

Range From 2 to 32 step 1

FixPatPeakPeak *Double*

Range From 0 to 2e-011 step 1e-012

FrameLength *Integer*

Range From 16 to 1000000000 step 1

FramePattern *String*

Range Any number of characters

Frequency *Double*

Range From 10000 to 1e+011 step 100

Hamp2 *Double*

Range From 0 to 1 step 0.001

Hamp3 *Double*

Range From 0 to 1 step 0.001

Hamp4 *Double*

Range From 0 to 1 step 0.001

Hamp5 *Double*

Range From 0 to 1 step 0.001

HorBounded *Double*

Range From 0 to 1e-008 step 5e-014

HorBType *Enum*

Values

dualDirac	
sinePDF	
triangular	
uniform	

HorGaussian *Double*

Range From 0 to 1e-008 step 5e-014

HorJitterOn *Bool*

Hphs2 *Double*

Range From 0 to 6.28319 step 0.001

Hphs3 *Double*

Range From 0 to 6.28319 step 0.001

Hphs4 *Double*

Range From 0 to 6.28319 step 0.001

Hphs5 *Double*

Range From 0 to 6.28319 step 0.001

ICPNCutOff1 *Double*

Range From 100 to 1e+008 step 100

ICPNCutOff2 *Double*

Range From 100 to 1e+008 step 100

ICPNOn *Bool*

ICPNOrder1 *Enum*

Values

1	
2	

ICPNOrder2 *Enum*

Values

1	
2	

ICPNSigma1 *Double*

Range From 0 to 1e-007 step 5e-014

ICPNSigma2 *Double*

Range From 0 to 1e-007 step 5e-014

LockToSeq *Bool*

ModFrequency *Double*

Range From 10000 to 1e+010 step 1000

ModFrequency2 *Double*

Range From 10000 to 1e+010 step 1000

ModFrequency3 *Double*

Range From 10000 to 1e+010 step 1000

ModPeakPeak *Double*

Range From 0 to 2e-007 step 1e-013

ModPeakPeak2 *Double*

Range From 0 to 2e-007 step 1e-013

ModPeakPeak3 *Double*

Range From 0 to 2e-007 step 1e-013

OEPeakPeak *Double*

Range From 0 to 2e-010 step 1e-012

Offset *Double*

Range From -2 to 2 step 0.01

OvershootN *Double*

Range From 0 to 20 step 0.5

OvershootP *Double*

Range From 0 to 20 step 0.5

Pattern *String*

Range Any number of characters

PRBSSequence *Enum*

Values

PRBS10	
PRBS11	
PRBS12	
PRBS13	
PRBS14	
PRBS15	
PRBS20	
PRBS20ZeroSuppress	
PRBS23	
PRBS29	
PRBS31	
PRBS5	
PRBS6	
PRBS7	
PRBS8	
PRBS9	

Restart *Action*

RiseFallRatio *Double*

Range From 0.4 to 1.6 step 0.01

RiseTime *Double*

Range From 1e-011 to 1e+006 step 1e-011

SamplerEffects *Bool*

SamplerGains *String*

Range Any number of characters

SamplerOffsets *String*

Range Any number of characters

SamplerSummary *String*

Range Any number of characters

SamplerTimes *String*

Range Any number of characters

SamplingModeOn *Bool*

Seed *Integer*

Range From 1 to 1000000000 step 1

SignalType *Enum*

Values

bpRZ	
Clk	
NRZ	
RZ	

Source *Enum*

Values

CAN	
Pattern	
PRBS	

Spike *Double*

Range From 0 to 50 step 1

SyncPhase *Bool*

TriggerPos *Enum*

Values

Center	
Edge	

VerBounded *Double*

Range From 0 to 1 step 0.0001

VerBType *Enum*

Values

dualDirac	
sinePDF	
triangular	
uniform	

VerGaussian *Double*

Range From 0 to 1 step 0.0001

VerNoiseOn *Bool*

LOWPASSIIR

app.Math.Fx.OperatorYSetup (Operator = "LowPassIIR")

Cutoff	Double
FilterType	Enum
Log2BuffSize	Integer
Order	Integer
Ripple	Double
Warning	String

Cutoff *Double*

Range From 10000 to 5e+011 step 1000

FilterType *Enum*

Values

Butterworth	
Chebyshev1	

Log2BuffSize *Integer*

Range From 10 to 17 step 1

Order *Integer*

Range From 1 to 12 step 1

Ripple *Double*

Range From 0.01 to 4 step 0.01

Warning

String

Range Any number of characters

MATHCADMATH

app.Math.Fx.OperatorYSetup (Operator = "MathcadMath")

Produces a waveform using a user specified Mathcad function.

Advanced	Bool
FindScale	Action
NewSheet	Bool
OutputEnable	Bool
OutputHeaderVar	String
OutputVar	String
Reload	Action
Scaling	Enum
Source1Enable	Bool
Source1HeaderVar	String
Source1Var	String
Source2Enable	Bool
Source2HeaderVar	String
Source2Var	String
Status	String
WithHeader	Bool
WorksheetFilename	FileName

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to process C1 using Mathcad
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "MathcadMath"
```

Advanced

Bool

Description

Enables/Disables/Queries the use of the advanced features. When in advanced mode the names used for source and output vectors, in addition to names used for source and output headers, may be modified from their default values.

FindScale

Action

Description

Set a suitable vertical scale of the Mathcad output trace on the instrument graticule. Valid only when Manual scaling is specified.

NewSheet *Bool*

Description

Enables/Disables/Queries the creation of a new Mathcad worksheet.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function F1 as Mathcad calculation.
app.Math.F1.Operator1 = "MathcadMath"
' Enable creation of a new Mathcad worksheet.
app.Math.F1.Operator1Setup.NewSheet = True
```

OutputEnable *Bool*

Description

Enables/Disables/Queries the transmission of output data from Mathcad to the instrument.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function F1 as Mathcad calculation.
app.Math.F1.Operator1 = "MathcadMath"
' Enable transmission of output data.
app.Math.F1.Operator1Setup.OutputEnable = True
```

OutputHeaderVar *String*

Range Any number of characters

Description

Sets/Queries the name in Mathcad of the output header variable.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function F1 as Mathcad calculation.
app.Math.F1.Operator1 = "MathcadMath"
' Enables use of headers.
app.Math.F1.Operator1Setup.WithHeader = True
' Sets the name of the output header variable
app.Math.F1.Operator1Setup.OutputHeaderVar = "header1"
```

OutputVar *String*

Range Any number of characters

Description

Sets/Queries the name in Mathcad of the output variable.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function F1 as Mathcad calculation.
app.Math.F1.Operator1 = "MathcadMath"
' Sets the name of the output variable in Mathcad.
app.Math.F1.Operator1Setup.OutputVar = "output3"
```

Reload *Action*

Description

Reloads a specified Mathcad worksheet. If the worksheet does exist, the system creates an empty one with a name of the form "UntitledN", where N is an integer.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function F1 as Mathcad calculation.
app.Math.F1.Operator1 = "MathcadMath"
' Specifies a Mathcad worksheet name.
app.Math.F1.Operator1Setup.WorksheetFilename = "XStream34.mcd"
' Reload a Mathcad worksheet.
app.Math.F1.Operator1Setup.Reload
```

Scaling *Enum*

Description

Sets/Queries the method of vertical scaling of the Mathcad output trace on the instrument graticule.

Values

Automatic	
Manual	

Source1Enable *Bool*

Description

Enables/Disables/Queries the transmission of source 1 data from the instrument to Mathcad.

Source1HeaderVar *String*

Range Any number of characters

Description

Sets/Queries the name in Mathcad of input 1 header variable.

Source1Var *String*

Range Any number of characters

Description

Sets/Queries the name in Mathcad of input variable 1.

Source2Enable *Bool*

Description

Enables/Disables/Queries the transmission of source 2 data from the instrument to Mathcad.

Source2HeaderVar *String*

Range Any number of characters

Description

Sets/Queries the name in Mathcad of input 2 header variable.

Source2Var *String*

Range Any number of characters

Description

Sets/Queries the name in Mathcad of input variable 2.

Status *String*

Range Any number of characters

Description

Inspects the status of the Mathcad calculation.

WithHeader *Bool*

Description

Enables/Disables/Queries inclusion of headers in the Mathcad calculation.

WorksheetFilename *FileName*

Range Any number of characters

Description

Sets/Queries a Mathcad worksheet file name.

MATLABWAVEFORM

app.Math.Fx.OperatorYSetup (Operator = "MATLABWaveform")

Process a waveform using an external MATLAB application.

MATLABCode	String
MATLABPlot	Bool
MATLABScalePerDiv	Double
MATLABZeroOffset	Double

Range Any number of characters

Description

String containing the MATLAB code to execute when new data is presented.

MATLABPlot *Bool*

Description

If true, the result of the MATLAB processing operation is plotted by MATLAB, in a floating window.

MATLABScalePerDiv *Double*

Range From 1e-009 to 1e+009 step 1e-009

Description

Vertical Scaling, used to scale the waveform returned from MATLAB to the DSO's graticule.

MATLABZeroOffset *Double*

Range From -1e+009 to 1e+009 step 1e-009

Description

Zero Offset (vertically), used to scale the waveform returned from MATLAB to the DSO's graticule.

MUX

app.Math.Fx.OperatorYSetup (Operator = "Mux")

Select	Enum

Select *Enum*

Values

1	
2	
3	
4	

PERSISTENCEHISTOGRAM

app.Math.Fx.OperatorYSetup (Operator = "PersistenceHistogram")

CenterCursor	Action
ClearSweeps	Action
CutDirection	Enum
VerCutCenter	Double
VerCutWidth	Double

Description

Center the slice about the center of the axis, Vertical or Horizontal, depending upon the CutDirection Setting.

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

CutDirection *Enum*

Description

Specifies either a " vertical" cut direction or "horizontal" cut direction producing a histogram with the same horizontal coordinates as the chosen direction.

Values

Horizontal	
Vertical	

VerCutCenter *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

Description

Horizontal coordinate of center of cut or slice from the persistence map (in horizontal units)

VerCutWidth *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

Description

Horizontal coordinate of center of cut or slice from the persistence map (in horizontal units)

PERSISTENCETRACEMEAN

app.Math.Fx.OperatorYSetup (Operator = "PersistenceTraceMean")

ClearSweeps	Action
NumPoints	Integer

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

NumPoints *Integer*

Range From 100 to 100000 step 1

PERSISTENCETRACERANGE

app.Math.Fx.OperatorYSetup (Operator = "PersistenceTraceRange")

ClearSweeps	Action
NumPoints	Integer
PctPopulation	Double

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

NumPoints *Integer*

Range From 100 to 100000 step 1

PctPopulation *Double*

Range From 0.5 to 100 step 0.5

PERSISTENCETRACESIGMA

app.Math.Fx.OperatorYSetup (Operator = "PersistenceTraceSigma")

ClearSweeps	Action
NumPoints	Integer
Sigma	Double

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

NumPoints *Integer*

Range From 100 to 100000 step 1

Sigma *Double*

Range From 0.5 to 10 step 0.1

REFRAME

app.Math.Fx.OperatorYSetup (Operator = "Reframe")

FitAlways	Bool
FitOnInpDefChanged	Bool
OneClickLarger	Bool
UseRegion	Enum
VerFrameStart	Double
VerFrameStop	Double

FitAlways *Bool*

FitOnInpDefChanged *Bool*

OneClickLarger *Bool*

UseRegion *Enum*

Values

All	
Lower	
Upper	

VerFrameStart *Double*

Range From -1e+012 to 1e+012 step 1e-015

VerFrameStop *Double*

Range From -1e+012 to 1e+012 step 1e-015

RESCALE

app.Math.Fx.OperatorYSetup (Operator = "Rescale")

Linearly transform the vertical values of a waveform.

Adder	Double
CustomUnit	Bool
Multiplier	Double

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Rescale"
app.Math.F1.Operator1Setup.Adder = 2.0
app
```

Adder *Double*

Range From -1e+018 to 1e+018 step (9 digits)

Description

Sets/Queries the additive constant A in the rescale function Fx = M.Input + A

CustomUnit *Bool*

Description

Enables/Disables the application of a custom unit of measurement to the rescale function trace Fx.

Multiplier *Double*

Range From -1e+018 to 1e+018 step (9 digits)

Description

Sets/Queries the multiplicative constant M in the rescale function Fx = M.Input + A

ROOF

app.Math.Fx.OperatorYSetup (Operator = "Roof")

Most positive or maximum values for an ensemble of sweeps, or "Roof"

ClearSweeps	Action
LimitNumSweeps	Bool
Sweeps	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to measure the Roof of the first 1000
' sweeps of C1
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 =
```

ClearSweeps *Action*

Description

Initiates a clear sweeps action for the roof function trace Fx.

LimitNumSweeps *Bool*

Sweeps *Integer*

Range From 1 to 1000000 step 1

Description

Sets/Queries the maximum number of sweeps for the Roof function trace Fx.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set function trace F2 to roof.
app.Math.F2.Operator1 = "Roof"
' Set the maximum number of sweeps to 150.
app.Math.F2.Operator1Setup.Sweeps = 150
```

SEGMENTSELECT

app.Math.Fx.OperatorYSetup (Operator = "SegmentSelect")

NumSelectedSegments	Integer
SelectedSegment	Integer

NumSelectedSegments *Integer*

Range From 1 to 1 step 1

SelectedSegment *Integer*

Range From 1 to 1 step 1

SEQUENCEPACKPARAMCONTROL

app.Math.Fx.OperatorYSetup (Operator = "SequencePackParamControl")

OutputBatchSize	Integer

OutputBatchSize *Integer*

Range From 1 to 10000 step 1

SINXOVERX

app.Math.Fx.OperatorYSetup (Operator = "SinXOverX")

SLICE2PERSIST

app.Math.Fx.OperatorYSetup (Operator = "Slice2Persist")

AutoClearSweeps	Bool
ClearOnVFrame	Bool
ClearSweeps	Action
DivBase	Double
DivTop	Double
Frequency	Double
LocateMaskFailures	Bool
NumColumns	Integer
NumRows	Enum
Parameter	Enum
TZeroDiv	Double
UIsPerEye	Double

VerRescale	Bool

AutoClearSweeps *Bool*

ClearOnVFrame *Bool*

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

DivBase *Double*

Range From -4 to 4 step 0.01

DivTop *Double*

Range From -4 to 4 step 0.01

Frequency *Double*

Range From 1000 to 4e+010 step 1000

LocateMaskFailures *Bool*

NumColumns *Integer*

Range From 512 to 4096 step 1

NumRows *Enum*

Values

1024	
2048	
256	
512	

Parameter *Enum*

Values

TIE	
Timelevel	

TZeroDiv *Double*

Range From 0 to 10 step 0.01

UIsPerEye *Double*

Range From 0.1 to 10 step 0.01

VerRescale *Bool*

SPARSE

app.Math.Fx.OperatorYSetup (Operator = "Sparse")

Waveform sparser, will reduce the number of points in the output waveform by skipping points in the input, and starting at a given offset.

SparsingFactor	Integer
SparsingPhase	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Configure F1 to sparse C1 by a factor of 100
app.Math.F1.View = True
app.Math.F1.Source1 = "C1"
app.Math.F1.MathMode = "OneOperator"
app.Math.F1.Operator1 = "Sparse"
app.Math.F1.
```

SparsingFactor *Integer*

Range From 1 to 1000000 step 1

Description

Sets/Queries the factor by which the number of samples is reduced in the sparsing function Fx.

SparsingPhase *Integer*

Range From 0 to 0 step 1

Description

Sets/Queries the number of the first sample that will be accepted by the sparsing function Fx.

SSCTRACK

app.Math.Fx.OperatorYSetup (Operator = "SSCTrack")

AutoLength	Bool
Bandwidth	Double
CarrierFrequency	Double
DecimateBy	Integer
FirOrIir	Enum
FMScale	DoubleLockstep
LowFreqPass	Double
TransitionWidth	Double
Type	Enum

AutoLength *Bool*

Bandwidth *Double*

Range From 100000 to 1e+011 step 1000

CarrierFrequency *Double*

Range From 1e+006 to 1e+011 step 1

DecimateBy *Integer*

Range From 1 to 1000 step 1

FirOrIir *Enum*

Values

FIR	
IIR	

FMScale *DoubleLockstep*

Range From 100 to 1e+007 step 20000, locked to 1 2 5, fine grain allowed=false, on=false

LowFreqPass *Double*

Range From 1000 to 1e+011 step 1

TransitionWidth *Double*

Range From 0 to 1e+011 step 1

Type *Enum*

Values

Amplitude	
Frequency	
Imaginary	
Phase	
Real	
Time	
WideBandAM	

TAPPEDDELAYLINEFILTER

app.Math.Fx.OperatorYSetup (Operator = "TappedDelayLineFilter")

AccessInternals	Action
AllowIndexPredictionOptimization	Bool
AllowInputBufferCaching	Bool
CenterWeight	Double
Clear	Action
DecisionLevel0	Double

DecisionLevel1	Double
DecisionLevel2	Double
EdgeWeight	Double
FFETapsDesired	Integer
FilterSamplesPerUI	Integer
ForceInputFilterBufferAlignment	Bool
FrameGranularity	Integer
IdealLevel0	Double
IdealLevel1	Double
IdealLevel2	Double
IdealLevel3	Double
MaxBitsForTraining	Integer
MinBitsForTraining	Integer
NumDecisionLevels	Integer
NumTaps	Integer
NumThresholdsClockRecovery	Integer
OptimizeCombination	Bool
OptimizeUpsampler	Bool
PlotDebugFiles	Bool
PreCursorTaps	Integer
PreCursorTapsDesired	Integer
SymbolRate	Double
TapDelay	Double
TapWeight0	Double
TapWeight1	Double
TapWeight10	Double
TapWeight11	Double
TapWeight12	Double
TapWeight13	Double
TapWeight14	Double
TapWeight15	Double
TapWeight16	Double
TapWeight17	Double
TapWeight18	Double
TapWeight19	Double
TapWeight2	Double
TapWeight3	Double
TapWeight4	Double
TapWeight5	Double
TapWeight6	Double
TapWeight7	Double
TapWeight8	Double
TapWeight9	Double
ThresholdClockRecovery0	Double
ThresholdClockRecovery1	Double
ThresholdClockRecovery2	Double

Train	Action
UpsampleFactor	Integer
UpsamplerCoefficientType	Enum
UpsamplerDirectType	Enum
UpsamplerFilterType	Enum
UpsamplerFractionOfNyquist	Double
UpsamplerLibrarySpecified	Enum
UpsamplerSampleDistance	Integer

AccessInternals *Action*

AllowIndexPredictionOptimization *Bool*

AllowInputBufferCaching *Bool*

CenterWeight *Double*

Range From 0 to 1 step 0.01

Clear *Action*

DecisionLevel0 *Double*

Range From -10 to 10 step 1e-005

DecisionLevel1 *Double*

Range From -10 to 10 step 1e-005

DecisionLevel2 *Double*

Range From -10 to 10 step 1e-005

EdgeWeight *Double*

Range From 0 to 1 step 0.01

FFETapsDesired *Integer*

Range From 0 to 20 step 1

FilterSamplesPerUI *Integer*

Range From 1 to 2 step 1

ForceInputFilterBufferAlignment *Bool*

FrameGranularity *Integer*

Range From 10 to 1000 step 10

IdealLevel0 *Double*

Range From -10 to 10 step 1e-005

IdealLevel1 *Double*

Range From -10 to 10 step 1e-005

IdealLevel2 *Double*

Range From -10 to 10 step 1e-005

IdealLevel3 *Double*

Range From -10 to 10 step 1e-005

MaxBitsForTraining *Integer*

Range From 500 to 5000 step 1

MinBitsForTraining *Integer*

Range From 10 to 2500 step 1

NumDecisionLevels *Integer*

Range From 1 to 3 step 1

NumTaps *Integer*

Range From 0 to 20 step 1

NumThresholdsClockRecovery *Integer*

Range From 1 to 3 step 1

OptimizeCombination *Bool*

OptimizeUpsampler *Bool*

PlotDebugFiles *Bool*

PreCursorTaps *Integer*

Range From 0 to 19 step 1

PreCursorTapsDesired *Integer*

Range From 0 to 19 step 1

SymbolRate *Double*

Range From 1000 to 1e+011 step 0

TapDelay *Double*

Range From 0 to 100 step 0

TapWeight0 *Double*

Range From -100 to 100 step 1e-006

TapWeight1 *Double*

Range From -100 to 100 step 1e-006

TapWeight10 *Double*

Range From -100 to 100 step 1e-006

TapWeight11 *Double*

Range From -100 to 100 step 1e-006

TapWeight12 *Double*

Range From -100 to 100 step 1e-006

TapWeight13 *Double*

Range From -100 to 100 step 1e-006

TapWeight14 *Double*

Range From -100 to 100 step 1e-006

TapWeight15 *Double*

Range From -100 to 100 step 1e-006

TapWeight16 *Double*

Range From -100 to 100 step 1e-006

TapWeight17 *Double*

Range From -100 to 100 step 1e-006

TapWeight18 *Double*

Range From -100 to 100 step 1e-006

TapWeight19 *Double*

Range From -100 to 100 step 1e-006

TapWeight2 *Double*

Range From -100 to 100 step 1e-006

TapWeight3 *Double*

Range From -100 to 100 step 1e-006

TapWeight4 *Double*

Range From -100 to 100 step 1e-006

TapWeight5 *Double*

Range From -100 to 100 step 1e-006

TapWeight6 *Double*

Range From -100 to 100 step 1e-006

TapWeight7 *Double*

Range From -100 to 100 step 1e-006

TapWeight8 *Double*

Range From -100 to 100 step 1e-006

TapWeight9 *Double*

Range From -100 to 100 step 1e-006

ThresholdClockRecovery0 *Double*

Range From -10 to 10 step 1e-005

ThresholdClockRecovery1 *Double*

Range From -10 to 10 step 1e-005

ThresholdClockRecovery2 *Double*

Range From -10 to 10 step 1e-005

Train *Action*

UpsampleFactor *Integer*

Range From 1 to 20 step 1

UpsamplerCoefficientType *Enum*

Values

Fixed	
Float	

UpsamplerDirectType *Enum*

Values

Direct	
Normal	

UpsamplerFilterType *Enum*

Values

Polyphase	
Singlephase	

UpsamplerFractionOfNyquist *Double*

Range From 0.001 to 1 step 0.001

UpsamplerLibrarySpecified *Enum*

Values

IPP	
NSP	

UpsamplerSampleDistance *Integer*

Range From 2 to 50 step 1

TREND

app.Math.Fx.OperatorYSetup (Operator = "Trend")

Trend of the values of a parameter, if connected to a parameter result source, or a trend of the sample values of a waveform, if connected to a waveform result source.

AutoFindScale	Bool
Center	Double
ClearSweeps	Action
FindScale	Action
Mode	Enum
Values	Integer
VerScale	DoubleLockstep

AutoFindScale *Bool*

Description

Enables/Disables the automatic setting of the vertical scale and vertical offset for the trend trace Fx.

Center *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

Description

Sets/Queries the vertical position of the centre of the trend trace Fx.

ClearSweeps *Action*

Description

Clears the contents of the trend trace Fx.

FindScale *Action*

Description

Sets the vertical scale and offset to optimum values to display the trend trace Fx.

Mode *Enum*

Description

Trend mode, defines which parameter measurements are used to build the trend.

Values

All	Trend all values
AllperTrace	Trend an average of all values per acquisition
Average	Trend all values per trace, clear before new acquisition.

Values *Integer*

Range From 2 to 1000000 step 1

Description

Sets/Queries the number of visible values in the trend trace Fx.

VerScale *DoubleLockstep*

Range From 1e-015 to 1e+012 step 0.01, locked to 1 2 5, fine grain allowed=false, on=false

Description

Sets/Queries the vertical scale of the trend trace Fx.

WAVESCRIPT

app.Math.Fx.OperatorYSetup (Operator = "WaveScript")

Code	String
Language	Enum
Status	String
Timeout	Double

Code *String*

Range Any number of characters

Language *Enum*

Values

JScript	
VBScript	

Status *String*

Range Any number of characters

Timeout *Double*

Range From 1 to 1200 step 0.001

WFT

app.Math.Fx.OperatorYSetup (Operator = "WfT")

Amplitude	Double
Delay	Double
Offset	Double
RiseTime	Double
TimeType	Enum

Amplitude *Double*

Range From 0 to 3 step 0.001

Delay *Double*

Range From 0 to 1e-006 step 1e-013

Offset *Double*

Range From -2 to 2 step 0.01

RiseTime *Double*

Range From 1e-011 to 1e+006 step 1e-011

TimeType *Enum*

Values

Start	
Stop	
TieCDR	
TieData	
Value	

EDGEDA

app.Measure.Px.Operator (ArithEngine = "edgeDA")

ShowSignedDCD	Bool

ShowSignedDCD

Bool

LRNDDJ

app.Measure.Px.Operator (ArithEngine = "LrnDDj")

AutoClear	Bool
AutoFindPattern	Bool
BitRate	Double
ClearSweeps	Action
CodesUsed	Integer
FindPattern	Action
FindPatternConfirm	Action
HexPattern	String
InvertPattern	Bool
IsRepeating	Bool
MinAverages	Integer
OnlyRealEdges	Bool
PatternLength	Integer
PatternRepeat	Integer
PatternShiftLeft	Action
PatternShiftRight	Action
PatternShiftStep	Integer
PermitClock	Bool
PRBSeq	Enum
PRBSInfo	String
SourceType	Enum
Strip	Bool
TransitionDensity	Double

AutoClear

Bool

AutoFindPattern

Bool

BitRate

Double

Range From 99000 to 2e+010 step 1000

ClearSweeps *Action*

Description
Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

CodesUsed *Integer*

Range From 0 to 2000000 step 1

FindPattern *Action*

FindPatternConfirm *Action*

HexPattern *String*

Range Any number of characters

InvertPattern *Bool*

IsRepeating *Bool*

MinAverages *Integer*

Range From 10 to 1000 step 1

OnlyRealEdges *Bool*

PatternLength *Integer*

Range From 1 to 2000000 step 1

PatternRepeat *Integer*

Range From 1 to 13 step 1

PatternShiftLeft *Action*

PatternShiftRight *Action*

PatternShiftStep *Integer*

Range From 1 to 100 step 1

PermitClock *Bool*

PRBSeq *Enum*

Values

PRBS10	
PRBS11	
PRBS12	
PRBS13	
PRBS14	
PRBS15	
PRBS5	
PRBS6	
PRBS7	
PRBS8	
PRBS9	

PRBSInfo *String*

Range Any number of characters

SourceType *Enum*

Values

Pattern	
PRBS	

Strip *Bool*

TransitionDensity *Double*

Range From 0.1 to 1 step 0.01

MATHCADPARAMARITH

app.Measure.Px.Operator (ArithEngine = "MathcadParamArith")

Advanced	Bool
NewSheet	Bool
OutputEnable	Bool
OutputHeaderVar	String
OutputVar	String
Reload	Action
Source1Enable	Bool
Source1HeaderVar	String
Source1Var	String
Source2Enable	Bool
Source2HeaderVar	String
Source2Var	String
Status	String

WithHeader	Bool
WorksheetFilename	FileName

Advanced *Bool*

Description

Enables/Disables/Queries use of advanced features fro Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Enables use of advanced features.
app.Measure.P3.Operator.Advanced = True
```

NewSheet *Bool*

Description

Enables/Disables/Queries use of new Mathcad worksheet for parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Enable new Mathcad worksheet.
app.Measure.P3.Operator.NewSheet = True
```

OutputEnable *Bool*

Description

Enables/Disables/Queries transmission of output data from Mathcad to instrument.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Enables transmission of Mathcad output to the instrument.
app.Measure.P3.Operator.OutputEnable = True
```

OutputHeaderVar *String*

Range Any number of characters

Description

Sets/Queries the name of the output variable header in Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Sets the name of the Mathcad output header variable
app.Measure.P3.Operator.OutputHeaderVar = "outputheader"
```

OutputVar *String*

Range Any number of characters

Description

Sets/Queries the name of the output variable in Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Sets the name of the Mathcad output variable
app.Measure.P3.Operator.OutputVar = "output7"
```

Reload *Action*

Description

Reloads the specified Mathcad file.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Specfify a Mathcad worksheet filename.
app.Measure.P3.Operator.WorksheetFilename =
"C:\XStreamMathcad\Param233.mcd"
' Reload the specified Mathcad file.
app.Measure.P3.Operator.Reload
```

Source1Enable

Bool

Description

Enables/Disables/Queries transmission of source data 1 from instrument to Mathcad.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Enables transmission of source 1 data to instrument.
app.Measure.P3.Operator.Source1Enable = True
```

Source1HeaderVar

String

Range Any number of characters

Description

Sets/Queries the name of the input variable 1 header in Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Sets the name of the Mathcad source 1 header variable
app.Measure.P3.Operator.Source1HeaderVar = "input1header"
```

Source1Var

String

Range Any number of characters

Description

Sets/Queries the name of the input variable 1 in Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Sets the name of the source 1 variable
app.Measure.P3.Operator.Source1Var = "input1"
```

Source2Enable

Bool

Description

Enables/Disables/Queries transmission of source data 2 from instrument to Mathcad.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Enables transmission of source 2 data to instrument.
app.Measure.P3.Operator.Source2Enable = True
```

Source2HeaderVar

String

Range Any number of characters

Description

Sets/Queries the name of the input variable 2 header in Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Sets the name of the Mathcad source 2 header variable
app.Measure.P3.Operator.Source2HeaderVar = "input2header"
```

Source2Var

String

Range Any number of characters

Description

Sets/Queries the name of the input variable 2 in Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Sets the name of the source 2 variable
app.Measure.P3.Operator.Source2Var = "input2"
```

Status

String

Range Any number of characters

Description

Inspects the status of the Mathcad parameter calculation Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Inspect status of Mathcad parameter calculation.
MathcadStatus = app.Measure.P3.Operator.Status
```

WithHeader *Bool*

Description

Enables/Disables/Queries presence of headers with variables with Mathcad parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Enables inclusion of headers with data.
app.Measure.P3.Operator.WithHeader = True
```

WorksheetFilename *FileName*

Range Any number of characters

Description

Sets/Queries the name of the current Mathcad file for parameter Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 as Mathcad calculation.
app.Measure.P3.ParamEngine = "MathcadParam"
' Specfify a Mathcad worksheet filename.
app.Measure.P3.Operator.WorksheetFilename =
"C:\XStreamMathcad\Param233.mcd"
```

PARAMCONST

app.Measure.Px.Operator (ArithEngine = "ParamConst")

HorRes	Double
HorStartValue	Double
HorStopValue	Double
HorUnits	String
StatusValue	Integer
Value	Double
VerRes	DoubleLockstep
VerUnits	String

HorRes *Double*

Range From 1e-020 to 0.001 step 1e-020

HorStartValue *Double*

Range From -1e+012 to 1e+012 step 1e-015

HorStopValue *Double*

Range From -1e+012 to 1e+012 step 1e-015

HorUnits *String*

Range Any number of characters

StatusValue *Integer*

Range From 0 to 2147483647 step 1

Value *Double*

Range From -1e+012 to 1e+012 step 1e-015

VerRes *DoubleLockstep*

Range From 1e-015 to 1 step 1e-008, locked to 1 2 5, fine grain allowed=false, on=false

VerUnits *String*

Range Any number of characters

PARAMINVERT

app.Measure.Px.Operator (ArithEngine = "ParamInvert")

CycleForTimeUnits	Bool

CycleForTimeUnits *Bool*

PARAMMINMAX

app.Measure.Px.Operator (ArithEngine = "ParamMinMax")

MinMax	Enum

MinMax *Enum*

Values

Max	
Min	

PARAMPASSTHRU

app.Measure.Px.Operator (ArithEngine = "ParamPassThru")

ShowButton	Bool

ShowButton *Bool*

PARAMRESCALE

app.Measure.Px.Operator (ArithEngine = "ParamRescale")

Adder	Double
CustomUnit	Bool
Multiplier	Double

Adder *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

CustomUnit *Bool*

Multiplier *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

PARAMSCRIPT

app.Measure.Px.Operator (ArithEngine = "ParamScript")

Code	String
Language	Enum
Status	String
Timeout	Double

Code *String*

Range Any number of characters

Language *Enum*

Values

JScript	
VBScript	

Status *String*

Range Any number of characters

Timeout *Double*

Range From 1 to 12000 step 0.001

PLIMITER

app.Measure.Px.Operator (ArithEngine = "Plimiter")

MaxNbParam	Integer
StartParamIdx	Integer

MaxNbParam *Integer*

Range From 1 to 1000000000 step 1

StartParamIdx *Integer*

Range From 0 to 1000000000 step 1

AMPLITUDE

app.Measure.Px.Operator (ParamEngine = "Amplitude")

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

AMPLITUDEASYMMETRY

app.Measure.Px.Operator (ParamEngine = "AmplitudeAsymmetry")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

ANALOG2PROTOCOL

app.Measure.Px.Operator (ParamEngine = "Analog2Protocol")

AddressOperator	Enum
AddressValue	BitPattern
AddressValue2	BitPattern
FilterType	Enum
FindLevel	Action
Hysteresis	Double
LevelType	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
PercentLevel	Double
Slope	Enum
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

FilterType *Enum*

Values

Any	
ID	
IDData	

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Both	
Bothneg	
Bothpos	
Neg	
Pos	

ViewingMode *Enum*

Values

Binary	
Hex	

AREA

app.Measure.Px.Operator (ParamEngine = "Area")

Calculates the area of the input waveform relative to zero.

Cyclic	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P1 to area.
app.Measure.P1.View = True
app.Measure.P1.MeasurementType = "measure"
app.Measure.P1.ParamEngine = "Area"
app.Measure.P1.Source1 = "C1"

' Enable cycli
```

Cyclic *Bool*

Description

Enables/Disables cyclic calculation of area parameter Px, that is calculated using a whole number of cycles of the signal.

Note: the HelpMarkers aid in observing over which region of the waveform the measurement is made.

AUTOCORRELATIONSIGNALTONOISE

app.Measure.Px.Operator (ParamEngine = "AutoCorrelationSignalToNoise")

PatternLength	Double

PatternLength

Double

Range From 1e-009 to 0.001 step 1e-010

BASE

app.Measure.Px.Operator (ParamEngine = "Base")

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

LevelForPeriodRelative

Double

Range From 0 to 100 step 1

LevelForPeriodType

Enum

Values

Absolute	
Percent	

MultiValued

Bool

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

BITRATE

app.Measure.Px.Operator (ParamEngine = "BitRate")

LevelType	Enum
PercentLevel	Double
PFDUpdated	Action
Slope	Enum

LevelType

Enum

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

PFDUpdated *Action*

Slope *Enum*

Values

Both	
Neg	
Pos	

BURSTWIDTH

app.Measure.Px.Operator (ParamEngine = "BurstWidth")

AbsLevel1	Double
AbsLevel2	Double
BitRate	Double
LevelType	Enum
MaxRunLength	Integer

AbsLevel1 *Double*

Range From -100 to 100 step 0.0001

AbsLevel2 *Double*

Range From -100 to 100 step 0.0001

BitRate *Double*

Range From 0 to 1e+011 step 1000

LevelType *Enum*

Values

Absolute	
Percent	

MaxRunLength *Integer*

Range From 2 to 20 step 1

CANLOAD

app.Measure.Px.Operator (ParamEngine = "CANLoad")

FrameType	Enum

FromID	String
IDBits	Enum
IDCondition	Enum
MessageCount	Bool
ToID	String

FrameType *Enum*

Values

ALL	
Data	
Error	
Remote	

FromID *String*

Range Any number of characters

IDBits *Enum*

Values

ALL	
EXT29bit	
STD11bit	

IDCondition *Enum*

Values

DontCare	
EQ	
GE	
GT	
INRANGE	
LE	
LT	

MessageCount *Bool*

ToID *String*

Range Any number of characters

CANMSGBR

app.Measure.Px.Operator (ParamEngine = "CANMsgBR")

FrameType	Enum

FromID	String
IDBits	Enum
IDCondition	Enum
ToID	String

FrameType *Enum*

Values

ALL	
Data	
Error	
Remote	

FromID *String*

Range Any number of characters

IDBits *Enum*

Values

ALL	
EXT29bit	
STD11bit	

IDCondition *Enum*

Values

DontCare	
EQ	
GE	
GT	
INRANGE	
LE	
LT	

ToID *String*

Range Any number of characters

CANMSGNUM

app.Measure.Px.Operator (ParamEngine = "CANMsgNum")

FrameType	Enum
FromID	String
IDBits	Enum
IDCondition	Enum

ToID	String

FrameType *Enum*

Values

ALL	
Data	
Error	
Remote	

FromID *String*

Range Any number of characters

IDBits *Enum*

Values

ALL	
EXT29bit	
STD11bit	

IDCondition *Enum*

Values

DontCare	
EQ	
GE	
GT	
INRANGE	
LE	
LT	

ToID *String*

Range Any number of characters

CANTOANALOG

app.Measure.Px.Operator (ParamEngine = "CANtoAnalog")

DataCondition	Enum
DataValue0	String
DataValue1	String
DataValue2	String
DataValue3	String
DataValue4	String
DataValue5	String

DataValue6	String
DataValue7	String
DLC	Integer
FindLevel	Action
FrameType	Enum
Hysteresis	Double
ID	String
IDCondition	Enum
LevelType	Enum
PercentLevel	Double
Slope	Enum

DataCondition *Enum*

Values

EQ	
X	

DataValue0 *String*

Range Any number of characters

DataValue1 *String*

Range Any number of characters

DataValue2 *String*

Range Any number of characters

DataValue3 *String*

Range Any number of characters

DataValue4 *String*

Range Any number of characters

DataValue5 *String*

Range Any number of characters

DataValue6 *String*

Range Any number of characters

DataValue7 *String*

Range Any number of characters

DLC *Integer*

Range From 0 to 8 step 1

FindLevel *Action*

FrameType *Enum*

Values

Data	
Error	
Remote	

Hysteresis *Double*

Range From 0 to 10 step 0.1

ID *String*

Range Any number of characters

IDCondition *Enum*

Values

DontCare	
EQ	
GE	
GT	
INRANGE	
LE	
LT	

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Slope

Enum

Values

Both	
Neg	
Pos	

CANTOCAN

app.Measure.Px.Operator (ParamEngine = "CANtoCAN")

DataCondition1	Enum
DataCondition2	Enum
DataValue01	String
DataValue02	String
DataValue11	String
DataValue12	String
DataValue21	String
DataValue22	String
DataValue31	String
DataValue32	String
DataValue41	String
DataValue42	String
DataValue51	String
DataValue52	String
DataValue61	String
DataValue62	String
DataValue71	String
DataValue72	String
DLC1	Integer
DLC2	Integer
FrameType1	Enum
FrameType2	Enum
ID1	String
ID2	String
IDCondition1	Enum
IDCondition2	Enum

DataCondition1

Enum

Values

EQ	
X	

DataCondition2 *Enum*

Values

EQ	
X	

DataValue01 *String*

Range Any number of characters

DataValue02 *String*

Range Any number of characters

DataValue11 *String*

Range Any number of characters

DataValue12 *String*

Range Any number of characters

DataValue21 *String*

Range Any number of characters

DataValue22 *String*

Range Any number of characters

DataValue31 *String*

Range Any number of characters

DataValue32 *String*

Range Any number of characters

DataValue41 *String*

Range Any number of characters

DataValue42 *String*

Range Any number of characters

DataValue51 *String*

Range Any number of characters

DataValue52 *String*

Range Any number of characters

DataValue61 *String*

Range Any number of characters

DataValue62 *String*

Range Any number of characters

DataValue71 *String*

Range Any number of characters

DataValue72 *String*

Range Any number of characters

DLC1 *Integer*

Range From 0 to 8 step 1

DLC2 *Integer*

Range From 0 to 8 step 1

FrameType1 *Enum*

Values

Data	
Error	
Remote	

FrameType2 *Enum*

Values

Data	
Error	
Remote	

ID1 *String*

Range Any number of characters

ID2 *String*

Range Any number of characters

IDCondition1

Enum

Values

DontCare	
EQ	
GE	
GT	
INRANGE	
LE	
LT	

IDCondition2

Enum

Values

DontCare	
EQ	
GE	
GT	
INRANGE	
LE	
LT	

CANTOVALUE

app.Measure.Px.Operator (ParamEngine = "CANtoValue")

Algorithm	Enum
BitWidth	Integer
Coeff	Double
Format	Enum
ID	BitPattern
StartBit	Integer
Term	Double
Type	Enum
Units	String

Algorithm

Enum

Values

ByOption	
ForceLecroy	
ForceVector	

BitWidth *Integer*

Range From 1 to 32 step 1

Coeff *Double*

Range From -1000 to 1000 step 1e-005

Format *Enum*

Values

Intel	
Motorola	

ID *BitPattern*

Range MaxBits=29 NumBits=29 NumBytes=4 AllowedBitValues=01 PaddingChar=0 PadAlign=Left SizeAlign=BitFix Format=Ehex

StartBit *Integer*

Range From 0 to 63 step 1

Term *Double*

Range From -10000 to 10000 step 1e-005

Type *Enum*

Values

SignedInt	
UnsignedInt	

Units *String*

Range Any number of characters

DATADEPENDENTJITTER

app.Measure.Px.Operator (ParamEngine = "DataDependentJitter")

LevelType	Enum
PercentLevel	Double

LevelType *Enum*

Values

Absolute	
Percent	

PercentLevel *Double*

Range From 0 to 100 step 1

DELTAMESSAGES

app.Measure.Px.Operator (ParamEngine = "DeltaMessages")

AddressOperator	Enum
AddressValue	BitPattern
AddressValue2	BitPattern
FilterType	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

FilterType *Enum*

Values

Any	
ID	
IDData	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

ViewingMode *Enum*

Values

Binary	
Hex	

DELTAPERIODATLEVEL

app.Measure.Px.Operator (ParamEngine = "DeltaPeriodAtLevel")

FindLevel	Action
GroupSize	Integer
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
SignalType	Enum
Slope	Enum
StartCycle	Integer
Summary	String

FindLevel *Action*

GroupSize *Integer*

Range From 1 to 1024 step 1

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

SignalType *Enum*

Values

Clock	
Data	

Slope *Enum*

Values

Both	
Neg	
Pos	

StartCycle *Integer*

Range From 0 to 0 step 1

Summary *String*

Range Any number of characters

DELTATIMEATLEVEL

app.Measure.Px.Operator (ParamEngine = "DeltaTimeAtLevel")

FindLevel1	Action
FindLevel2	Action

Hysteresis1	Double
Hysteresis2	Double
LevelType1	Enum
LevelType2	Enum
PercentLevel1	Double
PercentLevel2	Double
Slope1	Enum
Slope2	Enum

FindLevel1 *Action*

Description

When in absolute level mode, finds the absolute level at 50% on the first trace

FindLevel2 *Action*

Description

When in absolute level mode, finds the absolute level at 50% on the second trace

Hysteresis1 *Double*

Range From 0 to 10 step 0.1

Description

Hysteresis in divisions around the level on first trace. The signal must enter the hysteresis zone (shown as a cursor) on one side and exit from the other side to qualify a transition.

Hysteresis2 *Double*

Range From 0 to 10 step 0.1

Description

Hysteresis in divisions around the level on second trace. The signal must enter the hysteresis zone (shown as a cursor) on one side and exit from the other side to qualify a transition.

LevelType1 *Enum*

Description

Type of level on first trace: absolute/percent and %Pkpk, %0-Min, %0-Max with EMC option

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

LevelType2 *Enum*

Description

Type of level on second trace: absolute/percent and %Pkpk, %0-Min, %0-Max with EMC option.

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel1 *Double*

Range From 0 to 100 step 1

Description

Level on first trace in percent.

PercentLevel2 *Double*

Range From 0 to 100 step 1

Description

Level on second trace in percent.

Slope1 *Enum*

Description

Sign of detected transition on first trace: positive, negative, both.

Values

Both	
Neg	
Pos	

Slope2 *Enum*

Description

Sign of detected transition on second trace: positive, negative, both

Values

Both	
Neg	
Pos	

DELTAWIDTHATLEVEL

app.Measure.Px.Operator (ParamEngine = "DeltaWidthAtLevel")

FindLevel	Action
Hysteresis	Double

LevelType	Enum
PercentLevel	Double
Slope	Enum
Summary	String

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

DUTYATLEVEL

app.Measure.Px.Operator (ParamEngine = "DutyAtLevel")

FindLevel	Action
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
Slope	Enum
Summary	String

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Neg	
Pos	

Summary *String*

Range Any number of characters

DUTYCYCLEDISTORTION

app.Measure.Px.Operator (ParamEngine = "DutyCycleDistortion")

FindLevel	Action
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
Slope	Enum

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Neg	
Pos	

EDGEATLEVEL

app.Measure.Px.Operator (ParamEngine = "EdgeAtLevel")

FindLevel	Action
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
Slope	Enum
Summary	String

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

EDGEDA

app.Measure.Px.Operator (ParamEngine = "edgeDA")

ShowSignedDCD	Bool

ShowSignedDCD *Bool*

EMCLVLPULSE

app.Measure.Px.Operator (ParamEngine = "EMClvlPulse")

Delay	Double
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
Slope	Enum

Delay *Double*

Range From 0 to 1 step 1e-012

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Neg	
Pos	

EMCT2VAL

app.Measure.Px.Operator (ParamEngine = "EMCt2Val")

LevelType	Enum
PercentHighLevel	Double
PercentLowLevel	Double
PercentMidLevel	Double
PulsePolarity	Enum

LevelType *Enum*

Values

Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentHighLevel *Double*

Range From 5 to 95 step 1

PercentLowLevel *Double*

Range From 5 to 95 step 1

PercentMidLevel *Double*

Range From 5 to 95 step 1

PulsePolarity *Enum*

Values

Neg	
Pos	

EXCELPARAM

app.Measure.Px.Operator (ParamEngine = "ExcelParam")

AddChart	Action
AddLabels	Action
Advanced	Bool
ClearSheet	Action
CreateDemoSheet	Action
NewSheet	Bool
OutputCell	String
OutputEnable	Bool
OutputHeaderCell	String
Source1Cell	String
Source1Enable	Bool
Source1HeaderCell	String
Source2Cell	String
Source2Enable	Bool
Source2HeaderCell	String
SpreadsheetFilename	FileName
Status	String
WithHeader	Bool

AddChart *Action*

Description

Adds a chart to the output worksheet

AddLabels *Action*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Advanced *Bool*

Description

Sets/Queries whether advanced features of this component are accessible

ClearSheet *Action*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

CreateDemoSheet *Action*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

NewSheet *Bool*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

OutputCell *String*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

OutputEnable *Bool*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

OutputHeaderCell *String*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Source1Cell *String*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Source1Enable *Bool*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Source1HeaderCell *String*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Source2Cell *String*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Source2Enable *Bool*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Source2HeaderCell *String*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

SpreadsheetFilename *FileName*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

Status *String*

Range Any number of characters

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

WithHeader *Bool*

Description

Using ParamEngine = "ExcelParam", Please refer to the corresponding variable for the ExcelMath function.

EXTINCTIONRATIO

app.Measure.Px.Operator (ParamEngine = "ExtinctionRatio")

Aperture	Double

CalcType	Enum
CursorDisplay	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

CalcType *Enum*

Description

Extinction ratio units.

Values

db	
linear	
pct	

CursorDisplay *Enum*

Description

Set/Query the CursorDisplay cvar. This defines whether the source trace is annotated with 'Help Markers' generated by the measurement.

Values

Detailed	
Off	
Simple	

EYEAMPLITUDE

app.Measure.Px.Operator (ParamEngine = "EyeAmplitude")

Aperture	Double
CursorDisplay	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

CursorDisplay *Enum*

Description

Set/Query the CursorDisplay cvar. This defines whether the source trace is annotated with 'Help Markers' generated by the measurement.

Values

Detailed	
Off	
Simple	

EYEAVGPOWER

app.Measure.Px.Operator (ParamEngine = "EyeAvgPower")

Aperture	Double

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

EYEBER

app.Measure.Px.Operator (ParamEngine = "EyeBER")

Aperture	Double
CursorDisplay	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

CursorDisplay *Enum*

Description

Set/Query the CursorDisplay cvar. This defines whether the source trace is annotated with 'Help Markers' generated by the measurement.

Values

Detailed	
Off	
Simple	

EYECROSSING

app.Measure.Px.Operator (ParamEngine = "EyeCrossing")

Output	Enum

Output *Enum*

Description

Type of output returned, percentage of eye height, or absolute voltage.

Values

Absolute	
Percent	

EYEFALLTIME

app.Measure.Px.Operator (ParamEngine = "EyeFallTime")

Aperture	Double
HighPct	Double
LowPct	Double

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

HighPct *Double*

Range From 60 to 90 step 1

Description

High level in percent.

LowPct *Double*

Range From 10 to 40 step 1

Description

High level in percent.

EYEHEIGHT

app.Measure.Px.Operator (ParamEngine = "EyeHeight")

Aperture	Double
CalcUnits	Enum
CursorDisplay	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

CalcUnits *Enum*

Description

Specifies the units of the parameter readout, linear (volts), or decibels.

Values

dB	
linear	

CursorDisplay *Enum*

Description

Set/Query the CursorDisplay cvar. This defines whether the source trace is annotated with 'Help Markers' generated by the measurement.

Values

Detailed	
Off	
Simple	

EYEMEAN

app.Measure.Px.Operator (ParamEngine = "EyeMean")

Aperture	Double

Aperture

Double

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

EYEONELEVEL

app.Measure.Px.Operator (ParamEngine = "EyeOneLevel")

Aperture	Double

Aperture

Double

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

EYEOPENINGFACTOR

app.Measure.Px.Operator (ParamEngine = "EyeOpeningFactor")

Aperture	Double
CursorDisplay	Enum

Aperture

Double

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

CursorDisplay *Enum*

Description

Set/Query the CursorDisplay cvar. This defines whether the source trace is annotated with 'Help Markers' generated by the measurement.

Values

Detailed	
Off	
Simple	

EYEOVERSHOOTNEGATIVE

app.Measure.Px.Operator (ParamEngine = "EyeOvershootNegative")

Aperture	Double

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

EYEOVERSHOOTPOSITIVE

app.Measure.Px.Operator (ParamEngine = "EyeOvershootPositive")

Aperture	Double

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

EYEPKPKNOISE

app.Measure.Px.Operator (ParamEngine = "EyePkPkNoise")

Aperture	Double
Level	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

Level *Enum*

Description

Defines the level for which the peak noise is computed, One or Zero.

Values

One	
Zero	

EYEQFACTOR

app.Measure.Px.Operator (ParamEngine = "EyeQFactor")

Aperture	Double
CursorDisplay	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

CursorDisplay *Enum*

Description

Set/Query the CursorDisplay cvar. This defines whether the source trace is annotated with 'Help Markers' generated by the measurement.

Values

Detailed	
Off	
Simple	

EYERISETIME

app.Measure.Px.Operator (ParamEngine = "EyeRiseTime")

Aperture	Double
HighPct	Double
LowPct	Double

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

HighPct *Double*

Range From 60 to 90 step 1

Description

High level in percent.

LowPct *Double*

Range From 10 to 40 step 1

Description

High level in percent.

EYESDEVNOISE

app.Measure.Px.Operator (ParamEngine = "EyeSDEVNoise")

Aperture	Double
Level	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

Level *Enum*

Description

Defines the level for which the standard deviation is computed, One or Zero.

Values

One	
Zero	

EYESIGNALTONOISE

app.Measure.Px.Operator (ParamEngine = "EyeSignalToNoise")

Aperture	Double
Level	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

Level *Enum*

Description

Specifies if "noise" is to be determined from the one level, the zero level or both levels

Values

Both	
One	
Zero	

EYESUPPRESSIONRATIO

app.Measure.Px.Operator (ParamEngine = "EyeSuppressionRatio")

Aperture	Double
Output	Enum

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the

eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

Output *Enum*

Values

db	
linear	
pct	

EYEZEROLEVEL

app.Measure.Px.Operator (ParamEngine = "EyeZeroLevel")

Aperture	Double

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

FALLATLEVEL

app.Measure.Px.Operator (ParamEngine = "FallAtLevel")

HighPct	Double
LevelsAre	Enum
LowPct	Double
SetLevel1090	Action
SetLevel2080	Action

HighPct *Double*

Range From 10 to 95 step 1

Description

High level in percent.

LevelsAre *Enum*

Description

Type of level: absolute, percent, %PkPk or %0-Min with EMC option.

Values

Absolute	
Percent	
PercentGNDMin	
PercentPkPk	

LowPct *Double*

Range From 5 to 90 step 1

Description

High level in percent.

SetLevel1090 *Action*

Description

Set the levels to 10% and 90% of full amplitude.

SetLevel2080 *Action*

Description

Set the levels to 20% and 80% of full amplitude.

FASTMULTIWPORT

app.Measure.Px.Operator (ParamEngine = "FastMultiWPort")

AdjustFrame	Bool
ClearCumulative	Bool
ClearSweeps	Action
ForceUpdate	Action
PortName	String
Timeout	Double

AdjustFrame *Bool*

ClearCumulative *Bool*

ClearSweeps *Action*

Description

Clear any accumulated result data. Useful for example to restart an average, or parameter statistics.

ForceUpdate *Action*

PortName *String*

Range Any number of characters

Timeout *Double*

Range From 0 to 100 step 1

FREQUENCYATLEVEL

app.Measure.Px.Operator (ParamEngine = "FrequencyAtLevel")

FindLevel	Action
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
SignalType	Enum
Slope	Enum
Summary	String

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

SignalType *Enum*

Values

Clock	
Data	

Slope *Enum*

Values

Neg	
Pos	

Summary *String*

Range Any number of characters

GAPWIDTH

app.Measure.Px.Operator (ParamEngine = "GapWidth")

AbsLevel1	Double
AbsLevel2	Double
BitRate	Double
LevelType	Enum
MaxRunLength	Integer

AbsLevel1 *Double*

Range From -100 to 100 step 0.0001

AbsLevel2 *Double*

Range From -100 to 100 step 0.0001

BitRate *Double*

Range From 0 to 1e+011 step 1000

LevelType *Enum*

Values

Absolute	
Percent	

MaxRunLength *Integer*

Range From 2 to 20 step 1

HALFPERIOD

app.Measure.Px.Operator (ParamEngine = "HalfPeriod")

AbsLevel	Double
FindLevel	Action
Hysteresis	Double

LevelType	Enum
Slope	Enum
Summary	String

AbsLevel *Double*

Range From -100 to 100 step 1e-007

Description

If absolute level type is used, then this is the threshold used for transition time detection. Note: the range of this variable setting adapts to the scale of the input signal.

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

Slope *Enum*

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

HOLDTIME

app.Measure.Px.Operator (ParamEngine = "HoldTime")

ClockFindLevel	Action
ClockHysteresis	Double
ClockLevelIs	Enum
ClockPctLevel	Double
ClockSlope	Enum
DataFindLevel	Action
DataHysteresis	Double

DataLevelIs	Enum
DataPctLevel	Double
DataSlope	Enum
Summary	String

ClockFindLevel *Action*

ClockHysteresis *Double*

Range From 0 to 10 step 0.1

ClockLevelIs *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

ClockPctLevel *Double*

Range From 0 to 100 step 1

ClockSlope *Enum*

Values

Both	
Neg	
Pos	

DataFindLevel *Action*

DataHysteresis *Double*

Range From 0 to 10 step 0.1

DataLevelIs *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

DataPctLevel *Double*

Range From 0 to 100 step 1

DataSlope *Enum*

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

HPARAMSCRIPT

app.Measure.Px.Operator (ParamEngine = "HParamScript")

Code	String
Language	Enum
Status	String
Timeout	Double

Code *String*

Range Any number of characters

Language *Enum*

Values

JScript	
VBScript	

Status *String*

Range Any number of characters

Timeout *Double*

Range From 1 to 12000 step 0.001

LEVELATX

app.Measure.Px.Operator (ParamEngine = "LevelAtX")

HorValue	Double
PinToData	Bool
TimeFromCvar	Bool

HorValue *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

Description

if the "TimeFromCvar" is set to true, this specifies the horizontal (x) coordinate at which the waveform data "level" or value is to be evaluated

PinToData *Bool*

Description

If set to true, the vertical values are restricted to actual data points, else if false the values can be interpolated (linearly) between points.

TimeFromCvar *Bool*

Description

If true, the horizontal coordinate (typically time) is specified by the "HorValue" cvar, otherwise the time is specified by the input pin.

LMODE

app.Measure.Px.Operator (ParamEngine = "Lmode")

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

LOCALBASE

app.Measure.Px.Operator (ParamEngine = "LocalBase")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALBASELINESEPARATION

app.Measure.Px.Operator (ParamEngine = "LocalBaselineSeparation")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALMAXIMUM

app.Measure.Px.Operator (ParamEngine = "LocalMaximum")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALMINIMUM

app.Measure.Px.Operator (ParamEngine = "LocalMinimum")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALNUMBER

app.Measure.Px.Operator (ParamEngine = "LocalNumber")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALPEAKTOPEAK

app.Measure.Px.Operator (ParamEngine = "LocalPeakToPeak")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALTIMEATMAXIMUM

app.Measure.Px.Operator (ParamEngine = "LocalTimeAtMaximum")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALTIMEATMINIMUM

app.Measure.Px.Operator (ParamEngine = "LocalTimeAtMinimum")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALTIMEBETWEENEVENTS

app.Measure.Px.Operator (ParamEngine = "LocalTimeBetweenEvents")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALTIMEBETWEENPEAKS

app.Measure.Px.Operator (ParamEngine = "LocalTimeBetweenPeaks")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALTIMEBETWEENTROUGHS

app.Measure.Px.Operator (ParamEngine = "LocalTimeBetweenTroughs")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALTIMEOVERTHRESHOLD

app.Measure.Px.Operator (ParamEngine = "LocalTimeOverThreshold")

Hysteresis	Double
Level	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

Level ***Double***

Range From 0.1 to 100 step 0.01

LOCALTIMEPEAKTOTROUGH

app.Measure.Px.Operator (ParamEngine = "LocalTimePeakToTrough")

Hysteresis	Double

Hysteresis ***Double***

Range From 0 to 10 step 0.1

LOCALTIMETROUGHTOPEAK

app.Measure.Px.Operator (ParamEngine = "LocalTimeTroughToPeak")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

LOCALTIMEUNDERTHRESHOLD

app.Measure.Px.Operator (ParamEngine = "LocalTimeUnderThreshold")

Hysteresis	Double
Level	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

Level *Double*

Range From 0.1 to 100 step 0.01

MATHCADPARAM

app.Measure.Px.Operator (ParamEngine = "MathcadParam")

Advanced	Bool
NewSheet	Bool
OutputEnable	Bool
OutputHeaderVar	String
OutputVar	String
Reload	Action
Source1Enable	Bool
Source1HeaderVar	String
Source1Var	String
Source2Enable	Bool
Source2HeaderVar	String
Source2Var	String
Status	String
WithHeader	Bool
WorksheetFilename	FileName

Advanced *Bool*

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

NewSheet *Bool*

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

OutputEnable *Bool*

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

OutputHeaderVar *String*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

OutputVar *String*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Reload *Action*

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Source1Enable *Bool*

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Source1HeaderVar *String*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Source1Var *String*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Source2Enable *Bool*

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Source2HeaderVar *String*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Source2Var *String*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

Status *String*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

WithHeader *Bool*

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

WorksheetFilename *FileName*

Range Any number of characters

Description

Using ParamEngine = "MathcadParam", please refer to the corresponding variable for the MathcadMath function.

MATLABPARAMETER

app.Measure.Px.Operator (ParamEngine = "MATLABParameter")

MATLABCode	String
MATLABPlot	Bool

MATLABCode *String*

Range Any number of characters

Description

String containing the MATLAB code to execute when new data is presented.

MATLABPlot *Bool*

Description

If true, the result of the MATLAB processing operation is plotted by MATLAB, in a floating window.

MAXIMUM

app.Measure.Px.Operator (ParamEngine = "Maximum")

Calculates the maximum vertical value of the waveform

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
app.Measure.P1.ParamEngine = "Maximum"
```

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

MEAN

app.Measure.Px.Operator (ParamEngine = "Mean")

Calculates the mean value of the input waveform's vertical values. When Cyclic = true, the range of values used is limited to a whole number of cycles.

Cyclic	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P1 to mean.
app.Measure.P1.ParamEngine = "Mean"
' Set the mean parameter for cyclic measurements.
app.Measure.P1.Operator.Cyclic = true
```

Cyclic *Bool*

Description

Sets/Queries whether the mean parameter Px is to be measured over a number of complete cycles.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P2 to mean.
app.Measure.P2.ParamEngine = "Mean"
' Set the mean parameter for cyclic measurements.
app.Measure.P2.ParamEngine.Cyclic = True
```

MEDIAN

app.Measure.Px.Operator (ParamEngine = "Median")

Calculates the median (division between two halves) of the probability distribution of an input waveform. For periodic signals it is advisable to use Cyclic = true.

Cyclic	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
app.Measure.P1.ParamEngine = "Median"
' Set the measurement for a periodic signal
app.Measure.P1.Operator.Cyclic = true
```

Cyclic *Bool*

Description

Sets/Queries whether the median parameter Px is to be measured over a number of complete cycles.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P2 to median.
app.Measure.P2.ParamEngine = "Median"
' Set the median parameter for cyclic measurements.
app.Measure.P2.Operator.Cyclic = True
```

MINIMUM

app.Measure.Px.Operator (ParamEngine = "Minimum")

Calculates the minimum value of a waveform

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
```

```
app.Measure.P1.ParamEngine = "Minimum"
```

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

NARROWBANDPHASE

app.Measure.Px.Operator (ParamEngine = "NarrowBandPhase")

Frequency	Double

Frequency *Double*

Range From 10 to 4e+010 step 1

NCYCLEJITTER

app.Measure.Px.Operator (ParamEngine = "NCycleJitter")

FindUITime	Bool
N	Integer
UITime	Double
Units	Enum

FindUITime *Bool*

N *Integer*

Range From 1 to 100000 step 1

UITime *Double*

Range From 0 to 1000 step 1e-012

Units *Enum*

Values

S	
UI	

NONLINEARTRANSITIONSHIFT

app.Measure.Px.Operator (ParamEngine = "NonLinearTransitionShift")

PatternDelay	Double
PatternLength	Double

PatternDelay *Double*

Range From -100 to 100 step 0.01

PatternLength *Double*

Range From 1e-009 to 0.001 step 1e-010

NPOINTS

app.Measure.Px.Operator (ParamEngine = "npoints")

UsePointsInFrame	Bool

UsePointsInFrame *Bool*

Description

Choose if the returned value is only points inside the displayed frame, or if all points in the result are reported.

NRZBITPATTERNTIME

app.Measure.Px.Operator (ParamEngine = "NRZBitPatternTime")

BitPattern	BitPattern
PatternToFind	Integer
ViewingMode	Enum
Wrap	Bool

BitPattern *BitPattern*

Range MaxBits=128 NumBits=2 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ebin

PatternToFind *Integer*

Range From 1 to 100000 step 1

ViewingMode *Enum*

Values

Binary	
Hex	

Wrap *Bool*

OVERSHOOTNEGATIVE

app.Measure.Px.Operator (ParamEngine = "OvershootNegative")

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

OVERSHOOTPOSITIVE

app.Measure.Px.Operator (ParamEngine = "OvershootPositive")

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

OVERWRITE

app.Measure.Px.Operator (ParamEngine = "Overwrite")

Frequency	Double

Frequency *Double*

Range From 10 to 4e+010 step 1

PARAMSCRIPT

app.Measure.Px.Operator (ParamEngine = "ParamScript")

Code	String
Language	Enum
Status	String
Timeout	Double

Code *String*

Range Any number of characters

Language *Enum*

Values

JScript	
VBScript	

Status *String*

Range Any number of characters

Timeout *Double*

Range From 1 to 12000 step 0.001

PCIEMISC

app.Measure.Px.Operator (ParamEngine = "PCIeMisc")

BitRate	Double
SelectableOutputChoice	Enum

BitRate *Double*

Range From 1e+006 to 5e+009 step 1000

SelectableOutputChoice *Enum*

Values

FallFromDeemph	
FallFromEmph	
MeanDeEmphMaxDiffV	
MeanEmphMaxDiffV	
MinPulseTime	
RiseFromDeemph	
RiseFromEmph	

PEAKTOPEAK

app.Measure.Px.Operator (ParamEngine = "PeakToPeak")

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

PERCENTILE

app.Measure.Px.Operator (ParamEngine = "Percentile")

HPctPop	Double
PctRes	DoubleLockstep

HPctPop *Double*

Range From 0 to 100 step 1

Description

Sets/Queries the percentage of the population which falls to the left (or below) the desired percentile. For example, the median is the 50th percentile, or the horizontal coordinate of the histogram at which 50% of the population falls to the left.

PctRes *DoubleLockstep*

Range From 1e-006 to 1 step 0.01, locked to 1 2 5, fine grain allowed=false, on=false

Description

This control allows you to control the precision or resolution in the percentage. The default is 1%. But you can set the resolution to as low as 1e-6 % (one part in 1e8). This is useful for finding approximate confidence limits.

PERIODATLEVEL

app.Measure.Px.Operator (ParamEngine = "PeriodAtLevel")

FindLevel	Action
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
PFDUpdated	Action
SignalType	Enum
Slope	Enum
Summary	String

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

PFDUpdated *Action*

SignalType *Enum*

Values

Clock	
Data	

Slope *Enum*

Values

Neg	
Pos	

Summary *String*

Range Any number of characters

PERSISTDCD

app.Measure.Px.Operator (ParamEngine = "PersistDCD")

Aperture	Double
HighPct	Double
LowPct	Double

Aperture *Double*

Range From 0 to 100 step 0.1

Description

For eye-diagram parameters which have an "aperture" setting, this defines the region over which the eye digrams vertical information is analyzed.
It specifies the percentage of the central region of the eye (relative to 1 Unit Interval) which is used in the analysis.

HighPct *Double*

Range From 60 to 90 step 1

Description

High level in percent.

LowPct *Double*

Range From 10 to 40 step 1

Description

High level in percent.

PHASE

app.Measure.Px.Operator (ParamEngine = "Phase")

OutputType	Enum
RefFindLevel	Action
RefHysteresis	Double
RefLevelType	Enum
RefPercentLevel	Double
RefSlope	Enum
SigFindLevel	Action
SigHysteresis	Double
SigLevelType	Enum
SigPercentLevel	Double
SigSlope	Enum

OutputType *Enum*

Description

Sets/Queries the output type for Phase Px.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P1 to phase difference.
app.Measure.P1.ParamEngine = "Phase"
' Set the output unit as radians.
app.Measure.P1.Operator.OutputType = "Radians"
```

Values

Degrees	
DEGREES360	
Percent	
Radians	
RADIANSTWOPI	

RefFindLevel

Action

Description

Find the test level for the reference trace.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 to phase difference.
app.Measure.P3.ParamEngine = "Phase"
' Find the test level for the reference trace.
app.Measure.P3.Operator.RefFindLevel
```

RefHysteresis

Double

Range From 0 to 10 step 0.1

Description

Sets/Queries the hysteresis range for the reference trace.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P1 to phase difference.
app.Measure.P1.ParamEngine = "Phase"
' Set the reference hysteresis in graticule divisions.
app.Measure.P1.Operator.RefHysteresis = 0.7
```

RefLevelType

Enum

Description

Sets/Queries the unit of measurement for the test level of the reference trace.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P1 to phase difference.
app.Measure.P1.ParamEngine = "Phase"
' Set the reference level to be measured in absolute units.
app.Measure.P1.Operator.RefLevelType = "Absolute"
```

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

RefPercentLevel *Double*

Range From 0 to 100 step 1

Description

Sets/Queries the test level for the reference trace in percent.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 to phase difference.
app.Measure.P3.ParamEngine = "Phase"
' Set the reference test level in percent.
app.Measure.P3.Operator.RefPercentLevel = 55
```

RefSlope *Enum*

Description

Sets/Queries the polarity of the measured reference transitions.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P1 to phase difference.
app.Measure.P1.ParamEngine = "Phase"
' Set the reference slope to negative.
app.Measure.P1.Operator.RefSlope = "Neg"
```

Values

Both	
Neg	
Pos	

SigFindLevel *Action*

Description

Causes the engine to find a suitable level for either SigLevelType ("Absolute"or "Percent")

SigHysteresis *Double*

Range From 0 to 10 step 0.1

Description

Sets/Queries the hysteresis range for the signal.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Set parameter P3 to phase difference.
app.Measure.P3.ParamEngine = "Phase"
' Set the signal hysteresis in graticule divisions.
app.Measure.P3.Operator.SigHysteresis = 0.7
```

SigLevelType *Enum*

Description

Sets/Queries which level to use "Percent" or "Absolute" for transitions on the signal

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

SigPercentLevel *Double*

Range From 0 to 100 step 1

Description

Sets/Queries the test level for the signal in percent.

SigSlope *Enum*

Description

Sets/Queries the polarity of the measured signal transitions.

Values

Both	
Neg	
Pos	

PROTOCOL2ANALOG

app.Measure.Px.Operator (ParamEngine = "Protocol2Analog")

AddressOperator	Enum
AddressValue	BitPattern
AddressValue2	BitPattern
FilterType	Enum
FindLevel	Action
Hysteresis	Double
LevelType	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
PercentLevel	Double
Slope	Enum
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

FilterType *Enum*

Values

Any	
ID	
IDData	

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Both	
Bothneg	
Bothpos	
Neg	
Pos	

ViewingMode *Enum*

Values

Binary	
Hex	

PROTOCOL2PROTOCOL

app.Measure.Px.Operator (ParamEngine = "Protocol2Protocol")

Protocol1AddressOperator	Enum

Protocol1AddressValue	BitPattern
Protocol1AddressValue2	BitPattern
Protocol1FilterType	Enum
Protocol1PatternBitLength	Integer
Protocol1PatternBitPos	Integer
Protocol1PatternOperator	Enum
Protocol1PatternValue	BitPattern
Protocol1PatternValue2	BitPattern
Protocol2AddressOperator	Enum
Protocol2AddressValue	BitPattern
Protocol2AddressValue2	BitPattern
Protocol2FilterType	Enum
Protocol2PatternBitLength	Integer
Protocol2PatternBitPos	Integer
Protocol2PatternOperator	Enum
Protocol2PatternValue	BitPattern
Protocol2PatternValue2	BitPattern
ViewingMode	Enum

Protocol1AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

Protocol1AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

Protocol1AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

Protocol1FilterType *Enum*

Values

Any	
ID	
IDData	

Protocol1PatternBitLength *Integer*

Range From 1 to 128 step 1

Protocol1PatternBitPos *Integer*

Range From 0 to 127 step 1

Protocol1PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

Protocol1PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

Protocol1PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

Protocol2AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

Protocol2AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

Protocol2AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

Protocol2FilterType *Enum*

Values

Any	
ID	
IDData	

Protocol2PatternBitLength *Integer*

Range From 1 to 128 step 1

Protocol2PatternBitPos *Integer*

Range From 0 to 127 step 1

Protocol2PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

Protocol2PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

Protocol2PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

ViewingMode *Enum*

Values

Binary	
Hex	

PROTOCOL2VALUE

app.Measure.Px.Operator (ParamEngine = "Protocol2Value")

AddressValue	BitPattern
DefinitionFile	FileName
FilterType	Enum

PatternBitLength	Integer
PatternBitPos	Integer
ValueCoefficient	Double
ValueTerm	Double
ValueType	Enum
ValueUnit	String
ViewingMode	Enum

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

DefinitionFile *FileName*

Range Any number of characters

FilterType *Enum*

Values

Any	
ID	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

ValueCoefficient *Double*

Range From -1e+050 to 1e+050 step 1e-010

ValueTerm *Double*

Range From -1e+050 to 1e+050 step 1e-010

ValueType *Enum*

Values

Signed	
Unsigned	

ValueUnit *String*

Range Any number of characters

ViewingMode *Enum*

Values

Binary	
Hex	

PROTOCOLBITRATE

app.Measure.Px.Operator (ParamEngine = "ProtocolBitrate")

AddressOperator	Enum
AddressValue	BitPattern
AddressValue2	BitPattern
FilterType	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

FilterType *Enum*

Values

Any	
ID	
IDData	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

ViewingMode *Enum*

Values

Binary	
Hex	

PROTOCOLLOAD

app.Measure.Px.Operator (ParamEngine = "ProtocolLoad")

AddressOperator	Enum
AddressValue	BitPattern
AddressValue2	BitPattern

FilterType	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

FilterType *Enum*

Values

Any	
ID	
IDData	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

ViewingMode *Enum*

Values

Binary	
Hex	

PROTOCOLNUMMESSAGES

app.Measure.Px.Operator (ParamEngine = "ProtocolNumMessages")

AddressOperator	Enum
AddressValue	BitPattern
AddressValue2	BitPattern
FilterType	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	

Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

FilterType *Enum*

Values

Any	
ID	
IDData	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

ViewingMode *Enum*

Values

Binary	
Hex	

PW50

app.Measure.Px.Operator (ParamEngine = "PW50")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

PW50NEGATIVE

app.Measure.Px.Operator (ParamEngine = "PW50Negative")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

PW50POSITIVE

app.Measure.Px.Operator (ParamEngine = "PW50Positive")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

RESOLUTION

app.Measure.Px.Operator (ParamEngine = "Resolution")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

RING

app.Measure.Px.Operator (ParamEngine = "Ring")

Description	String
RingbackType	Enum
Threshold	Double
TimeLimit	Double

Description *String*

Range Any number of characters

RingbackType *Enum*

Values

High	
Low	

Threshold *Double*

Range From -10 to 10 step 0.01

TimeLimit *Double*

Range From 0 to 1 step 1e-012

RISEATLEVEL

app.Measure.Px.Operator (ParamEngine = "RiseAtLevel")

HighPct	Double
LevelsAre	Enum
LowPct	Double
SetLevel1090	Action
SetLevel2080	Action

HighPct *Double*

Range From 10 to 95 step 1

Description

High level in percent.

LevelsAre *Enum*

Description

Type of level: absolute, percent, %PkPk or %0-Min with EMC option.

Values

Absolute	
Percent	
PercentGNDMax	
PercentPkPk	

LowPct *Double*

Range From 5 to 90 step 1

Description

High level in percent.

SetLevel1090 *Action*

Description

Set the levels to 10% and 90% of full amplitude.

SetLevel2080 *Action*

Description

Set the levels to 20% and 80% of full amplitude.

ROOTMEANSQUARE

app.Measure.Px.Operator (ParamEngine = "RootMeanSquare")

Cyclic	Bool
MultiValued	Bool

Cyclic *Bool*

Description

If true, the calculation is limited to a whole number of cycles detected in the input.

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

SD2LANESSKEW

app.Measure.Px.Operator (ParamEngine = "SD2LanesSkew")

BitPattern	String
BitRate	Double
PatternToFind	Integer
SkewLimit	Double

BitPattern *String*

Range Any number of characters

BitRate *Double*

Range From 1000 to 4e+010 step 1000

PatternToFind *Integer*

Range From 1 to 100000 step 1

SkewLimit *Double*

Range From 0 to 1000 step 0.1

SDDJ

app.Measure.Px.Operator (ParamEngine = "sDDj")

NumberOfBits	Integer
OnlyRealEdges	Bool

NumberOfBits *Integer*

Range From 3 to 14 step 1

OnlyRealEdges *Bool*

SETUP

app.Measure.Px.Operator (ParamEngine = "Setup")

Calculates the Setup time associated with a pair of input waveforms for Clock and Data.

ClockFindLevel	Action
ClockHysteresis	Double
ClockLevelIs	Enum
ClockPctLevel	Double
ClockSlope	Enum
DataFindLevel	Action
DataHysteresis	Double
DataLevelIs	Enum

DataPctLevel	Double
DataSlope	Enum
Summary	String

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
app.Measure.MeasureMode = "MyMeasure"
app.Measure.P1.ParamEngine = "Setup"
```

ClockFindLevel *Action*

Description

Causes the engine to find a suitable level for either ClockLevelIs ("Absolute"or "Percent")

ClockHysteresis *Double*

Range From 0 to 10 step 0.1

Description

Using ParamEngine = "Setup", please refer to the corresponding variable for the Hold Time parameter.

ClockLevelIs *Enum*

Description

Sets/Queries whether the Clock signal levels are specified in "Percent" or "Absolute"

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

ClockPctLevel *Double*

Range From 0 to 100 step 1

Description

Using ParamEngine = "Setup", please refer to the corresponding variable for the Hold Time parameter.

ClockSlope *Enum*

Description

Sets/Queries the polarity of transitions of the Clock signal are used

Values

Both	
Neg	
Pos	

DataFindLevel *Action*

Description

Causes the engine to find a suitable level for either DataLevells (''Absolute''or "Percent")

DataHysteresis *Double*

Range From 0 to 10 step 0.1

Description

Using ParamEngine = "Setup", please refer to the corresponding variable for the Hold Time parameter.

DataLevelIs *Enum*

Description

Sets/Queries whether the Data signal level is DataAbsLevel or DataPctLevel

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

DataPctLevel *Double*

Range From 0 to 100 step 1

Description

Using ParamEngine = "Setup", please refer to the corresponding variable for the Hold Time parameter.

DataSlope *Enum*

Description

Sets/Queries the polarity of transitions to be used for the Data signal

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

Description

Using ParamEngine = "Setup", please refer to the corresponding variable for the Hold Time parameter.

SKEW

app.Measure.Px.Operator (ParamEngine = "Skew")

Calculates the skew between two clock signal waveforms

Clock1FindLevel	Action

Clock1Hysteresis	Double
Clock1LevelIs	Enum
Clock1PctLevel	Double
Clock1Slope	Enum
Clock2FindLevel	Action
Clock2Hysteresis	Double
Clock2LevelIs	Enum
Clock2PctLevel	Double
Clock2Slope	Enum
Deskew	Double
UpSamplingFactor	Integer

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")
app.Measure.MeasureMode = "MyMeasure"
app.Measure.P1.ParamEngine = "Skew"
```

Clock1FindLevel *Action*

Description

Automatically find a suitable level for Clock1, for either "Percent" or "Absolute" levels

Clock1Hysteresis *Double*

Range From 0 to 10 step 0.1

Description

Sets/Queries hysteresis for transition detection used for Clock1

Clock1LevelIs *Enum*

Description

Sets/Queries whether to use Percent or Absolute levels for Clock1

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

Clock1PctLevel *Double*

Range From 0 to 100 step 1

Description

Sets/Queries the "Percent" of the amplitude of Clock1 to use for a transition level, if Clock1LevelIs = "Percent"

Clock1Slope *Enum*

Description

Sets/Queries the polarity of transitions detected on Clock1

Values

Both	
Neg	
Pos	

Clock2FindLevel *Action*

Description

Using ParamEngine = "Skew", please refer to the corresponding variable for the Hold Time parameter.

Clock2Hysteresis *Double*

Range From 0 to 10 step 0.1

Description

Sets/Queries hysteresis for transition detection used for Clock1

Clock2LevelIs *Enum*

Description

Sets/Queries whether to use Percent or Absolute levels for Clock2

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

Clock2PctLevel *Double*

Range From 0 to 100 step 1

Description

Sets/Queries the "Percent" of the amplitude of Clock2 to use for a transition level, if Clock2LevelIs = "Percent"

Clock2Slope *Enum*

Description

Sets/Queries the polarity of transitions detected on Clock2

Values

Both	
Neg	
Pos	

Deskew *Double*

Range From -1e-008 to 1e-008 step 1e-012

UpSamplingFactor *Integer*

Range From 1 to 20 step 1

SLEW

app.Measure.Px.Operator (ParamEngine = "Slew")

HighPct	Double
IsTangentialSlewRate	Bool
LevelsAre	Enum
LowPct	Double
PercentImage	Image
SetLevel1090	Action
SetLevel2080	Action
Slope	Enum

HighPct *Double*

Range From 40 to 95 step 1

Description

High level in percent.

IsTangentialSlewRate *Bool*

LevelsAre *Enum*

Description

Type of level: absolute, percent, %PkPk or %0-Min with EMC option.

Values

Absolute	
Percent	
PercentGNDMax	
PercentPkPk	

LowPct *Double*

Range From 5 to 60 step 1

Description

High level in percent.

PercentImage *Image*

SetLevel1090 *Action*

Description

Set the levels to 10% and 90% of full amplitude.

SetLevel2080 *Action*

Description

Set the levels to 20% and 80% of full amplitude.

Slope *Enum*

Values

Neg	
Pos	

SSCMINMAX

app.Measure.Px.Operator (ParamEngine = "SSCMinMax")

AutoDetectSSC	Bool
MinMax	Enum
SSCEnabled	Bool

AutoDetectSSC *Bool*

MinMax *Enum*

Values

Max	
Min	

SSCEnabled *Bool*

SSCRATIO

app.Measure.Px.Operator (ParamEngine = "SSCRatio")

BitRate	Double
OutputProcess	Enum

BitRate *Double*

Range From 9e+007 to 4e+010 step 1000

OutputProcess *Enum*

Values

Max	
Min	
Ratio	

STANDARDDEVIATION

app.Measure.Px.Operator (ParamEngine = "StandardDeviation")

Cyclic	Bool

Cyclic *Bool*

Description

If true, the calculation is limited to a whole number of cycles detected in the input.

TAA

app.Measure.Px.Operator (ParamEngine = "TAA")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

TAANEGATIVE

app.Measure.Px.Operator (ParamEngine = "TAANegative")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

TAAPOSITIVE

app.Measure.Px.Operator (ParamEngine = "TAAPositive")

Hysteresis	Double

Hysteresis *Double*

Range From 0 to 10 step 0.1

TIE

app.Measure.Px.Operator (ParamEngine = "TIE")

TIE is "Time Interval Error", or the error in expected arrival time of trnasotions in either a data stream or a clock signal. It is the heart of most jitter measurments (where only one signal is under analysis). The Skew processor is closely related to this function in cases where measurements are using a separate reference clock.

WARNING: The TIE processor is appropriate for analysis of "real-time" acquired waveforms for jitter and timing variations. It will give incorrect results for equivalent-time type waveforms.

Annotate	Integer
BaseFrequency	Double
DataIsNRZ	Bool
FindBaseFrequency	Action
FindLevel	Action
FrequencyMultiplier	Double
Hysteresis	Double
IncludeVirtualEdges	Bool
IntervalsEdgeEdge	Integer
IntervalType	Enum
LevelType	Enum
MaxComboIntervals	Integer
PercentLevel	Double
PermitGTHalfUI	Bool
PLL1TransportDelay	Double
PLLCompensateForMissingEdges	Bool
PLLFrequency	Double
PLLType	Enum
SignalType	Enum
Slope	Enum
Summary	String
UseAllEdges	Bool
UseBaseFrequency	Enum
UseMultiEdgeCombos	Bool
UsePLL	Bool
VirtEdgeType	Enum

Annotate

Integer

Range From 1 to 10 step 1

BaseFrequency *Double*

Range From 1 to 2e+012 step 10

Description

This is the frequency of used to provide expected times for TIE. If a PLL is being used, this frequency must be within the capture range for the PLL (usually quite close) or you will encounter unexpected results. Typically the find frequency operation is quite good for setting this value, unless the input source is "data" and the signal is very stressed (closed eye or nearly closed eye).

DataIsNRZ *Bool*

Description

This should be set to "true" for TIE analysis of an NRZ data stream. It should be set to false for TIE analysis of a clock signal

FindBaseFrequency *Action*

Description

When activatred starts an automatic process to attempt to learn the base frequency of the clock or data signal (see DataIsNRZ) and set the BaseFrequency contorl to the found value. Warning: be sure to provide as many clock or data cycles as is reasonably possible for maximum precision in the result.

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Automatically find the frequency for clock or data signal at the input
of the TIE processor.
app.Measure.P3.Operator.FindBaseFrequency
```

FindLevel *Action*

Description

Activate this control to find the vertical level for 50% for the waveform presented at the input to this processor. (Only for LevelType = "Absolute"

Example

```
' Visual Basic Script
Set app = CreateObject("LeCroy.XStreamDSO")

' Automatically find the level for 50% crossing as an absolute (vertical
units) value
app.Measure.P3.Operator.FindLevel
```

FrequencyMultiplier *Double*

Range From 0.001 to 1000 step 0.001

Hysteresis *Double*

Range From 0 to 10 step 0.1

Description

This setting establishes the zone around the level (or threshold for level crossings) which must be traversed by the signal in order for the transition to be "qualified".

IncludeVirtualEdges *Bool*

Description

When this control is set to true (default is false), the TIE values the result at the output have "virtual edges" included in the output (i.e. values which are linearly interpolated) corresponding to edges which did NOT transit. This allows a relatively uniform in time strm of values. This feature is mostly obviated by the processor "ParamUpSample"

IntervalsEdgeEdge *Integer*

Range From 1 to 100000 step 1

Description

For edge-edge methodology, this control sets the number of UI (unit intervals) between edges to be analyzed.

IntervalType *Enum*

Description

Timing Analysis can either performed using the edge-edge timing methodology (as was developed for Time-Interval-Analyzers", or edge-ref, as is common for real-time oscilloscopes. Edge-Ref is highly recommended.

Values

EDGEEDGE	
EDGEREF	

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

MaxComboIntervals *Integer*

Range From 1 to 20000 step 1

PercentLevel *Double*

Range From 0 to 100 step 1

PermitGTHalfUI *Bool*

PLL1TransportDelay *Double*

Range From 0 to 1 step 1e-015

PLLCompensateForMissingEdges *Bool*

PLLFrequency *Double*

Range From 1 to 1e+011 step 100

PLLType *Enum*

Description

Permits selection of a PLL type (depending on installed software options)

Values

Custom	
DVI	
FBDIMM	
GOLDEN	
PCIEXPRESS	

SignalType *Enum*

Values

Clock	
Data	

Slope *Enum*

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

UseAllEdges *Bool*

UseBaseFrequency *Enum*

Values

Custom	
Standard	

UseMultiEdgeCombos *Bool*

UsePLL *Bool*

VirtEdgeType *Enum*

Values

Expected	
Observed	

TIMEATCAN

app.Measure.Px.Operator (ParamEngine = "TimeAtCAN")

DataCondition	Enum
DataValue0	String
DataValue1	String
DataValue2	String
DataValue3	String
DataValue4	String
DataValue5	String
DataValue6	String
DataValue7	String
DLC	Integer
FrameType	Enum
HorValue	Double
ID	String
IDCondition	Enum
ShowBrowseDb	Bool

DataCondition *Enum*

Values

EQ	
X	

DataValue0 *String*

Range Any number of characters

DataValue1 *String*

Range Any number of characters

DataValue2 *String*

Range Any number of characters

DataValue3 *String*

Range Any number of characters

DataValue4 *String*

Range Any number of characters

DataValue5 *String*

Range Any number of characters

DataValue6 *String*

Range Any number of characters

DataValue7 *String*

Range Any number of characters

DLC *Integer*

Range From 0 to 8 step 1

FrameType *Enum*

Values

Data	
Error	
Remote	

HorValue *Double*

Range From -1.79769e+308 to 1.79769e+308 step 0

ID *String*

Range Any number of characters

IDCondition *Enum*

Values

DontCare	
EQ	
GE	
GT	
INRANGE	
LE	
LT	

ShowBrowseDb *Bool*

TIMEATLEVEL

app.Measure.Px.Operator (ParamEngine = "TimeAtLevel")

FindLevel	Action
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
Slope	Enum
Summary	String

FindLevel *Action*

Description

When in absolute level, finds the level at 50%.

Hysteresis *Double*

Range From 0 to 10 step 0.1

Description

Hysteresis around level in units of divisions.

LevelType *Enum*

Description

Level type in absolute, percent and %Pkpk, %0-min, %0-max with EMC option.

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Description

Level in percent.

Slope *Enum*

Description

Slope of the detected transitions.

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

Description

Summary of functionality and settings of processor.

TIMEATPROTOCOL

app.Measure.Px.Operator (ParamEngine = "TimeAtProtocol")

AddressOperator	Enum

AddressValue	BitPattern
AddressValue2	BitPattern
FilterType	Enum
PatternBitLength	Integer
PatternBitPos	Integer
PatternOperator	Enum
PatternValue	BitPattern
PatternValue2	BitPattern
ViewingMode	Enum

AddressOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

AddressValue *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitFix Format=Ehex

AddressValue2 *BitPattern*

Range MaxBits=32 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitFix Format=Ehex

FilterType *Enum*

Values

Any	
ID	
IDData	

PatternBitLength *Integer*

Range From 1 to 128 step 1

PatternBitPos *Integer*

Range From 0 to 127 step 1

PatternOperator *Enum*

Values

Equal	
Greater	
GreaterOrEqual	
InRange	
NotEqual	
OutRange	
Smaller	
SmallerOrEqual	

PatternValue *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01X PaddingChar=X PadAlign=Left SizeAlign=BitVar Format=Ehex

PatternValue2 *BitPattern*

Range MaxBits=128 NumBits=8 NumBytes=1 AllowedBitValues=01 PaddingChar=1 PadAlign=Left SizeAlign=BitVar Format=Ehex

ViewingMode *Enum*

Values

Binary	
Hex	

TMNPLS

app.Measure.Px.Operator (ParamEngine = "TMnPls")

BitRate	Double

BitRate *Double*

Range From 1e+006 to 5e+009 step 1000

TOP

app.Measure.Px.Operator (ParamEngine = "Top")

LevelForPeriodRelative	Double
LevelForPeriodType	Enum
MultiValued	Bool

LevelForPeriodRelative *Double*

Range From 0 to 100 step 1

LevelForPeriodType *Enum*

Values

Absolute	
Percent	

MultiValued *Bool*

Description

Set/Query the state of the Multi-Valued enable flag. Enables the emission of 'per-pulse' amplitude parameters.

TXFALL

app.Measure.Px.Operator (ParamEngine = "TXFALL")

BitRate	Double

BitRate *Double*

Range From 1e+006 to 5e+009 step 1000

TXRISE

app.Measure.Px.Operator (ParamEngine = "TXRISE")

BitRate	Double

BitRate *Double*

Range From 1e+006 to 5e+009 step 1000

VCROSS

app.Measure.Px.Operator (ParamEngine = "VCROSS")

Slope	Enum

Slope *Enum*

Values

Both	
Neg	

Pos	

VDIFFPP

app.Measure.Px.Operator (ParamEngine = "VDiffPP")

BitRate	Double

BitRate *Double*

Range From 1e+006 to 5e+009 step 1000

VTXDERATIO

app.Measure.Px.Operator (ParamEngine = "VTxDeRatio")

BitRate	Double
Scale	Enum

BitRate *Double*

Range From 9e+007 to 4e+010 step 1e+006

Scale *Enum*

Values

Linear	
Log	

WIDTHATLEVEL

app.Measure.Px.Operator (ParamEngine = "WidthAtLevel")

FindLevel	Action
Hysteresis	Double
LevelType	Enum
PercentLevel	Double
Slope	Enum
Summary	String

FindLevel *Action*

Hysteresis *Double*

Range From 0 to 10 step 0.1

LevelType *Enum*

Values

Absolute	
Percent	
PercentGNDMax	
PercentGNDMin	
PercentPkPk	

PercentLevel *Double*

Range From 0 to 100 step 1

Slope *Enum*

Values

Both	
Neg	
Pos	

Summary *String*

Range Any number of characters

XATMAXIMUM

app.Measure.Px.Operator (ParamEngine = "XAtMaximum")

HystDiv	Double
Method	Enum

HystDiv *Double*

Range From 0.1 to 5 step 0.05

Method *Enum*

Values

LeftmostMax	
LocalMaxima	
RightmostMax	

XATMINIMUM

app.Measure.Px.Operator (ParamEngine = "XAtMinimum")

HystDiv	Double
Method	Enum

HystDiv *Double*

Range From 0.1 to 5 step 0.05

Method *Enum*

Description

Method to use for finding Minima.

Values

LeftmostMin	
LocalMinima	
RightmostMin	

XATPEAK

app.Measure.Px.Operator (ParamEngine = "XAtPeak")

PeakNumber	Integer

PeakNumber *Integer*

Range From 1 to 10000 step 1

Description

Peak number for which the X value is returned.

Thank you for using Remote Control and Automation on your WaveMaster and WavePro Oscilloscopes.

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