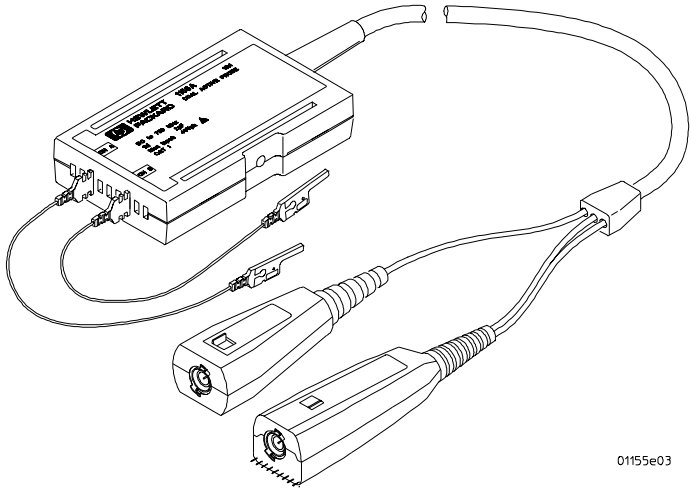


User's Guide

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1155A 2-Channel, Low-Mass Active Oscilloscope Probe

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Inspect the probe

❑ Inspect the shipping container for damage.

Keep a damaged shipping container or cushioning material until the contents of the shipment have been checked for completeness and the probe has been checked mechanically and electrically.

❑ Check the accessories.

Accessories supplied with the probe are listed in "Accessories supplied" in this manual.

- If the contents are incomplete or damaged, notify your Agilent Technologies Sales Office.

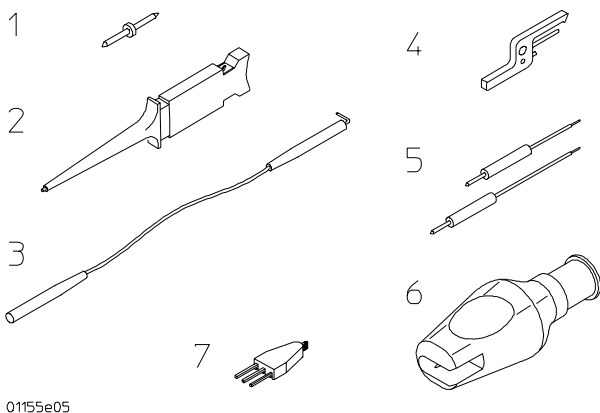
❑ Inspect the instrument.

- If there is mechanical damage or defect, or if the probe does not operate properly or pass performance tests, notify your Agilent Technologies Sales Office.
- If the shipping container is damaged, or the cushioning materials show signs of stress, notify the carrier as well as your Agilent Technologies Sales Office. Keep the shipping materials for the carrier's inspection. The Agilent Technologies office will arrange for repair or replacement at Agilent Technologies' option without waiting for claim settlement.

Inspect the probe

1155A 2-Channel, Low-Mass Active Oscilloscope Probe

The 1155A 2-Channel, Low-Mass Active Oscilloscope Probe is a 10:1 probe with a 750 MHz bandwidth. The FET amplifier allows a high-input resistance ($1\text{ M}\Omega$, $<2\text{ pF}$) and low input capacitance which minimizes the loading of the circuit under test. This active probe is powered by the Infiniium active interface.

Accessories supplied**Accessories Supplied with the 1155A Active Probe**

Item	Description
1	Probing pin, quantity supplied is 4
2	SMT clip, quantity supplied is 5
3	Flexible lead, quantity supplied is 2
4	Spacing ground adapter, quantity supplied is 2
5	SMT leads, quantity supplied is 2 red, 2 black
6	BNC-to-Probe Tip Adapter (E9638A)

Item	Description
7	Wedge Probe Adapter (2613A)

You can order additional quantities of these parts. See the ordering information in this manual.

Replacement parts

Item	Quantity	Part number
Probe tip and cable	1	01145-61602

Available accessories

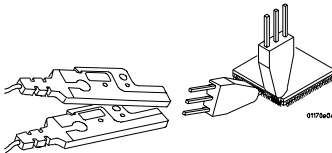
Item	Quantity	Part number
SMT Leads	4 red, 4 black	16517-82104
Spacing Ground Adapter	20	16517-82105
Flexible Lead	20	16517-82106
Pin Probe Kit	4	16517-82107
SMT Clip	20	16517-82108
0.5 mm x 3-signal Wedge Probe Adapter	1	E2613A
0.5 mm x 3-signal Wedge Probe Adapters	2	E2613B
0.5 mm x 8-signal Wedge Probe Adapter	1	E2614A
0.65 mm x 3-signal Wedge Probe Adapter	1	E2615A
0.65 mm x 3-signal Wedge Probe Adapters	2	E2615B
0.65 mm x 8-signal Wedge Probe Adapters	1	E2616A

Check your Wedge Probe Adapter User's Guide to verify the latest Wedge models.

Using the Wedge Probe Adapter

The Wedge Probe Adapter probing solution provides accurate and mechanically non-invasive contact to the TQFP/PQFP package leads.

Follow the guidelines in the Wedge Probe Adapter User's Guide for problem-free probing.



Connecting the Probe to an Wedge Adapter

Probe specifications

Probe specifications

Rise time:^{1,2} ≤ 470 ps

Attenuation:³ 10:1 $\pm 3\%$

Input Resistance: 1 M Ω $\pm 2\%$

¹ Above 35 °C, bandwidth and rise time degrade approximately 1/2% / °C.

² Bandwidth figure calculated from $BW = 0.35 / t_r$ (rise time).

³ When connected to an instrument input of 50 Ω $\pm 0.5\%$.

Probe characteristics

Bandwidth:^{1,2} ≥ 750 MHz; derived from rise time

Input Capacitance: 2 pF (typical)

Overshoot and Ringing³: Less than $\pm 10\%$ for the first 6 ns,
 $\pm 4\%$ from 6 ns to 20 μ s,
 $\pm 1.5\%$ thereafter.

Output Voltage Offset Error at output: Less than ± 1 mV

Input Dynamic Range: 0 to ± 6.0 V

Output Load Requirement: 50 Ω

Maximum Input Voltage: ± 40 V (dc + peak ac) (CAT I)



¹ Above 35 °C, bandwidth and rise time degrade approximately 1/2% / °C.

² Bandwidth figure calculated from $BW = 0.35 / t_r$ (rise time).

³ Measured with 54845A.

CAT I and CAT II Definitions

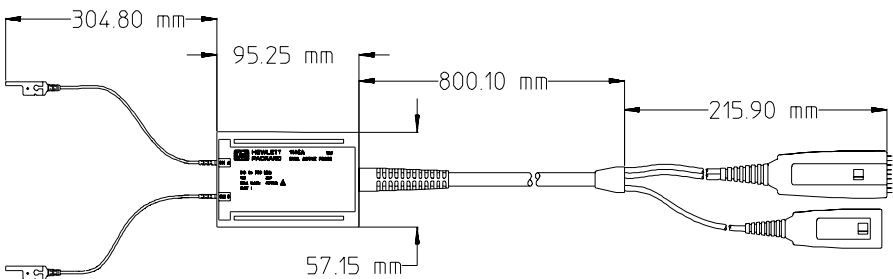
Installation category (overvoltage category) I: Signal level, special equipment or parts of equipment, telecommunication, electronic etc., with smaller transient overvoltages than installation category (overvoltage category) II.

Installation category (overvoltage category) II: Local level, appliances, portable equipment etc., with smaller transient overvoltages than installation category (overvoltage category) III.

General characteristics

General Characteristics of the 1155A Probe

Environmental Conditions	Operating	Non-operating
Temperature	0 °C to +55 °C	-40 °C to +70 °C
Humidity	Up to 95% relative humidity (noncondensing) at +40 °C.	Up to 90% relative humidity at +65 °C.
Altitude	Up to 4,600 meters.	Up to 15,300 meters.
Vibration	Random vibration 5 to 500 Hz, 10 minutes per axis, 0.3 g_{rms}	Random vibration 5 to 500 Hz, 10 minutes per axis, 2.41 g_{rms} . Resonant search 5 to 500 Hz swept sine, 1 octave/minute sweep rate, (0.75g), 5-minute resonant dwell at 4 resonances per axis.
Weight	Net: Approximately 0.23 kg. Shipping: Approximately 1 kg.	
Dimensions	Refer to the outline drawing below for approximate dimensions.	
Indoor Use		
Pollution degree 2	Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected.	



0155e01

1155A Probe Dimensions

General characteristics

Product Regulations

Safety	IEC 1010, CAT I CSA-C22.2 No.231 (Series M-89)
EMC	This product meets the requirement of the European Communities (EC) EMC Directive 89/336/EEC.
Emissions Immunity	EN55011/CISPR 11 (ISM, Group 1, Class A equipment) EN50082-1 IEC 801-2 (ESD) 4 kV CD 8 kV AD IEC 801-3 (Rad.) 3 V/m IEC 801-4 (EFT) 1 kV



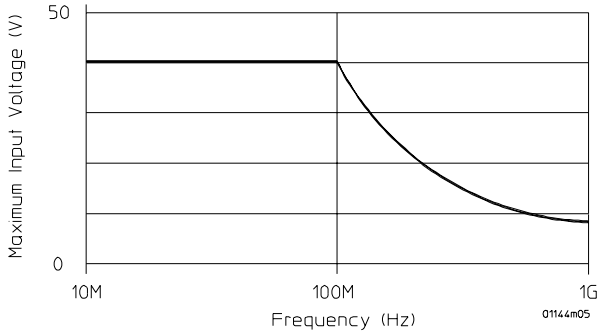
This symbol indicates that the 1155A Probe is in compliance with European product regulations, including the EMC Directive and the Low Voltage Directive.



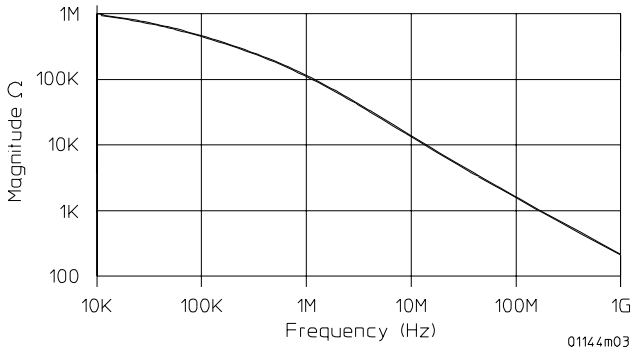
This symbol indicates that the 1155A Probe is in compliance with Australian product regulations.

Operating the probe

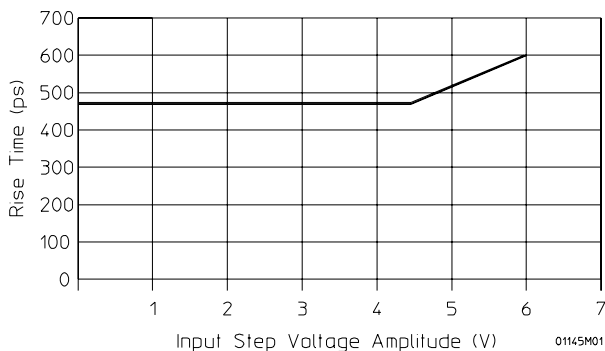
The following information will help you get the most out of your measurement when operating the probe.



Operating Voltage Derating



Typical Input Impedance vs. Frequency

Operating the probe**Typical Rise Time vs. Input Voltage****System bandwidths**

The approximate system bandwidths are shown here when using the 1155A Active Probe with these Infiniium Oscilloscopes:

When Using this Scope:	System Bandwidth is:
500 MHz Infiniium Oscilloscope	Approximately 500 MHz
1.5 GHz Infiniium Oscilloscope	Approximately 670 MHz

CAUTION

Be sure to limit the input of this probe to voltages within the specified working voltage. Though the probe is designed with safeguards against static electricity and noise, the input is sensitive to and may be damaged by excessive voltage.

CAUTION

The probe is a delicate device. Dropping it or exposing it to strong vibration or shock can damage it and cause a malfunction. Handle it with care.

How to replace the probe cable and tip

To replace the main cable

Due to the difficulty in soldering the main cable to the printed circuit assembly, Agilent Technologies recommends that you return the probe to an Agilent Technologies Service Center if the main cable or printed circuit assembly needs to be replaced. Because there are low-temperature solder connections inside the main cable, make sure you heat sink the main cable before soldering on it.

To replace the probe tip and cable

- 1** Take precautions against electro-static discharge (ESD) by grounding yourself and the probe.
- 2** Use a Torx 10 screwdriver to remove the four screws holding the probe pod case together.
- 3** Lift off the top of the probe pod case.
- 4** Use a solder iron to unsolder the center conductor wire of the faulty probe lead from the bonding pad on the printed circuit assembly.
- 5** Because the ground legs plug into small sockets under the cable, use a pair of needle nose pliers to lift the faulty probe lead away from the printed circuit assembly.
- 6** Flow enough solder onto the vacant solder pad for a good solder joint.
- 7** Insert the probe ground legs of the new cable into the circuit board pin sockets.
- 8** While holding the probe ground legs in position, place the notched strain relief into the slot of the lower half of the probe cover.
- 9** Because the wire to the center lead is very fragile, use caution when soldering it. Resolder the center lead on the vacant solder joint. The resulting solder joint should be very similar to the other probe lead.
- 10** Inspect the solder joint for good soldering integrity.
- 11** Check cable alignment inside the probe pod. Replace the top of the probe pod, then install the four screws.
- 12** Verify the performance of the probe.

Cleaning the probe

Cleaning the probe

Clean the probe with a mild soap and water and immediately wipe the probe with a dry cloth. Do not use petroleum based solvents to clean the probe.

Returning the probe to Agilent Technologies for service

Before shipping the instrument to Agilent Technologies, contact your nearest Agilent Technologies Sales Office for additional details.

1 Write the following information on a tag and attach it to the instrument.

- Name and address of owner
- Instrument model number
- Instrument serial number
- Description of the service required or failure indications

2 Remove all accessories from the instrument.

Accessories include all cables. Do not include accessories unless they are associated with the failure symptoms.

3 Protect the instrument by wrapping it in plastic or heavy paper.

Antistatic wrapping or packaging is strongly recommended.

4 Pack the instrument in foam or other shock absorbing material and place it in a strong shipping container.

You can use the original shipping materials, or order materials from an Agilent Technologies Sales Office. If neither are available, place 3 to 4 inches of shock-absorbing material around the instrument and place it in a box that does not allow movement during shipping.

5 Seal the shipping container securely.

6 Mark the shipping container as FRAGILE.

In any correspondence, refer to the instrument by model number and full serial number.

To order replaceable parts

To order a replaceable part, in the United States call our toll-free hotline at 1-800-452-4844, or call your local Agilent Technologies Sales Office.

Adjusting the 1155A

There is no defined adjustment interval for the 1155A active probe.

The adjustments are done at Agilent Technologies and do not require periodic maintenance. You should only make adjustments when replacing the probe tip.

When making adjustments to the probe, use the BNC-to-probe tip adapter (listed in the following table). Allow the probe to warm up for at least 15 minutes before starting adjustments.

Equipment required for making adjustments is listed below. You can substitute any equipment for the recommended model that satisfies the critical specifications listed.

Equipment Required

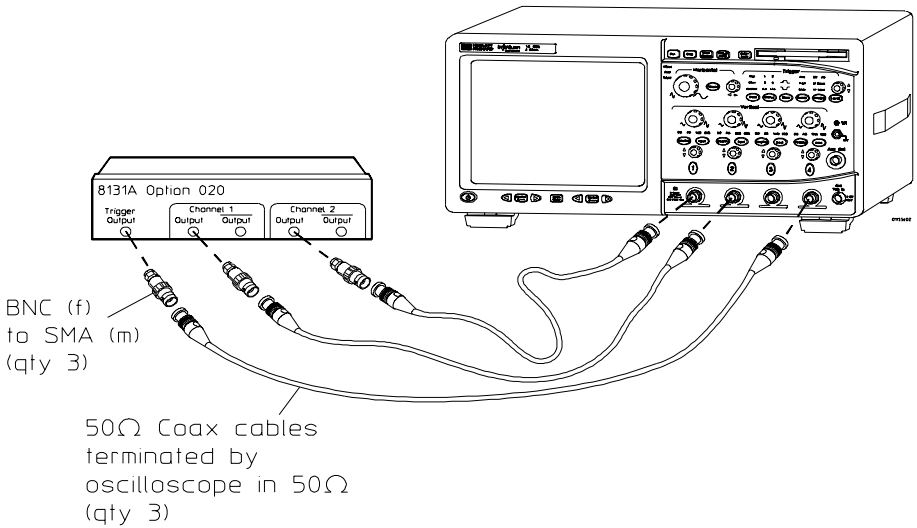
Equipment	Qty	Critical Specification	Recommended Model or Agilent Part Number
Signal Generator	1	Square wave, <200 ps, 0 V to 1 V _p , 8131A <5% flatness, period 50 ms to 50 μs.	
Oscilloscope	1	>1.5 GHz bandwidth, 50-Ω source	54845A
Terminations	2	50 Ω BNC plug to BNC socket	10100C
Coaxial Cables	3	50 Ω, low loss	10503A
Adapters	3	BNC to SMA	1250-1200
Clip	1	SMT Clip	16517-82108 (pkg of 20)
Adapter	2	BNC to probe tip	E9638A
Adapter	2	BNC to BNC	1250-0080
Driver	1	Torx: T-10	

CAUTION Allow the probe to warm up for at least 15 minutes before starting the adjustments. Failure to allow the probe to warm up may cause faulty adjustments and failure of performance verification.

Setting up test system

Setting up test system

- 1 To determine test system rise time, connect the equipment as shown below. Then go to the next step to make the control settings on the oscilloscope.



Setting Up Test System

2 Make the equipment settings as shown below.

Equipment Setup and Initial Characterization						
8131A Signal Generator		54845A Acquisition		54845A Trigger and Display		
Control	Setting	Control	Setting	Control	Setting	
Mode	Auto	Horizontal	500 ps	Trigger control Source	Triggered Channel 4	
Period	50 μ s	50 μ s	Position	0 s	Slope	Positive
Delay	0 s	0s	Acquisition Channel 1	Equiv. Time	Trigger Level	-300 mV
Duty cycle	50%	50%		200 mV/div, 50 Ω Offset 500 mV	Average	4
High	1 V		Channel 2	200 mV/div, 50 Ω Offset 500 mV	Graticule	Grid
Low	0 V		Channel 3	OFF		
Offset	0.5 V		Channel 4	200 mV/div, 50 Ω Offset -350 mV		
Output CH1	Enabled					
Output CH1	Disabled					
Output CH2	Enabled					
Output CH2	Disabled					

- 3 Adjust the oscilloscope position for leading edge of the waveform to be 2 major divisions from the left-hand side of the screen.
- 4 Drag and drop the rise time icon onto channel 1 rising edge and channel 2 rising edge respectively.
- 5 Press **Clear Display** button.
- 6 Read the mean rise time after the oscilloscope reaches 4 averages.
- 7 Record the test system rise time for channels 1 and 2.

Mean rise time of channel 1: _____

Mean rise time of channel 2: _____

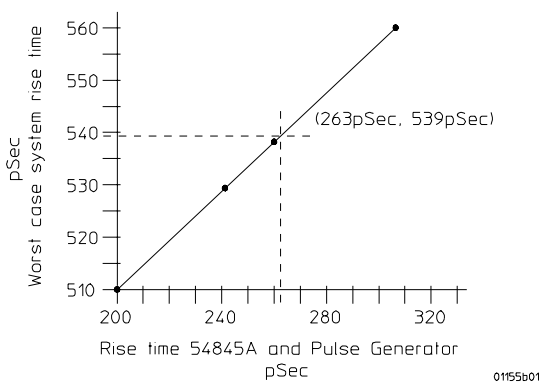
This information will be required for calculating the 1155A rise time.

You should expect to see that the rise times for channel 1 and channel 2 are similar.

Determine probe pass/fail criteria**Determine probe pass/fail criteria**

The 1155A Probe is specified to have a rise time of ≤ 470 ps. The combined rise time of the **total system** (8131A, 1155A, and 54845A) is approximately 539 ps worst case.

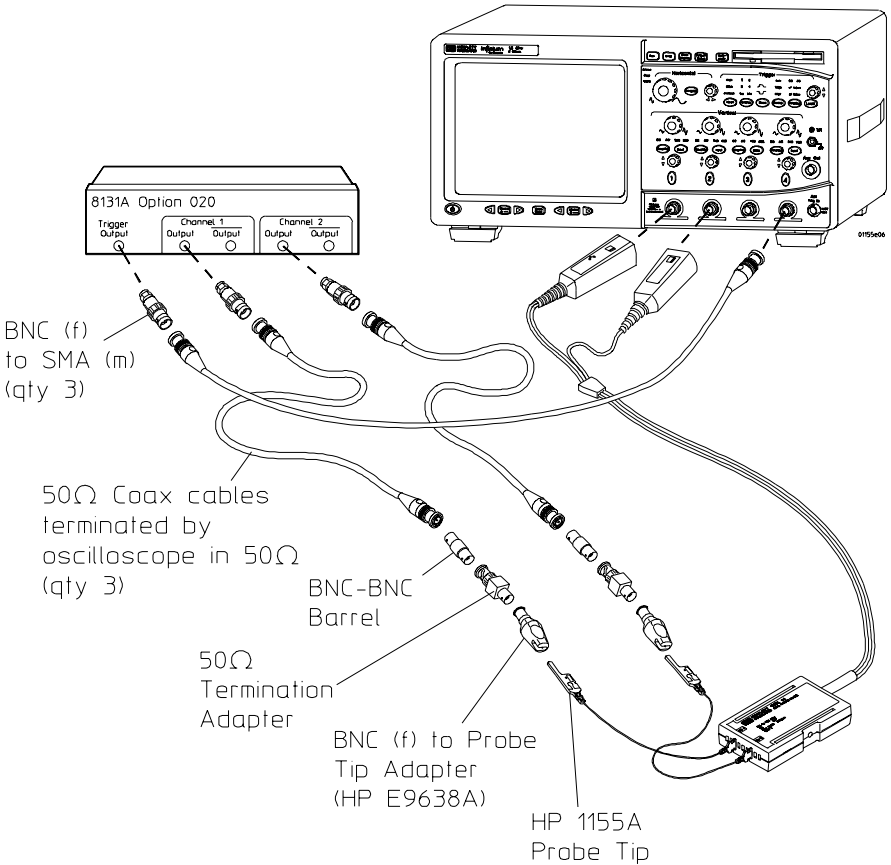
To determine if the probe itself meets the specification of ≤ 470 ps, it is necessary to account for the **test system** rise time (8131A and 54845A) and to relate this to the **total system** rise time. The following graph allows you to relate these two times and to determine that the probe rise time is less than the worst case **total system** rise time. When adjusting the probe, the graph is useful for understanding when the probe is properly adjusted.

**Comparing Test System Rise Time to Total System Rise Time****Example**

In this example, the rise time of the oscilloscope and the signal generator (test system) is 263 ps. This allows for the rise time of the probe, signal generator, and oscilloscope (total system) to be a maximum of 539 ps which corresponds to a probe rise time of 470 ps.

Set up for probe adjustment

- 1 Attach the probe to the setup you made earlier setting up test system as indicated below.



Equipment Setup with 1155A Active Probe Attached

- 2 Remove the 50 Ω cables from channel 1 and channel 2 of the oscilloscope.
- 3 Add 50 Ω terminations to both cables using BNC to BNC barrels as indicated above.

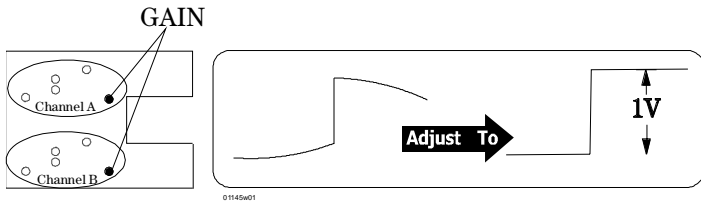
Adjusting the probe

- 4 Connect BNC to probe tip adapter to the terminations and connect the 1155A probes.
- 5 Remove the 4 screws of the probe housing using the T10 torx driver.

Adjusting the probe

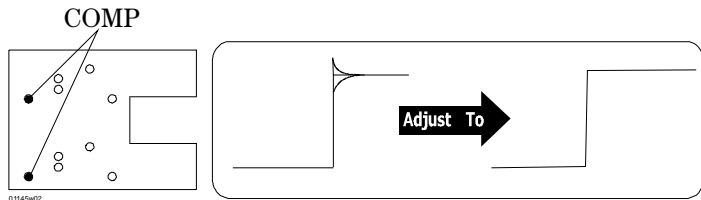
- 1 Change the oscilloscope settings as follows:
 - Time/div to 5 ms/div
 - 8131A Signal Generator period to 50 ms (both channels)
- 2 If you installed a new board or cable assembly, set all the adjustments (except COMP) to the clockwise position. If you are tweaking the adjustments, you can set them to the clockwise position or leave them where they were last set. If only replacing cables, do not preset adjustments fully clockwise.
- 3 Connect ChA (large pod) to channel 1 of the oscilloscope; message displayed should read 10:1. Connect ChB (small pod) to channel 2 of the oscilloscope; message displayed should read 10:1.
- 4 Adjust GAIN for a flat pulse on both probes.

If you turn on the DeltaV marker, you can use it as a reference for a flat line.



- 5 Change the signal generator to a 50- μ s period and change the scope to 5 μ s/div.
- 6 Adjust COMP for a flat pulse.

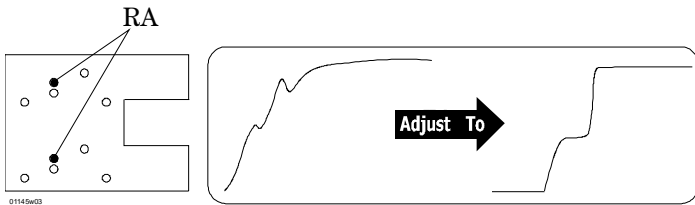
Again, you can use the DeltaV marker as a reference for a flat line.



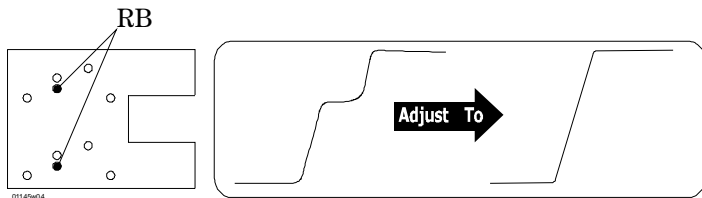
- 7 Change the scope to 1 ns/div. Adjust the oscilloscope's position to place the leading edge two major divisions from the left-hand side of the oscilloscope.
- 8 Drag and drop the rise time icon to the channel 1 display. Then pull the rise time icon to the channel 2 display.
- 9 Drag and drop the overshoot icon to the channel 1 display. Then pull the overshoot icon to the channel 2 display.

The following steps require iteration of RA, RB, and DAMP adjustments to achieve the best result.

- 10 Adjust RA for a flat pulse top. RA, RB, and DAMP are mutually dependent.

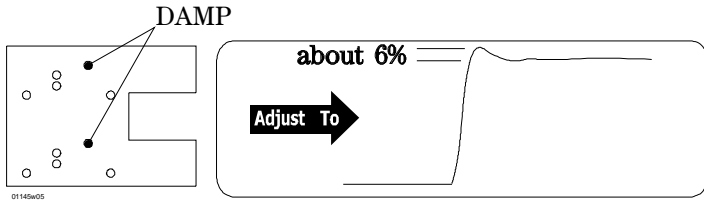


- 11 Adjust RB for a linear rising edge. RA, RB, and DAMP are mutually dependent.



Adjusting the probe

- 12 Adjust DAMP for about 6% overshoot. RA, RB, and DAMP are mutually dependent.



- 13 Repeat steps 10 through 12 to achieve the best pulse.
- 14 Temporarily place the cover on top of the probe body, then measure the pulse rise time.
You may need to remove the cover and make minor adjustments to RA, RB, and DAMP to meet specifications.
- 15 Repeat steps 10 through 12 for the other channel if the measured rise time is greater than the worst case **total system** rise time
- 16 Record ChA total rise time _____.
Record ChB total rise time _____.
This is the rise time of the probe and test system (total rise time.)
- 17 Calculate the probe rise time using the following equation:

$$Probe_{risetime} = \sqrt{(Total_{risetime})^2 - (TestSystem_{risetime})^2}$$

- 18 Note:
Channel A Probe_{risetime} = _____.
Channel B Probe_{risetime} = _____.
- 19 Install the cover and verify that both probes still meet the rise time specification.
The result should be about 6 to 10% overshoot, and the rise time should be less than the rise time you determined in step 16.
- 20 Disconnect the probe tips from the 8131A signal generator.
- 21 Perform the probe tip calibration for ChA and ChB.
- 22 Look at the probe attenuation in the probe setup dialog box of the 54845A oscilloscope. The attenuation for Ch1 and Ch2 should be less than 10.4 or greater than 9.6. This allows 1% for the oscilloscope and 3% for the 1155A probe.

Verifying probe Performance

The procedures in this section checks the performance of the 1155A probe against its specifications. If the probe fails to perform within specified limits, the probe should be adjusted or repaired and then retested.

Testing interval

The performance test procedures may be performed for incoming inspection of the instrument and should be performed periodically thereafter to ensure and maintain peak performance. The recommended performance test interval is yearly or every 2,000 hours of operation. The amount of use, environmental conditions, and the user's experience concerns regarding the need for testing will contribute to your specific performance test interval.

When you return the 1155A probe to Agilent for calibration, a new certificate is provided which verifies that the probe performed within specified limits and against equipment which is traceable to the National Institute of Standards and Technology.

Equipment required for performance tests

The equipment required for the performance tests is listed in the test. Any equipment satisfying the critical specifications listed may be substituted for the recommended model.

CAUTION

Allow the probe to warm up for at least 15 minutes prior to starting the performance tests. Failure to allow the probe to warm up may cause the probe to fail tests.

Verifying probe input resistance

Verifying probe input resistanceSpecification: 1.0 M Ω \pm 2%

Equipment Required

Equipment	Critical Specification	Recommended Model/Part
Digital Multimeter (DMM)	Resistance \pm 1%	34401A

- 1 Connect the DMM probes between the probe tip (ChA) and the ground at the tip of the probe.
 - 2 Set up the DMM to measure resistance.
The resistance should read 1.0 M Ω \pm 20 k Ω .
 - 3 Record resistance and repeat steps 1 through 3 for ChB.
ChA input resistance _____.
ChB input resistance _____.
 - 4 Enter these value in the Test Card.
-

Verifying probe rise timeSpecification: \leq 470 ps

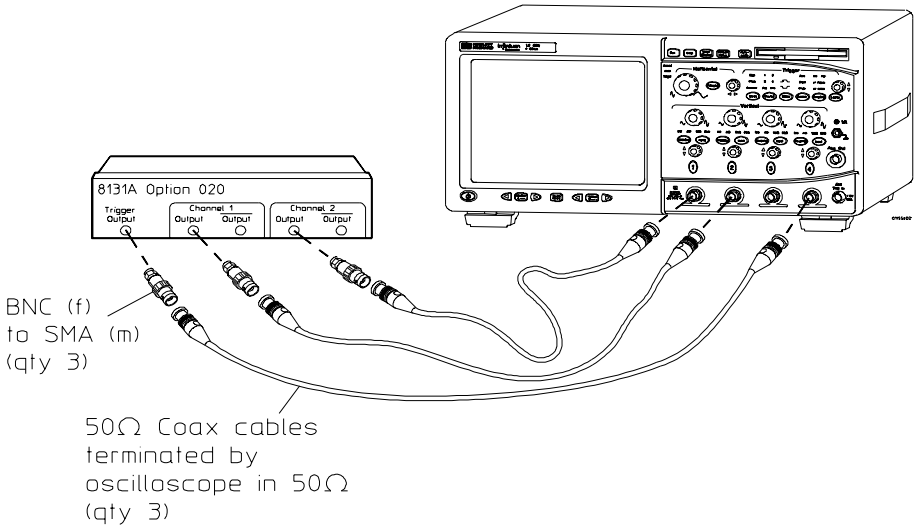
Equipment Required

Equipment	Qty	Critical Specification	Recommended Model or Agilent Part Number
Signal Generator	1	Square wave, <200 ps, 0 V to 1 V _p , 8131A <5% flatness, period 50 ms to 50 μ s.	
Oscilloscope	1	>1.5 GHz bandwidth, 50- Ω source	54845A
Terminations	2	50 Ω BNC plug to BNC socket	10100C
Coaxial Cables	3	50 Ω , low loss	10503A
Adapters	3	BNC to SMA	1250-1200
Adapter	2	BNC to probe tip	E9638A (no substitute)
Adapter	2	BNC to BNC	1250-0080

CAUTION

Allow the probe to warm up for at least 15 minutes prior to starting the performance tests. Failure to allow the probe to warm up may cause the probe to fail tests.

- 1 To determine test system rise time, connect the equipment as shown below. Then go to the next step to make the control settings on the oscilloscope.



Setting Up Test Equipment

Verifying probe rise time

- 2 Make the equipment settings as shown below.

Equipment Setup and Initial Characterization

8131A Signal Generator Control		Ch1 Ch2 Setting		54845A Acquisition Control		Setting		54845A Trigger and Display Control		Setting	
Mode	Auto			Horizontal		500 ps		Trigger control Source	Triggered Channel 4		
Period	50 μ s	50 μ s		Position		0 s		Slope	Positive		
Delay	0 s	0s		Acquisition Channel 1		Equiv. Time 200 mV/div, 50 Ω		Trigger Level	-300 mV		
Duty cycle	50%	50%				Offset 500 mV		Average	4		
High	1 V			Channel 2		200 mV/div, 50 Ω		Graticule	Grid		
Low	0 V			Channel 3		Offset 500 mV					
Offset	0.5 V			Channel 4		OFF					
						200 mV/div, 50 Ω					
						Offset -350 mV					
Output CH1	Enabled										
Output CH1	Disabled										
Output CH2	Enabled										
Output CH2	Disabled										

- 3 Adjust the oscilloscope position for leading edge of the waveform to be 2 major divisions from the left-hand side of the screen.
- 4 Drag and drop the rise time icon onto channel 1 rising edge and channel 2 rising edge respectively.
- 5 Press **Clear Display** button.
- 6 Read the mean rise time after the oscilloscope reaches 4 averages.
- 7 Record the test system rise time for channels 1 and 2.

Mean rise time of channel 1: _____

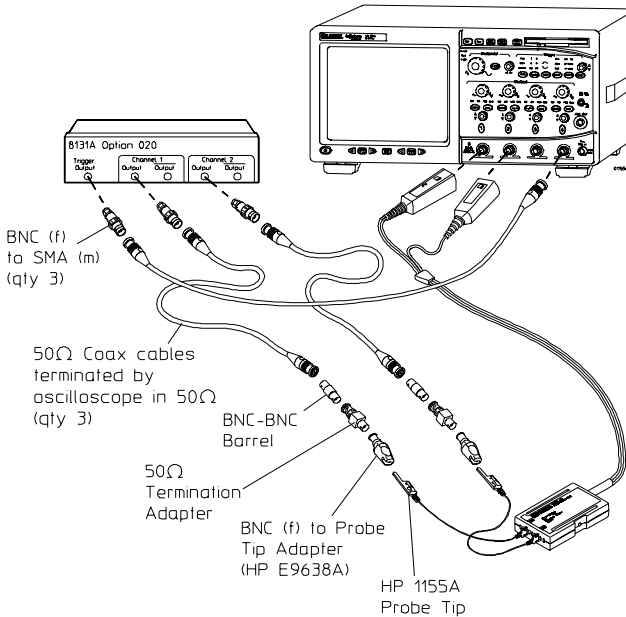
Mean rise time of channel 2: _____

This information will be required for calculating the 1155A rise time.

You should expect to see that the rise times for channel 1 and channel 2 are similar.

Set up for probe rise time verification

- 1 Attach the probe to the setup you made earlier as indicated below.



Equipment Setup with 1155A Active Probe Attached

- 2 Adjust the oscilloscope position for leading edge of the waveform to be 2 major divisions from the left-hand side of the screen.
- 3 Drag and drop the rise time icon onto channel 1 rising edge and channel 2 rising edge respectively.
- 4 Press **Clear Display** button.
- 5 Read the mean rise time after the oscilloscope reaches 4 averages.
- 6 Record the total system rise time for channels 1 and 2.
 Mean rise time of channel A_{total}: _____
 Mean rise time of channel B_{total}: _____
- 7 Calculate the probe rise time using the following equation:

$$Probe_{risetime} = \sqrt{(Total_{risetime})^2 - (TestSystem_{risetime})^2}$$

- 8 Enter value in the Test Card.

**1155A 2-Channel, Low-Mass Active Oscilloscope Probe
Set up for probe rise time verification**

Performance Test Record

Agilent Technologies Serial _____ No. _____ Recommended Test Interval - 1 Year/2000 hours Recommended next testing _____	1155A Active Probe Tested _____ by _____ Work Order _____ No. _____ Date _____ Temperature _____
---	---

Test	Limits	Results Channel A	Results Channel B
Input Resistance	1 MΩ ±2%, 980 kΩ to 1.020 MΩ	_____	_____
Attenuation	10:1 ±3%, 9.6:1 to 10.4:1	_____	_____
Rise Time	< 470 ps	_____	_____

DECLARATION OF CONFORMITY

according to ISO/IEC Guide 22 and EN 45014

Manufacturer's Name: Agilent Technologies
Manufacturer's Address: Colorado Springs Division
1900 Garden of the Gods Rd.
Colorado Springs, CO 80907 USA

declares that the product

Product Name: Digitizing Oscilloscope Probe

Model Number(s): 1155A

Product Option(s): All

conforms to the following Product Specifications:

Safety: IEC 1010-1:1990+A1 / EN 61010-1:1993
UL 3111
CSA-C22.2 No. 1010.1:1993

EMC: CISPR 11:1990 / EN 55011:1991 Group 1, Class A
IEC 555-2:1982 + A1:1985 / EN 60555-2:1987
IEC 555-3:1982 + A1:1990 / EN 60555-3:1987 + A1:1991
IEC 801-2:1991 / EN 50082-1:1992 4 kV CD, 8 kV AD
IEC 801-3:1984 / EN 50082-1:1992 3 V/m, {1kHz 80% AM, 27-1000 MHz}
IEC 801-4:1988 / EN 50082-1:1992 0.5 kV Sig. Lines, 1 kV Power Lines

Supplementary Information:

The product herewith complies with the requirements of the Low Voltage Directive 73/23/EEC and the EMC Directive 89/336/EEC, and carries the CE-marking accordingly.

This product was tested in a typical configuration with Agilent Technologies test systems.

Colorado Springs, 11/13/98



Ken Wyatt / Product Regulations Manager

European Contact: Your local Agilent Technologies Sales and Service Office or Agilent Technologies GmbH, Department ZQ / Standards Europe, Herrenberger Strasse 130, D-71034 Boeblingen, Germany (FAX +49-7031-14-3143)

Product Regulations

Safety IEC 1010-1: 1990+A1 / EN 61010-1: 1993
UL 3111
CSA-C22.2 No.1010.1:1993

EMC This Product meets the requirements of the European Communities
(EC) EMC Directive 89/336/EEC.



ISM 1-A

Emissions EN55011/CISPR 11 (ISM, Group 1, Class A equipment), IEC 555-2 and IEC 555-3



Immunity	EN50082-1	Code ¹	Notes ²
	IEC 801-2 (ESD) 8kV AD	2	
	IEC 801-3 (Rad.) 3V/m	2	
	IEC 801-4 (EFT) 1kV	2	

¹Performance Codes:

- 1 Pass - Normal operation, no effect.
- 2 Pass - Temporary degradation, self recoverable.
- 3 Pass - Temporary degradation, operator intervention required.
- 4 Fail - Not recoverable, component damage.

²Notes: (none)

Sound Pressure Level N/A

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Colorado Springs, CO 80901

Safety

This apparatus has been designed and tested in accordance with IEC Publication 1010, Safety Requirements for Measuring Apparatus, and has been supplied in a safe condition. To ensure safe operation and to keep the product safe, the information, cautions, and warnings in this operating manual must be heeded. In addition, note the external markings on the instrument that are described under "Safety Symbols."

Safety Symbols



Instruction manual symbol: the product is marked with this symbol when it is necessary for you to refer to the instruction manual in order to protect against damage to the product.



Hazardous voltage symbol.



Earth terminal symbol: Used to indicate a circuit common connected to grounded chassis.

WARNING

The Warning sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a Warning sign until the indicated conditions are fully understood and met.

CAUTION

The Caution sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a Caution symbol until the indicated conditions are fully understood or met.

About this edition

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New editions are complete revisions of the manual. Many product updates do not require manual changes; and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one-to-one correspondence between product updates and manual updates.



Agilent Technologies

User's Guide

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