*em**Power*** ®

Control Reference Manual

Part No. 09-0275

REVISION B

June 26, 2002

Document History

Rev X	**Initial Release**	**7/11/2001**	**J. D.**
Rev A	**ECO 15390**	**9/25/2001**	**B. H.**
Rev B	**ECO xxxxx**	**6/26/2002**	**J. A.**

Proprietary Rights Notice

This document and the information that it contains are the property of NH Research, Incorporated. The rights to duplicate or otherwise copy this document, the rights to disclose the document and its information to others, and the right to use the information therein may be acquired only by written permission signed by a duly authorized officer of NH Research, Incorporated.

Unauthorized duplication of software and documentation provided with the test workstations violates the copyright protection provided by law. However, backup copies of programs are permitted for archives and recovery from hardware failures.

The material in this publication is current as of the release date on the cover page and is subject to change without notice. Any questions concerning the product or any questions or comments concerning this manual should be directed to the NH Research Field Service Department during normal business hours Monday through Friday at (949) 474-3900 or FAX (949) 474-7062 or www.nhresearch.com.

***em**Power*® **is a trademark of NH Research, Incorporated.**

.

Microsoft, ActiveX and Visual Basic are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

TABLE OF CONTENTS

TABLE OF FIGURES

1. USING CONTROL IN DEVICE MODE

1.1 A note on Device Mode

By starting CONTROL in Device Mode, (see Starting CONTROL in Device Mode, page 10) you are asking CONTROL to open a dialog window for each hardware device in the Current Configuration file. If you start CONTROL in Device Mode with the Demo.cfg file as the Current Configuration file, CONTROL will show you Figure 1.

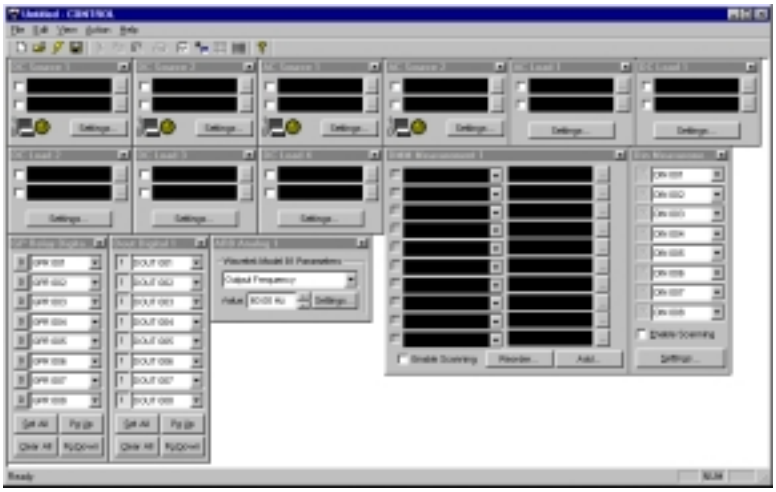

Figure 1 – The CONTROL screen (Device Mode)

It's likely that your Current Configuration file isn't Demo.cfg, and CONTROL will open different dialog windows than shown in Figure 1, but the idea is the same.

Each of the dialog windows opened by CONTROL is giving you a Graphical User Interface for each of the hardware devices in your Current Configuration file. This allows you to almost infinitely adjust the settings of each hardware device in your Current Configuration.
You can only control hardware devices when you are running *emPower* ® in the Online Mode (see the *emPower* ® Utilities Reference Manual for more about Online Mode).

In the following sections we will look at what you can do with the dialog window of each hardware devices shown in Figure 1.

1.2 A note on the dialog windows opened by CONTROL

Each of the dialog windows opened/shown by CONTROL represents a specific hardware device.

Each of these specific hardware devices has its own specific characteristics, and their Device Drivers contain the default/reset values for each of their characteristics/properties, and it is these values that appear in the fields/dropdowns of the dialog windows when they are first opened.

1.3 Starting CONTROL in Device Mode

The *emPower* ® shortcut icon below, should be on your desktop:

Figure 2 – The *emPower* ® desktop icon

Double-click the *emPower* ® desktop icon – *emPower* ® starts.

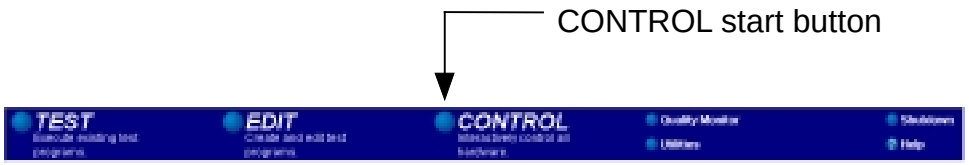

Figure 3 – The *emPower* ® toolbar (CONTROL button)

In the *emPower* ® toolbar, Figure 3:

Left-click the CONTROL button – CONTROL starts Figure 4, opening a dialog window for each hardware device in the Current Configuration file.

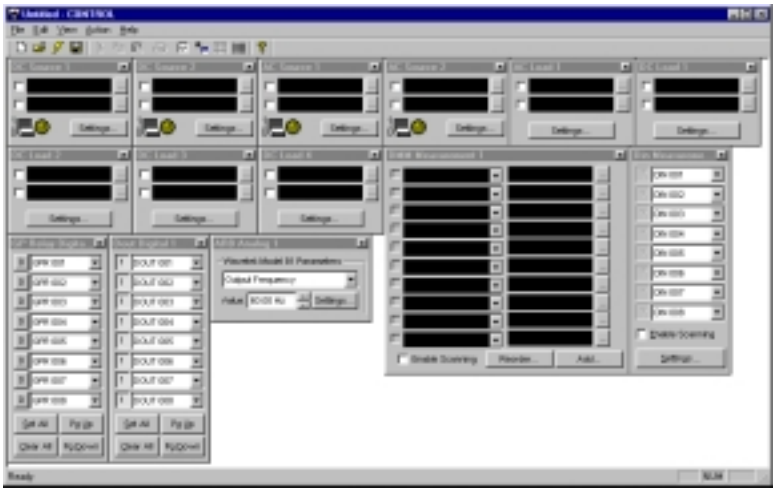

Figure 4 – The CONTROL screen (Device Mode)

1.4 Opening a Test Program in CONTROL

With CONTROL open:

Left click File in the CONTROL menu bar – the File menu, Figure 5, opens.

Figure 5 – The CONTROL File menu

In the CONTROL File menu:

Select the Open Program option – the Program Browser dialog window, Figure 6, opens.

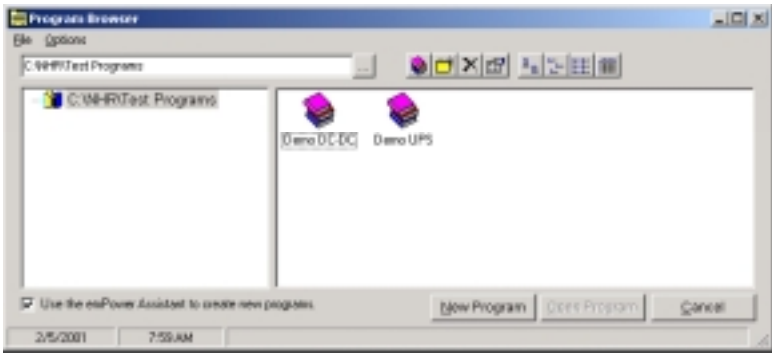

Figure 6 – The *emPower* ® Program Browser

Select, by single clicking, the Test Program you want to open.
Click the Open Program button – CONTROL reconfigures itself.

After CONTROL reconfigures itself, there will be a dialog window open for each hardware device used in the Test Program you opened.

Figure 7 shows the CONTROL screen for the Test Program:

1. Model 4805, DC48 – DC05 (03-20-01),

which has a:

2. 48 Volt DC Input (to the UUT)
3. 05 Volt DC Output (from the UUT)
4. DMM Measurement device
5. DIN Measurement device

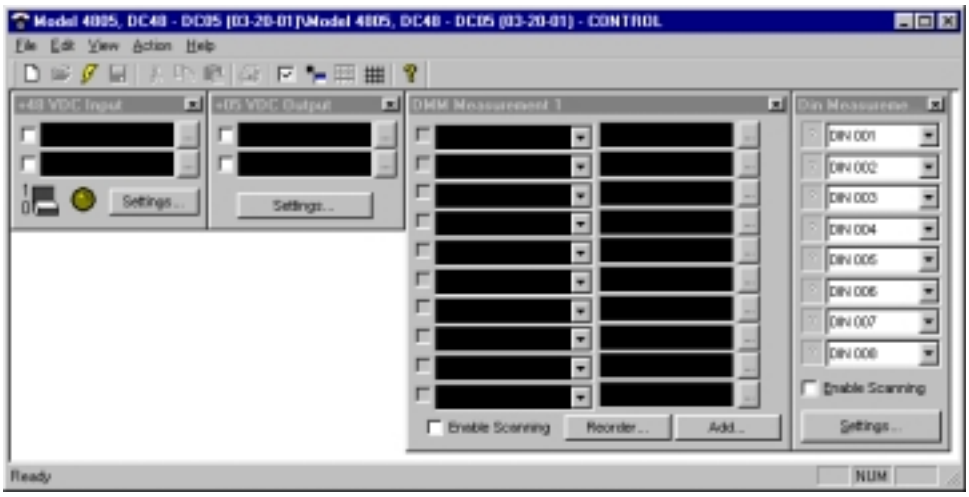

Figure 7 – The CONTROL screen

2. THE DC SOURCE 1 DEVICE DIALOG WINDOW

2.1 The Enable … Measurement checkboxes

By checking an Enable … Measurement checkbox, you are enabling the hardware device labeled DC Source 1 to measure a specific characteristic of its own output, and report that value to us via the … Measurement output window.

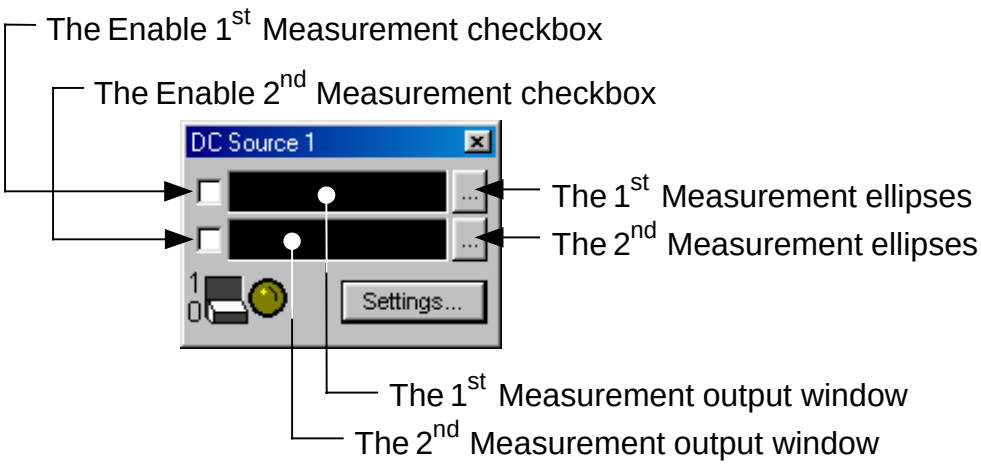

Figure 8 – The DC Source 1 dialog window

Enabling the DC Source 1 to measure its output voltage -

The values that appear in the fields/dropdowns of all dialog windows when they are first opened by CONTROL, are the default/reset values contained in the Device Drivers of each specific hardware device.

Left-click the 1st checkbox – the CONTROL Measurement Setup dialog window, Figure 9, opens.

Figure 9 – The CONTROL Measurement Setup dialog window (DC Source 1)

Clicking the Measurement dropdown, Figure 10, shows each of measurement functions that DC Source 1 is capable of performing on itself; they are:

1. DC Current
2. DC Power
3. DC Voltage
4. No Function
5. Temperature

For this example:

Select DC Voltage – the CONTROL Measurement Setup dialog window appears as in Figure 10.

Figure 10 – The CONTROL Measurement Setup dialog window

Click the OK button – DC Source 1 is now enabled to measure its output voltage, Figure 11

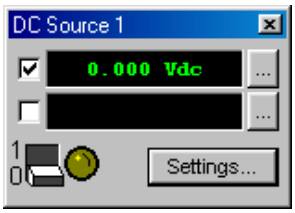

Figure 11 – The DC Source 1 dialog window (Measurement Enabled)

Because the default/reset value for the DC Source 1's output voltage is 0, which is the actual output voltage being measured, and reported to us.

2.2 The DC Source 1 Settings dialog window

Setting the output voltage of DC Source 1 -

The dialog window in Figure 12 shows the On/Off switch in the Off position. This means that the output of the specific hardware device referred to by the label DC Source 1 is not supplying power in any form to the UUT.

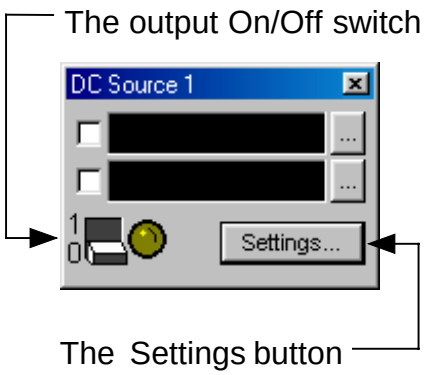

Figure 12 – The DC Source 1 dialog window

In the DC Source 1 dialog window:

Click the Settings button – the DC Source 1 Settings dialog window, Figure 13, opens.

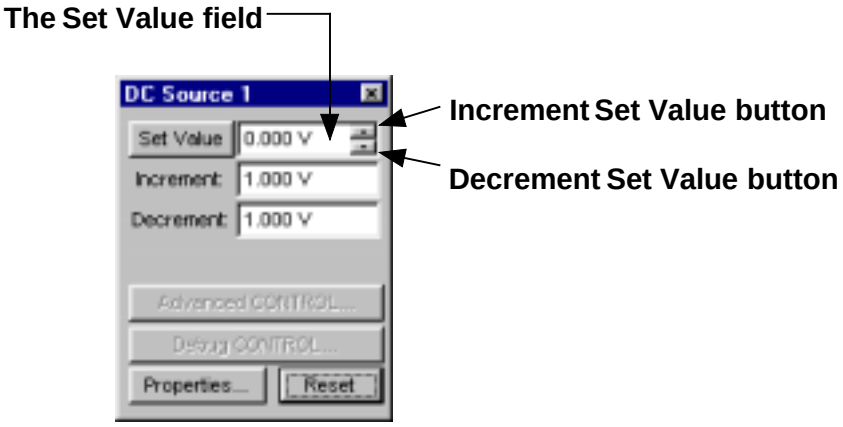

Figure 13 – The DC Source 1 Settings dialog window

There are two ways to change the value in the Set Value field in the DC Source 1 Settings dialog window:

1. By directly entering a value into the Set Value field
2. By clicking the Increment Set Value or Decrement Set Value buttons

Changing the Set Value by directly entering a value.
Double-click the Set Value field – the existing value is highlighted.

Enter 48 in the Set Value field – the text turns red showing that it hasn't be accepted by CONTROL yet.

Click the Set Value button – the text turns black showing that the value has been accepted by CONTROL.

When you click the Set Value button, three things happen:

1. The hardware device labeled DC Source 1, is immediately set to output the value in the Set Value field

2. A value close to 48 Volts appears in the 1st Measurement output window, Figure 14. This shows the actual measured voltage that the hardware device labeled DC Source 1 is outputting

3. The On/Off switch is set to the On position

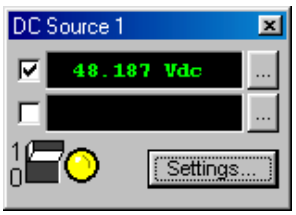

Figure 14 – The DC Source 1 dialog window

Changing the Set Value with the Increment & Decrement Set Value buttons

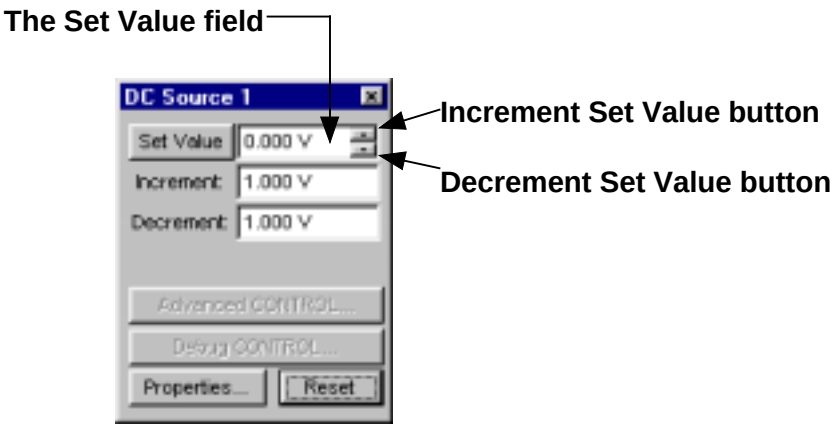

Figure 15 – The DC Source 1 Settings dialog window

Figure 15 shows the state of the DC Source 1 Settings dialog window when it is first opened. Notice that the values in the Increment & Decrement fields are both 1.000V.

Clicking the Increment Set Value button once, increments the Set Value by the value in the Increment field.

Clicking the Decrement Set Value button once, decrements the Set Value by the value Decrement field.

Each time you click the Increment Set Value or Decrement Set Value buttons, the hardware device labeled DC Source 1 is immediately set to output that new Set Value.

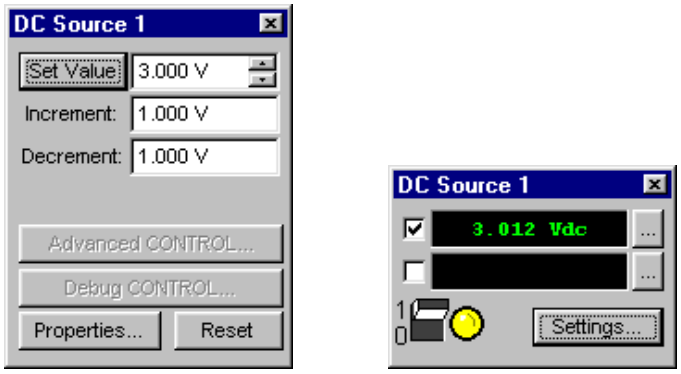

Figure 16 – The DC Source 1 Settings & DC Source 1 Device dialog windows

Figure 16 shows the DC Source 1 Settings dialog window, and the DC Source 1 Device dialog window after clicking the Increment Set Value button three times.

Changing the Increment & Decrement values -

Both the Increment & Decrement field values are changed following this method:

Double-click inside the Increment field – the Increment value is highlighted.

Enter a value – the Increment value is changed -

Clicking the Increment Set Value button, now, will increment the Set Value by this new value.
Resetting the characteristics of DC Source 1 to its default/reset values.
Start CONTROL in Device Mode – see instructions on page 10.

In the DC Source 1 Device dialog window:

Click the Settings button – the DC Source 1 Settings dialog window, Figure 18, opens.

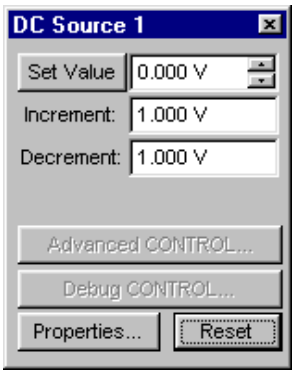

Figure 17 – The DC Source 1 Settings dialog window

Click the Reset button – the characteristics of the hardware device labeled DC Source 1 are set to their default/reset values.

2.3 The DC Source 1 Properties dialog window

In the Settings frame of the DC Source 1 Properties dialog window, you have the ability to enter/change the values of each characteristic of the hardware device labeled DC Source 1.

Changing the Properties settings -

Start CONTROL in Device Mode – see instructions on page 10.

In the DC Source 1 Device dialog window:

Click the Settings button – the DC Source 1 Settings dialog window, Figure 18, opens.

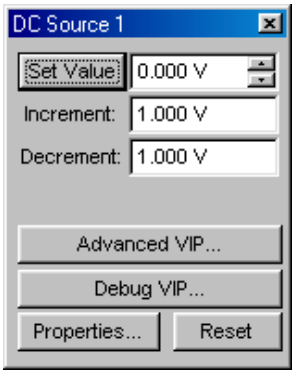

Figure 18 – The DC Source 1 Settings dialog window

Click the Properties button – the DC Source 1 Properties dialog window, Figure 19, opens.

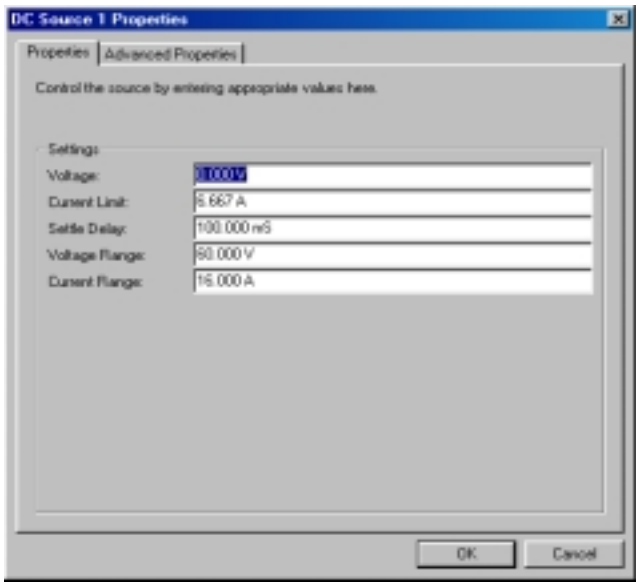

Figure 19 – The DC Source 1 Properties dialog window

The hardware device labeled DC Source 1 is a specific hardware device with specific characteristics. The Device Driver for this specific hardware device contains default/reset values for each of the fields shown in the Settings frame, Figure 19.

To change one of these values:

Double-click the field you want to change – the existing value is highlighted.
Enter an appropriate value in the field.

Click the OK button – the hardware device labeled DC Source 1 is immediately set to the changed value.

3. THE DC LOAD 1 DEVICE DIALOG WINDOW

3.1 The Enable … Measurement checkboxes

By checking an Enable … Measurement checkbox, you are enabling the hardware device labeled DC Load 1 to measure a specific characteristic of its own input, and report that value to us via the … Measurement output window.

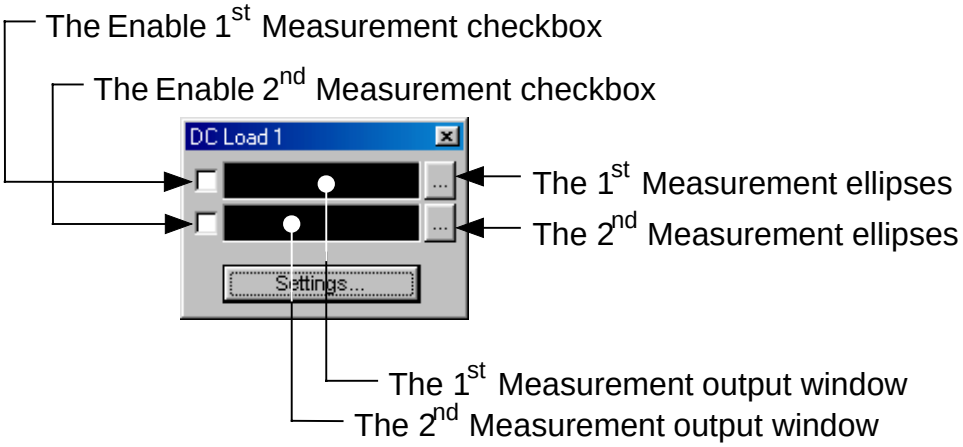

Figure 20 – The DC Load 1 dialog window

Enabling the DC Load 1 to measure its input current -

The values that appear in the fields/dropdowns of all dialog windows when they are first opened by CONTROL, are the default/reset values contained in the Device Drivers of each specific hardware device.

Left-click the 1st checkbox – the CONTROL Measurement Setup dialog window, Figure 9, opens.

Figure 21 – The CONTROL Measurement Setup dialog window (DC Load 1)

Clicking the Measurement dropdown, Figure 21, shows each of measurement functions that DC Load 1 is capable of performing on itself; they are:

1. DC Current
2. DC Power

3. DC Voltage
4. No Function
5. Temperature

For this example:

Select DC Current – the CONTROL Measurement Setup dialog window appears as in Figure 22.

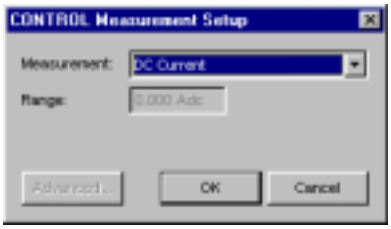

Figure 22 – The CONTROL Measurement Setup dialog window

Click the OK button – DC Load 1 is now enabled to measure its input current, Figure 23.

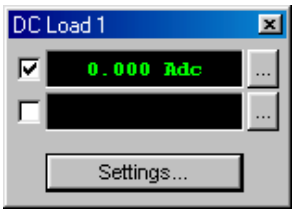

Figure 23 – The DC Load 1 Device dialog window (Measurement Enabled)

Because the default/reset value for the DC Load 1's output voltage is 0, which is the actual input current being measured, and reported to us.

In the next section we'll set the hardware device labeled DC Load 1 to draw a specified current.

3.2 The DC Load 1 Settings dialog window

Setting the hardware device DC Load 1 to draw a specified current -

Figure 24 shows the DC Load 1 Device dialog window enabled to measure its input current.

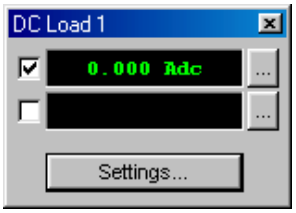

Figure 24 – The DC Load 1 dialog window

In the DC Load 1 Device dialog window, Figure 24:

Click the Settings button – the DC Load 1 Settings dialog window, Figure 25, opens.

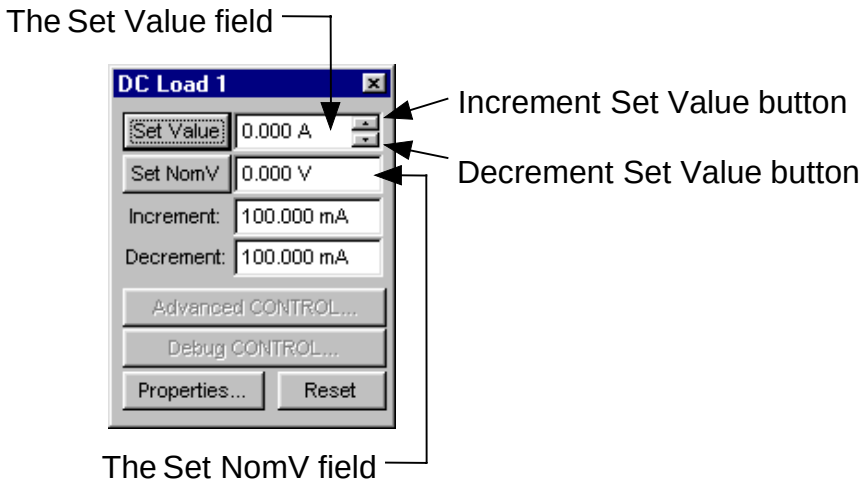

Figure 25 – The DC Load 1 Settings dialog window

It is the value in the Set Value field, Figure 25, that we are going to change, and there are two ways to change the value in the Set Value field, there are:

1. By directly entering a value into the Set Value field
2. By clicking the Increment Set Value or Decrement Set Value buttons

Changing the Set Value by directly entering a value -

Double-click the Set Value field – the existing value is highlighted.
Enter 20 in the Set Value field – the text turns red showing that it hasn't be accepted by CONTROL yet.

Click the Set Value button – the text turns black showing that the value has been accepted by CONTROL.

When you click the Set Value button, the hardware device labeled DC Load 1, is immediately set to draw the value of the current in the Set Value field.

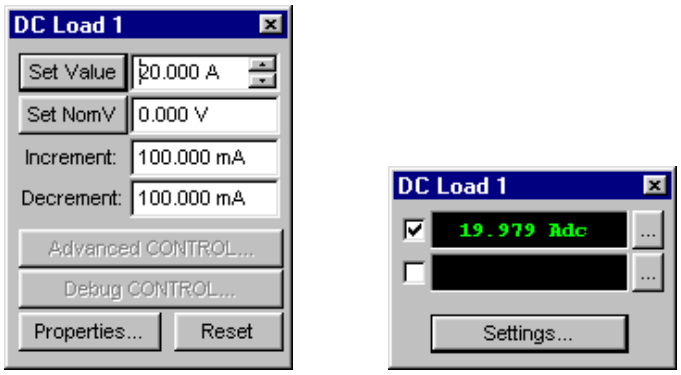

Figure 26 – The DC Load 1 dialog windows

We have just "told" the hardware device labeled DC Load 1 to draw 20 Amps from a UUT, and since it's enabled to measure the current it's drawing, a value appears in the 1st Measurement checkbox.

Changing the Set Value with the Increment & Decrement Set Value buttons -

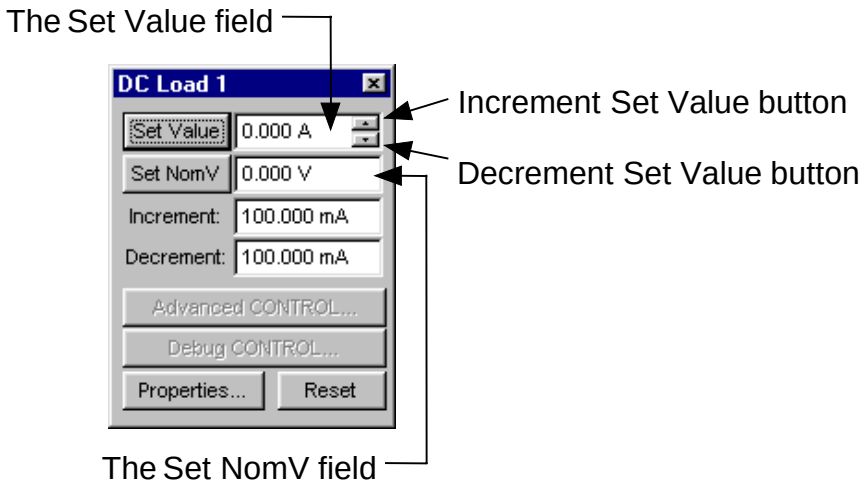

Figure 27 – The DC Load 1 Settings dialog window

Figure 27 shows the state of the DC Load 1 Settings dialog window when it is first opened. Notice that the values in the Increment & Decrement fields are both 100.000 mA.

Clicking the Increment Set Value button once, increments the Set Value by the value in the Increment field.

Clicking the Decrement Set Value button once, decrements the Set Value by the value Decrement field.

Each time you click the Increment Set Value or Decrement Set Value buttons, the hardware device labeled DC Load 1 is immediately set to output that new Set Value.

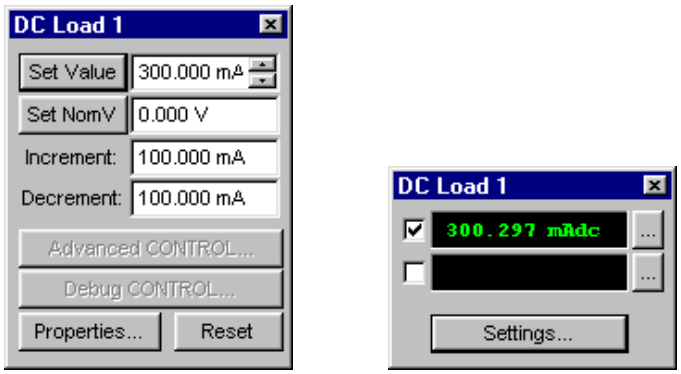

Figure 28 – The DC Load 1 Settings & DC Load 1 Device dialog windows

Figure 28 shows the DC Load 1 Settings dialog window, and the DC Load 1 Device dialog window after clicking the Increment Set Value button three times.

Resetting the characteristics of DC Load 1 to its default/reset values -

Start CONTROL in Device Mode – see instructions on page 10.

In the DC Load 1 Device dialog window:

Click the Settings button – the DC Load 1 Settings dialog window, Figure 29, opens.

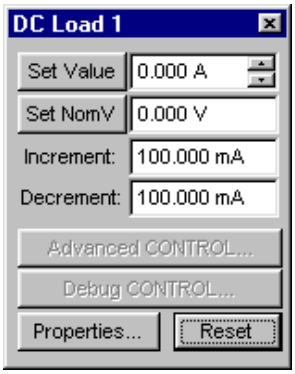

Figure 29 – The DC Load 1 Settings dialog window

Click the Reset button – the characteristics of the hardware device labeled DC Load 1 are set to their default/reset values.

3.3 The DC Load 1 Properties dialog window

In the Settings frame of the DC Load 1 Properties dialog window, you have the ability to enter/change the values of each characteristic of the hardware device labeled DC Load 1.

Changing the Properties settings -

Start CONTROL in Device Mode – see instructions on page 10.

In the DC Load 1 Device dialog window:

Click the Settings button – the DC Load 1 Settings dialog window, Figure 30, opens.

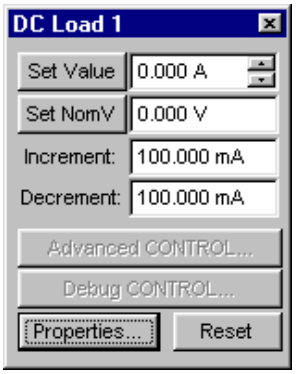

Figure 30 – The DC Load 1 Settings dialog window

Click the Properties button – the DC Load 1 Properties dialog window, Figure 31, opens.

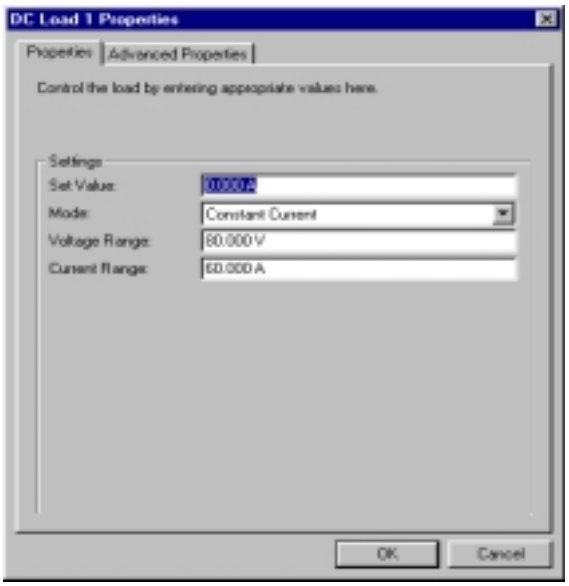

Figure 31 – The DC Load 1 Properties dialog window

The hardware device labeled DC Load 1 is a specific hardware device with specific characteristics. The Device Driver for this specific hardware device contains default/reset values for each of the fields shown in the Settings frame, Figure 31.

To change one of these values:

Double-click the field you want to change – the existing value is highlighted.
Enter an appropriate value in the field.
Click the OK button – the hardware device labeled DC Load 1 is immediately set to the changed value.

INDEX