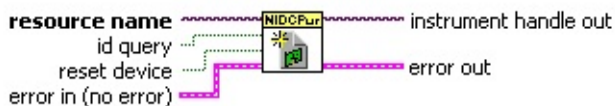


## niDCPower Initialize


Creates a new IVI instrument driver session to the power supply specified in **resource name** and returns a session handle you use to identify the session in all subsequent NI-DCPower VI calls. This VI also sends initialization commands to set the power supply to the state necessary for NI-DCPower to operate. To place the power supply in a known startup state when creating a new session, set **reset device** to TRUE. This action is equivalent to using the [niDCPower Reset](#) VI.


To open a session and leave the device in its existing configuration without passing through a transitional output state, set **reset device** to FALSE, and then immediately call the [niDCPower Abort](#) VI. To apply a new configuration without disrupting the output channels of the device, configure the device in [Delayed Configuration mode](#) as in the previous session changing only the desired settings, and then call the [niDCPower Initiate](#) VI.





- I/O** **resource name** specifies the resource name assigned by Measurement & Automation Explorer (MAX), for example PXI1Slot3, where PXI1Slot3 is an instrument resource name. **resource name** can also be a logical IVI name.
- TF** **id query** specifies whether the device is queried to determine if the device is a valid instrument for NI-DCPower. The default is TRUE.
- TF** **reset device** specifies whether to reset the power supply during the initialization procedure. The default is TRUE.
- E** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in


most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** returns a handle that you use to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

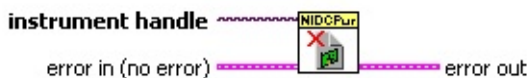
 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

## niDCPower Close

Closes the session specified in **instrument handle** and deallocates the resources that NI-DCPower reserved. If power output is enabled when you call this VI, the output channels remain in their current state and continue providing power. Use the [niDCPower Configure Output Enabled](#) VI to disable power output on a per channel basis. Use the [niDCPower Reset](#) VI to disable power on all output channels.




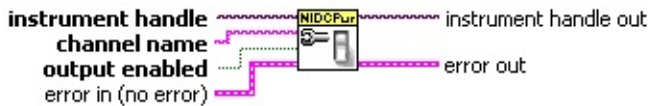
- instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- error in (no error)** describes error conditions that occur before this VI runs.
  - status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or


warning.


# niDCPower Configure Output Enabled


Enables or disables generation on the specified channel(s). Depending on the selected output function, the voltage level or the current level must be set in addition to enabling the output to generate the desired level. Refer to the [niDCPower Configure Voltage Level VI](#), [niDCPower Configure Current Level VI](#), and the [niDCPower Configure Output Function VI](#) for more information about configuring the desired output level.

 **Note** If the device is in [Delayed Configuration mode](#), enabling the output will not take effect until you call the [niDCPower Initiate VI](#).




 **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options VI](#).


 **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.

 **output enabled** specifies whether the output channel enabled or disabled.


<b>true</b>	Enables generation on the specified output channel(s).
<b>false</b>	Disables generation on the specified output channel(s).


**Default Value:** false


 **error in (no error)** describes error conditions that occur before this VI runs.


 **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error


occurred before this VI ran. The default is FALSE.


 **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

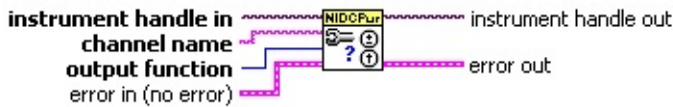
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Output Function

Configures the function the device attempts to generate for the specified channel.

## Details



**channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In **Immediate mode**, multiple output channel configurations are performed sequentially based on the order specified in this parameter.

**output function** configures the function to generate for the specified channel(s).

<b>DC Voltage</b>	Sets the output function to DC voltage.
<b>DC Current</b>	Sets the output function to DC current.

**Default Value:** DC Voltage

**error in (no error)** describes error conditions that occur before this VI runs.


**status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


**code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


**source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.


**instrument handle out** passes the handle used to identify the

session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.



## Details

When **DC Voltage** is selected, the device generates the desired voltage level on the output as long as the output current is below the current limit. The following VIs can be used to configure the channel when **DC Voltage** is selected:

[niDCPower Configure Voltage Level](#)

[niDCPower Configure Current Limit](#)

[niDCPower Configure Voltage Level Range](#)

[niDCPower Configure Current Limit Range](#)

When **DC Current** is selected, the device generates the desired current level on the output as long as the output voltage is below the voltage limit. The following functions can be used to configure the channel when **DC Current** is selected:

[niDCPower Configure Current Level](#)

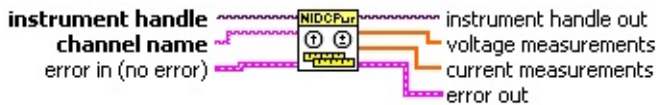
[niDCPower Configure Voltage Limit](#)

[niDCPower Configure Current Level Range](#)

[niDCPower Configure Voltage Limit Range](#)

# niDCPower Measure Multiple


Returns arrays of the measured voltage and current values on the specified output channel(s). Each call to this VI blocks other VI calls until the measurements are returned from the power supply. The order of the measurements returned in the array corresponds to the order of the specified output channels. The measurement speed of the power supply and the [Samples to Average](#) property dictates the length of time that a measurement takes.





- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies the output channels to measure. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2).
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.


**DBL**


**voltage measurements** returns an array of voltage measurements. The measurements in the array are returned in the same order as the channels specified in **channel name**.

 **current measurements** returns an array of current measurements. The measurements in the array are returned in the same order as the channels specified in **channel name**.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Sense

Specifies whether to use **local** or **remote** sensing of the output voltage on the specified channel(s). Refer to the *Devices* topic specific to your device in the *NI DC Power Supplies and SMUs Help* to find out more information about sensing on supported channels.



**instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options VI](#).

**channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In **Immediate mode**, multiple output channel configurations are performed sequentially based on the order specified in this parameter.

**sense** specifies local or remote sensing on the specified channel(s).

<b>Local</b>	Local sensing
<b>Remote</b>	Remote sensing

**Default Value:** Local


**error in (no error)** describes error conditions that occur before this VI runs.


**status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


**code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


**error in (no error)**


**source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

## niDCPower Initiate

Commits the configured settings to hardware and places the power supply in **Immediate mode**. Any configuration calls made after this VI are applied immediately. To commit simultaneous hardware settings on multiple output channels, call the [niDCPower Abort](#) VI, configure the power supply, and then call this VI.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- Err** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in

most cases, the name of the VI that produced the error or warning.

## niDCPower Abort


Places the power supply in [Delayed Configuration mode](#). Any configuration VIs called after this VI are not applied until the [niDCPower Initiate](#) VI is called. If power output is enabled when you call the niDCPower Abort VI, the output channels remain in their current state and continue providing power. Use the [niDCPower Configure Output Enabled](#) VI to disable power output on a per channel basis. Use the [niDCPower Reset](#) VI to disable power output on all channels. While in Delayed Configuration mode, NI-DCPower performs only generic parameter validation. Any conflicting configuration calls are not validated until the niDCPower Initiate VI is called. If the same configuration is set multiple times to different values, NI-DCPower uses the last configuration call.





- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI



produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

## niDCPower Property Node

Sets or gets [properties](#) of the device. Refer to [Using Properties and Attributes](#) for more information.



## **Channel-Based Properties**

To access a channel-based property, you must wire an Active Channel of an NI-DCPower property node. The Active Channel is listed first in the property node. To access a device-based property, do not wire an Active Channel or wire an empty string.

## Properties with Multiple Channels

You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in Active Channel.

# NI-DCPower Express

Configures and generates a signal using NI-DCPower with National Instruments DC power supplies and SMUs.

[Dialog Box Options](#)

[Block Diagram Inputs](#)

[Block Diagram Outputs](#)

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## Dialog Box Options

Parameter	Description
<b>Measurements</b>	Displays the voltage and current measurements on a per channel basis.
<b>Configuration</b>	<p>Contains the following options:</p> <ul style="list-style-type: none"> <li>• <b>Device</b>—Contains the resource name of the device.</li> <li>• <b>Enable/Disable all outputs</b>—Specifies whether all output channels are enabled or disabled.</li> <li>• <b>Channel Configuration</b> <ul style="list-style-type: none"> <li>- <b>Channels</b>—Select channel by highlighting. The channel configuration for selected channel is displayed.</li> <li>- <b>Output Function</b>—Configures the function to generate on the specified channel(s).</li> <li>- <b>Output Enabled</b>—Specifies whether the output is enabled or disabled.</li> <li>- <b>Voltage Level (V)</b>—Specifies the voltage level, in volts, the device attempts to generate on the specified channel(s). Valid values for the voltage level are defined by the voltage level range.</li> <li>- <b>Current Limit (A)</b>—Specifies the current limit, in amps, for the output not to exceed when generating the desired voltage on the specified channel(s). Valid values for current limit are defined by the current limit range.</li> <li>- <b>Voltage Level Range (V)</b>—Specifies the voltage level range, in volts, for the specified channel(s). The range defines the valid values to which the voltage level can be set.</li> <li>- <b>Current Limit Range (A)</b>—Specifies the current limit range, in amps, for the specified channel(s). The range</li> </ul> </li> </ul>

## Block Diagram Inputs

Parameter	Description
<b>Close (T)</b>	Specifies whether the session to the device remains open after the VI finishes execution. Set <b>Close (T)</b> to TRUE to close all references and reinitialize the device for each iteration. Set <b>Close (T)</b> to FALSE for all iterations except the last iteration for loop optimization. The default is TRUE.
<b>error in</b>	Describes error conditions that occur before this VI runs.

## Block Diagram Outputs

Parameter	Description
<b>Measured Voltage</b>	Returns the voltage values measured on all output channels.
<b>Measured Current</b>	Returns the current values measured on all output channels.
<b>error out</b>	Contains error information. If <b>error in</b> indicates that an error occurred before this Express VI ran, <b>error out</b> contains the same error information. Otherwise, <b>error out</b> describes the error status that this Express VI produces.



# niDCPower Configure Voltage Level

Configures the voltage level the device attempts to generate for the specified channel(s). The channel must be enabled for the specified voltage level to take effect. Refer to the [niDCPower Configure Output Enabled](#) VI for more information about enabling the output channel.

The voltage level setting is applicable only if the channel is set to the **DC Voltage** output function using the [niDCPower Configure Output Function](#) VI. The device actively regulates the voltage at the specified level unless doing so causes a current drop greater than the [current limit](#) across the channels' output terminals.



**I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.


**abc** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.


**DBL** **voltage level** specifies the voltage level, in volts, for the output channel generation.


The valid values for this parameter are defined by the voltage level range that is selected using the [niDCPower Configure Voltage Level Range](#) VI.


**Err** **error in (no error)** describes error conditions that occur before this VI runs.


**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


 **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

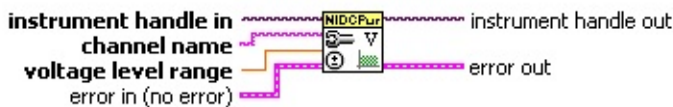
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Voltage Level Range

Configures the voltage level range for the specified channel(s). The configured range defines the valid values the voltage level can be set to using the [niDCPower Configure Voltage Level](#) VI. The voltage level range setting is applicable only if the channel is set to the **DC Voltage** output function using the [niDCPower Configure Output Function](#) VI.

Use the [Voltage Level Autorange](#) property to enable automatic selection of the voltage level range.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In **Immediate mode**, multiple output channel configurations are performed sequentially based on the order specified in this parameter.
- DBL** **voltage level range** specifies the voltage level range, in volts, on the specified channel(s).

## NI PXI-4110

Channel	Voltage Level Range	Voltage Level
0	6	0 to +6 V
1	20	0 to +20 V
2	20	0 to -20 V

## NI PXI-4130

Channel	Voltage Level Range	Voltage Level
0	6	0 to +6 V
1	6	-6 to +6 V

	20	-20 to +20 V
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**Note** If a range other than what is listed in the preceding table is selected, it will be coerced to the next-highest range. For example, requesting the 10 V voltage level range on Channel 1 on the NI-PXI 4130 coerces the voltage level range to 20 V. Refer to the [Ranges](#) topic in the *NI DC Power Supplies and SMUs Help* for more information about coercion.

**err** **error in (no error)** describes error conditions that occur before this VI runs.

**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.

**I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.

**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

**I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

**err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

**TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

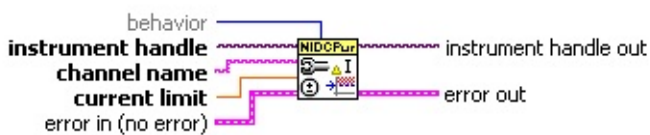
**I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Current Limit

Configures the current limit for the specified channel(s). The channel must be enabled for the specified current limit to take effect. Refer to the [niDCPower Configure Output Enabled](#) VI for more information about enabling the output channel.

The current limit is the current that the output should not exceed when generating the desired [voltage level](#). The current limit setting is only applicable if the channel is set to the **DC Voltage** output function using the [niDCPower Configure Output Function](#) VI.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.
- DBL** **current limit** specifies the current limit on the specified channel(s). The valid values for this parameter are defined by the current limit range that is configured using the [niDCPower Configure Current Limit Range](#) VI.
- I32** **behavior** specifies how the output current should behave when the current limit is reached.

<b>Regulate</b>	The power supply controls the output current so that it does not exceed the current limit. The power supply continues to generate power, even if the current limit has been reached.
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**err** **error in (no error)** describes error conditions that occur before this VI runs.

**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.

**i32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.

**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

**I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

**err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

**TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

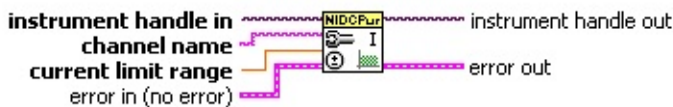
**i32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Current Limit Range

Configures the current limit range for the specified channel(s). The configured range defines the valid values the current limit can be set to using the [niDCPower Configure Current Limit](#) VI. The current limit range setting is applicable only if the channel is set to the **DC Voltage** output function using the [niDCPower Configure Output Function](#) VI.

Use the [Current Limit Autorange](#) property to enable automatic selection of the current limit range.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.
- DBL** **current limit range** specifies the current limit range, in amps, for the specified channel.

## NI PXI-4110

Channel	Current Limit Range	Current Limit
0	1 A	+0.01 to +1 A
1, 2	20 mA	+0.20 to +20 mA
	1 A	+0.01 to +1 A

## NI PXI-4130

Channel	Current Limit Range	Current Limit
0	1 A	+0.01 to +1 A

1	200 $\mu$ A	+4 to +200 $\mu$ A
	2 mA	+0.04 to +2 mA
	20 mA	+0.40 to +20 mA
	200 mA	+4 to +200 mA
	2 A	+0.04 to +2 A



**Note** If a range other than what is listed in the preceding table is selected, it will be coerced to the next-highest range. For example, requesting the 100 mA current limit range on Channel 1 on the NI-PXI 4130 coerces the current level range to 200 mA. Refer to the [Ranges](#) topic in the *NI DC Power Supplies and SMUs Help* for more information about coercion.

**err** **error in (no error)** describes error conditions that occur before this VI runs.

**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.

**132** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.

**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

**I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.


**err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

**TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

**132** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a



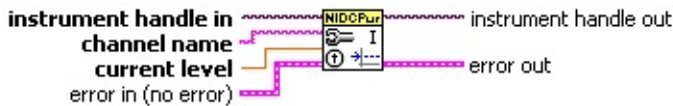
warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Current Level

Configures the current level the device attempts to generate for the specified channel(s). The channel must be enabled for the specified current level to take effect. Refer to the [niDCPower Configure Output Enabled](#) VI for more information about enabling the output channel.

The current level setting is applicable only if the channel is set to the **DC Current** output function using the [niDCPower Configure Output Function](#) VI. The device actively regulates the current at the specified level unless doing so causes a voltage greater than the [voltage limit](#) across the channels' output terminals.



**I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.


**abc** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.


**DBL** **current level** specifies the current level, in amps, to generate for the specified channel(s).


The valid values for this parameter are defined by the current level range that is selected using the [niDCPower Configure Current Level Range](#) VI.


**ERR** **error in (no error)** describes error conditions that occur before this VI runs.


**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


 **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

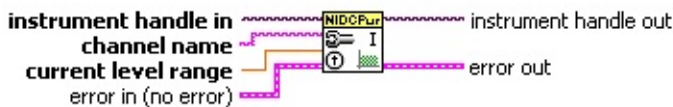
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Current Level Range

Configures the current level range for the specified channel(s). The configured range defines the valid values the current level can be set to using the [niDCPower Configure Current Level](#) VI. The current level range setting is applicable only if the channel is set to the **DC Current** output function using the [niDCPower Configure Output Function](#) VI.

Use the [Current Level Autorange](#) property to enable automatic selection of the current level range.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.
- DBL** **current level range** specifies the current level range, in amps, for the specified channel.

## NI PXI-4110

Channel	Current Level Range	Current Level
0	1 A	+0.01 to +1 A
1	20 mA	+0.20 to +20 mA
	1 A	+0.01 to +1 A
2	20 mA	-0.20 to -20 mA
	1 A	-0.01 to -1 A

## NI PXI-4130

Channel	Current Level Range	Current Level
0	1 A	+0.01 to +1 A
1	200 $\mu$ A	+4 to +200 $\mu$ A and -4 to -200 $\mu$ A
	2 mA	+0.04 to +2 mA and -0.04 to -2 mA
	20 mA	+0.40 to +20 mA and -0.40 to -20 mA
	200 mA	+4 to +200 mA and -4 to -200 mA
	2 A	+0.04 to +2 A and -0.04 to -2 A



**Note** If a range other than what is listed in the preceding table is selected, it will be coerced to the next-highest range. For example, requesting the 100 mA current level range on Channel 1 on the NI-PXI 4130 coerces the current level range to 200 mA. Refer to the [Ranges](#) topic in the *NI DC Power Supplies and SMUs Help* for more information about coercion.

**err** **error in (no error)** describes error conditions that occur before this VI runs.


**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


**162** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

**I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

**err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

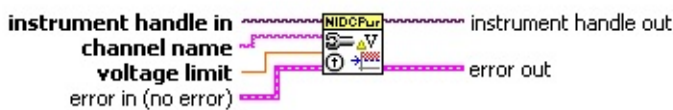
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Configure Voltage Limit

Configures the voltage limit for the specified channel(s). The channel must be enabled for the specified voltage limit to take effect. Refer to the [niDCPower Configure Output Enabled](#) VI for more information about enabling the output channel.

The voltage limit is the voltage that the output should not exceed when generating the desired [current level](#). The voltage limit setting is applicable only if the channel is set to the **DC Current** output function using the [niDCPower Configure Output Function](#) VI.



**I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.

**abc** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.

**DBL** **voltage limit** specifies the voltage limit, in volts, on the specified output channel(s).


The valid values for this parameter are defined by the voltage limit range that is configured using the [niDCPower Configure Voltage Limit Range](#) VI.

**ERR** **error in (no error)** describes error conditions that occur before this VI runs.


**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


**I32**


**code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

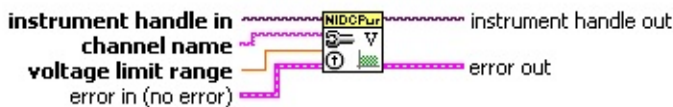
 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.



# niDCPower Configure Voltage Limit Range

Configures the voltage limit range for the specified channel(s). The configured range defines the valid values the voltage limit can be set to using the [niDCPower Configure Voltage Limit VI](#). The voltage limit range setting is applicable only if the channel is set to the **DC Current** output function using the [niDCPower Configure Output Function VI](#).

Use the [Voltage Limit Autorange](#) property to enable automatic selection of the voltage limit range.



**abc1** **channel name** specifies to which output channel(s) to apply this configuration value. You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In [Immediate mode](#), multiple output channel configurations are performed sequentially based on the order specified in this parameter.

**DBL** **voltage limit range** specifies the voltage limit range, in volts, on the specified channel(s).

## NI PXI-4110

Channel	Voltage Limit Range (V)	Voltage Limit (V)
0	6	0 to +6
1, 2	20	0 to +20


## NI PXI-4130


Channel	Voltage Limit Range (V)	Voltage Limit (V)
0	6	0 to +6
1	6	0 to +6
	20	0 to +20





**Note** If a range other than what is listed in the preceding

table is selected, it will be coerced to the next-highest range. For example, requesting the 10 V voltage limit range on Channel 1 on the NI-PXI 4130 coerces the voltage limit range to 20 V. Refer to the [Ranges](#) topic in the *NI DC Power Supplies and SMUs Help* for more information about coercion.


 **error in (no error)** describes error conditions that occur before this VI runs.


 **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


 **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Query Output State

Queries the specified output channel to determine if the output channel is currently in the state specified by **output state**.



**I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.

**abc** **channel name** specifies the output channel to query. The output state may only be queried for one channel at a time.

**U16** **output state** specifies the output state of the output channel that is being queried.

<b>Constant Voltage</b>	The channel is maintaining a constant voltage at its output.
<b>Constant Current</b>	The channel is maintaining a constant current at its output.

**Default Value:** Constant Voltage

**Err** **error in (no error)** describes error conditions that occur before this VI runs.

**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


**I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.


**I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.


**TF** **in state?** returns whether the power supply output channel is in the

specified state.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

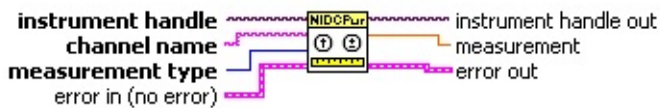
 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Measure

Returns the measured value of either the voltage or current on the specified output channel. Each call to this VI blocks other VI calls until the hardware returns the measurement. The measurement speed of the power supply and the [Samples to Average](#) property dictate the length of time that a measurement takes. To measure multiple output channels, use the [niDCPower Measure Multiple](#) VI.





- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies the output channel to measure. Only one measurement at a time may be made with the niDCPower Measure VI. Use to [niDCPower Measure Multiple](#) VI to measure multiple channels or measurement types.
- I32** **measurement type** specifies whether a voltage or current value should be measured.


<b>Voltage</b>	The power supply measures voltage.
<b>Current</b>	The power supply measures current.


**Default Value:** Voltage


- FT** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.


 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **measurement** returns the value of the measurement, either in volts for voltage or amps for current.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

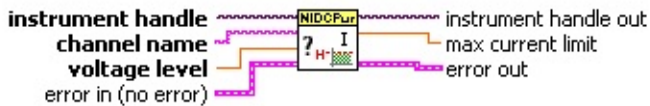
 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


# niDCPower Query Max Current Limit


Queries the maximum current limit on an output channel if the output channel is set to the specified **voltage level**.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies the output channel to query. The maximum current limit may only be queried for one channel at a time.
- DBL** **voltage level** specifies the voltage level to use when calculating the **max current limit**.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- DBL** **max current limit** returns the maximum current limit that can be set with the specified **voltage level**.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE

(checkmark) to indicate a warning or that no error occurred.

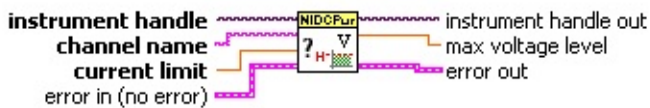
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.




# niDCPower Query Max Voltage Level


Queries the maximum voltage level on an output channel if the output channel is set to the specified **current limit**.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies the output channel to query. The maximum voltage level may only be queried for one channel at a time.
- DBL** **current limit** specifies the current limit to use when calculating the **max voltage level**.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- DBL** **max voltage level** returns the maximum voltage level that can be set on an output channel with the specified **current limit**.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE

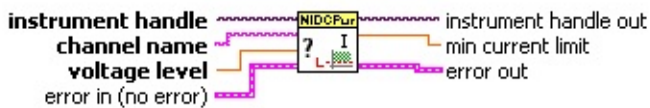
(checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


# niDCPower Query Min Current Limit

Queries the minimum current limit on an output channel if the output channel is set to the specified **voltage level**.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies the output channel to query. The minimum current limit may only be queried for one channel at a time.
- DBL** **voltage level** specifies the voltage level to use when calculating the **min current limit**.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- DBL** **min current limit** returns the minimum current limit that can be set on an output channel with the specified **voltage level**.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


## niDCPower Query In Compliance


Queries the device to indicate if a channel is operating at the compliance limit. The compliance limit is the current limit when the output function is set to **DC Voltage**. If the output is operating at the compliance limit, the output reaches the current limit before the desired voltage level. Refer to the [niDCPower Configure Output Function](#) VI and the [niDCPower Configure Current Limit](#) VI for more information about output function and current limit, respectively.


The compliance limit is the voltage limit when the output function is set to **DC Current**. If the output is operating at the compliance limit, the output reaches the voltage limit before the desired current level. Refer to the [niDCPower Configure Output Function](#) VI and the [niDCPower Configure Voltage Limit](#) VI for more information about output and voltage limit, respectively.





- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **channel name** specifies the output channel to query. The compliance status may only be queried for one channel at a time.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - 132** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **in compliance?** returns whether the power supply output channel is in compliance.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


# niDCPower Initialize External Calibration


If **password** is valid, this VI creates a new IVI instrument driver session to the power supply specified in **resource name** and returns an instrument handle you use to identify the power supply in all subsequent NI-DCPower VI calls. This VI also sends initialization commands to set the power supply to the state necessary for the operation of NI-DCPower. Opening a calibration session always performs a reset. Refer to the calibration procedure for the power supply you are calibrating for detailed instructions on the appropriate use of this VI.




- I/O** **resource name** specifies the resource name assigned by Measurement & Automation Explorer (MAX), for example PXI1Slot3, where PXI1Slot3 is an instrument resource name. **resource name** can also be a logical IVI name.
- abc** **password** specifies the password for opening a calibration session. **password** can be a maximum of four alphanumeric characters. The initial password is factory configured to "NI".
- FFF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** returns a handle that you use to identify the session in all subsequent NI-DCPower VI calls.
- FFF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI

produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

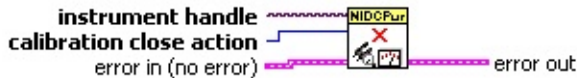
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.



# niDCPower Close External Calibration

Closes the session specified in **instrument handle** and deallocates the resources that NI-DCPower reserved for calibration. Refer to the calibration procedure for the power supply you are calibrating for detailed instructions on the appropriate use of this VI. If an error occurs before this VI, **calibration close action** defaults to **Cancel**.



**I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.

**I32** **calibration close action** specifies how to use the calibration values from this session as the session is closed.

<b>Commit</b>	The new calibration constants are stored in the EEPROM.
<b>Cancel</b>	The old calibration constants are kept, and the new ones are discarded.

**Default Value:** Cancel


**Err** **error in (no error)** describes error conditions that occur before this VI runs.


**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


**I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.

**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

**Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

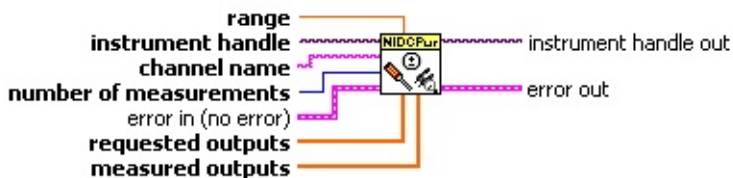
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


# niDCPower Cal Adjust Voltage Level


Calculates the calibration constants for the voltage level for the specified output channel. This VI compares the array in **requested outputs** to the array in **measured outputs** and calculates the calibration constants for the voltage level of the output channel.


Refer to the calibration procedure for the power supply you are calibrating for detailed instructions on the appropriate use of this VI. This VI can only be called in an external calibration session.





- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- abc** **channel name** specifies the output channel to which these calibration settings apply. Only one channel at a time may be calibrated.
- U32** **number of measurements** specifies the number of elements in **requested outputs** and **measured outputs**.
- DBL** **requested outputs** specifies an array of the output values requested in the [niDCPower Configure Voltage Level](#) VI.
- DBL** **measured outputs** specifies an array of the output values measured by an external precision digital multimeter.
- DBL** **range** specifies the range to calibrate with these settings.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

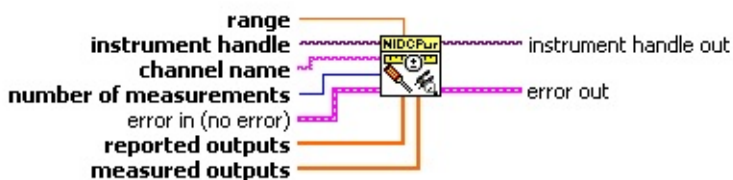
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Cal Adjust Voltage Measurement


Calculates the calibration constants for the voltage measurements returned by the [niDCPower Measure](#) VI for the specified output channel. This VI compares the array in **reported outputs** to the array in **measured outputs** and calculates the calibration constants for the voltage measurements returned by the niDCPower Measure VI.


Refer to the calibration procedure for the power supply you are calibrating for detailed instructions on the appropriate use of this VI. This VI can only be called in an external calibration session.





- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- abc** **channel name** specifies the output channel to which these calibration settings apply. Only one channel at a time may be calibrated.
- U32** **number of measurements** specifies the number of elements in **requested outputs** and **measured outputs**.
- DBL** **reported outputs** specifies an array of the output values that were returned by the [niDCPower Measure](#) VI.
- DBL** **measured outputs** specifies an array of the output values measured by an external precision digital multimeter.
- DBL** **range** specifies the range to calibrate with these settings.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code


is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

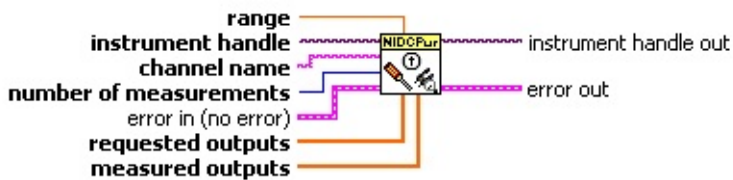
 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


# niDCPower Cal Adjust Current Limit


Calculates the calibration constants for the current limit for the specified output channel and range. This VI compares the array in **requested outputs** to the array in **measured outputs** and calculates the calibration constants for the current limit returned by the power supply.


Refer to the calibration procedure for the power supply you are calibrating for detailed instructions on the appropriate use of this VI. This VI can only be called from an external calibration session.





- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- abc** **channel name** specifies the output channel to which these calibration settings apply. Only one channel at a time may be calibrated.
- U32** **number of measurements** specifies the number of elements in **requested outputs** and **measured outputs**.
- DBL** **range** specifies the range to calibrate with these settings.
- DBL** **requested outputs** specifies an array of the output values requested in the [niDCPower Configure Current Limit](#) VI.
- DBL** **measured outputs** specifies an array of the output values measured by an external precision digital multimeter.
- ERR** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

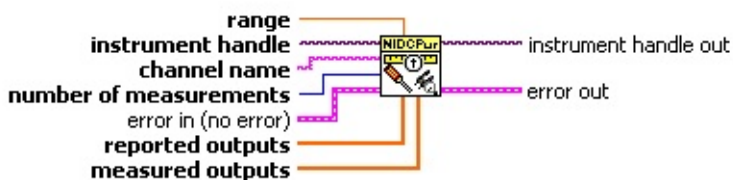
 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.



# niDCPower Cal Adjust Current Measurement


Calibrates the current measurements returned by the [niDCPower Measure](#) VI for the specified output channel. This VI calculates the calibration constants for the array in **reported outputs** to the array in **measured outputs** and calculates the calibration constants for the current measurements returned by the niDCPower Measure VI.


Refer to the calibration procedure for the power supply you are calibrating for detailed instructions on the appropriate use of this VI. This VI can only be called in an external calibration session.





- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- abc** **channel name** specifies the output channel to which these calibration settings apply. Only one channel at a time may be calibrated.
- U32** **number of measurements** specifies the number of elements in **reported outputs** and **measured outputs**.
- DBL** **range** specifies the range to calibrate with these settings.
- DBL** **reported outputs** specifies an array of the output values that were returned by the [niDCPower Measure](#) VI.
- DBL** **measured outputs** specifies an array of the output values measured by an external precision digital multimeter.
- ERR** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code


is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


## niDCPower Change Ext Cal Password


Changes the password that is required to initialize an external calibration session. The **password** can be a maximum of four alphanumeric characters. If you call this VI in a regular session, **password** is changed immediately. If you call this VI in an external calibration session, **password** is changed only after you close the session using the [niDCPower Close External Calibration](#) VI with **calibration close action** set to **Commit**.




- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- abc** **old password** specifies the previous password used to protect the calibration values.
- abc** **new password** specifies the new password to use to protect the calibration values.
- FF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- FF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI

produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Get Ext Cal Recommended Interval

Returns the recommended maximum interval, in months, between external calibrations.

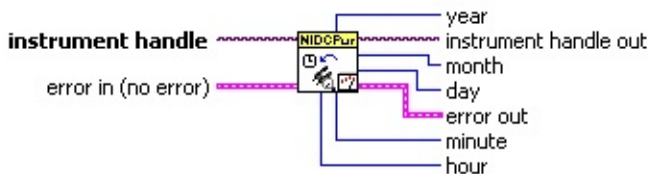


- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- Err** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- I32** **months** specifies the recommended maximum interval, in months, between external calibrations.
- Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in


most cases, the name of the VI that produced the error or warning.


## niDCPower Get Ext Cal Last Date And Time


Returns the date and time of the last successful calibration. The time returned is 24-hour (military) local time; for example, if the power supply was calibrated at 2:30 PM, this VI returns 14 for **hours** and 30 for **minutes**.




- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- I32** **year** returns the year in which the power supply was last calibrated.
- I32** **month** returns the month in which the power supply was last calibrated.
- I32** **day** returns the day on which the power supply was last calibrated.
- I32** **hour** returns the hour (in 24-hour time) in which the power supply was last calibrated.
- I32** **minute** returns the minute in which the power supply was last calibrated.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.



# niDCPower Get Cal User Defined Info Max Size

Returns the maximum number of characters that can be used to store user-defined information in the power supply onboard EEPROM.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- E/F** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- I32** **info size** returns the number of characters that can be stored in the power supply onboard EEPROM.
- E/F** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in


most cases, the name of the VI that produced the error or warning.


## niDCPower Set Cal User Defined Info

Stores a user-defined string of characters in the power supply onboard EEPROM. If the string is longer than the maximum allowable size, it is truncated. This VI overwrites any existing user-defined information. If you call this VI in a regular session, **info** is immediately changed. If you call this VI in an external calibration session, **info** is changed only after you close the session using the [niDCPower Close External Calibration](#) VI with **calibration close action** set to **Commit**.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- abc** **info** specifies the string to store in the power supply onboard EEPROM.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Get Cal User Defined Info

Returns the user-defined information in the power supply onboard EEPROM.



- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- Err** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- abc** **info** returns the user-defined information stored in the power supply onboard EEPROM.
- Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in

most cases, the name of the VI that produced the error or warning.

# niDCPower Read Current Temperature

Returns the current onboard temperature, in degrees Celsius, of the power supply.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- Err** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- DBL** **temperature** returns the onboard temperature, in degrees Celsius, of the power supply.
- Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in

most cases, the name of the VI that produced the error or warning.



# niDCPower Get Ext Cal Last Temp

Returns the onboard temperature of the power supply, in degrees Celsius, during the last successful external calibration.



- I/O** **instrument handle** identifies a particular instrument calibration session. **instrument handle** is obtained from the [niDCPower Initialize External Calibration](#) VI.
- Err** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- DBL** **temperature** returns the onboard temperature, in degrees Celsius, of the power supply during the last successful external calibration.
- Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in

most cases, the name of the VI that produced the error or warning.

## niDCPower Initialize With Options

Creates a new IVI instrument driver session to the power supply specified in **resource name** and returns a session handle you use to identify the power supply in all subsequent NI-DCPower VI calls. With this VI, you can optionally set the initial state of the following session properties: [Simulate](#), [Driver Setup](#), [Range Check](#), [Query Instrument Status](#), [Cache](#), and [Record Value Coercions](#). This VI also sends initialization commands to set the power supply to the state necessary for NI-DCPower to operate. To place the power supply in a known startup state when creating a new session, set **reset device** to TRUE. This action is equivalent to using the [niDCPower Reset](#) VI.

To open a session and leave the device in its existing configuration without passing through a transitional output state, set **reset device** to FALSE, and then immediately call the [niDCPower Abort](#) VI. To apply a new configuration without disrupting the output channels of the device, configure the device in Delayed Configuration mode as in the previous session changing only the desired settings, and then call the [niDCPower Initiate](#) VI.





- I/O** **resource name** specifies the resource name assigned by Measurement & Automation Explorer (MAX), for example PXI1Slot3, where PXI1Slot3 is an instrument resource name. **resource name** can also be a logical IVI name.
- TF** **id query** specifies whether the device is queried to determine if the device is a valid instrument for NI-DCPower. The default is TRUE.
- TF** **reset device** specifies whether to reset the power supply during the initialization procedure. The default is TRUE.
- abc** **option string** specifies the initial value of certain properties for the session. The syntax for **option string** is a list of properties with an assigned value where 1 is TRUE and 0 is FALSE. Each property/value combination is delimited with a comma (,), as shown in the following example:  
  
Simulate=0,RangeCheck=1,QueryInstrStatus=0,Cache=1


If you do not wire this input or pass an empty string, the session assigns the default values, shown in the preceding example, for these properties.


You do not have to specify a value for all the properties. If you do not specify a value for a property, the default value is used.


For more information about simulating a device, refer to [Simulating a Power Supply or SMU](#).


 **error in (no error)** describes error conditions that occur before this VI runs.


 **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.


 **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

 **instrument handle out** returns a handle that you use to identify the session in all subsequent NI-DCPower VI calls.

 **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Disable

Places the power supply in a quiescent state where it has minimal or no impact on the system to which it is connected. The power output and all exported signals are disabled. This VI performs the same actions as the [niDCPower Reset](#) VI.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or

warning.

# niDCPower Reset

Resets the power supply to a known state. This VI disables power generation, resets session properties to their default values, clears errors such as overtemperature and unexpected loss of auxiliary power, commits the session properties, and leaves the session in [Immediate mode](#).



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in

most cases, the name of the VI that produced the error or warning.




## niDCPower Reset Device

Resets the power supply to a known state. This VI disables power generation, resets session properties to their default values, clears errors such as overtemperature and unexpected loss of auxiliary power, commits the session properties, and leaves the session in **Immediate mode**. This VI also performs a hard reset on the device and driver software. This VI has the same functionality as using reset in Measurement & Automation Explorer.



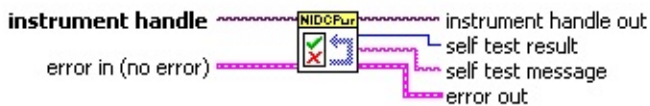
- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- E** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- E** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a

warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Self Test

Performs the power supply self-test routine and returns the test result(s). Calling this VI implicitly calls the [niDCPower Reset](#) VI.



**I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.

**Err** **error in (no error)** describes error conditions that occur before this VI runs.

**TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.

**I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.

**abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.

**I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.


**I16** **self test result** returns the value result from the power supply self-test. 0 indicates success.

**abc** **self test message** returns the self test result message.

**Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

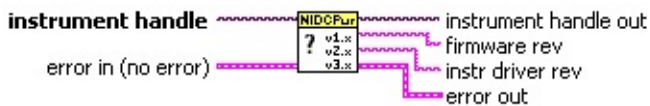
**TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

**I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


# niDCPower Revision Query

Returns the revision information of NI-DCPower and the power supply firmware.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- ETH** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- abc** **firmware rev** returns firmware revision information for the power supply.
- abc** **instr driver rev** returns the driver revision information for NI-DCPower.
- ETH** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a

warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.


## niDCPower Reset with Defaults

Resets the power supply to a known state. This VI disables power generation, resets session properties to their default values, clears errors such as overtemperature and unexpected loss of auxiliary power, commits the session properties, and leaves the session in [Immediate mode](#). In addition to exhibiting the behavior of the [niDCPower Reset](#) VI, this VI can assign user-defined default values for configurable properties from the IVI configuration.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- Err** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- Err** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a

warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.




# niDCPower Get Channel Name

Retrieves the output channel name that corresponds to the requested index. Use the [Channel Count](#) property to determine the upper bound of valid values for **index**.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- I32** **index** specifies which output channel name to return. The index values begin at 1.
- FTI** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- abc** **name** returns the output channel name that corresponds to **index**.
- FTI** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a

warning code.


 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Get Next Coercion Record

Returns the coercion information associated with the IVI session and clears the earliest instance in which NI-DCPower coerced a value you specified.



- instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- error in (no error)** describes error conditions that occur before this VI runs.
  - status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- record** returns the next coercion record for the IVI session. If there are no coercion records, the VI returns an empty string.
- error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Clear Interchange Warnings

Clears the list of current interchange warnings.



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- E+I** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- E+I** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.
  - TF** **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  - I32** **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

# niDCPower Reset Interchange Check


Configures interchangeability-checking algorithms to ignore all previous configuration options.


This VI does not clear the interchangeability warnings from the list of previously recorded interchangeability warnings. If you want to guarantee that the [niDCPower Get Next Interchange Warning](#) VI only returns those interchangeability warnings that are generated after calling this VI, clear the list of interchangeability warnings by repeatedly calling the [niDCPower Get Next Interchange Warning](#) VI until no interchangeability warnings are returned. If you are not interested in the content of those warnings, call the [niDCPower Clear Interchange Warnings](#) VI.


## Details



- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- E** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- E** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

## Details

When developing a complex test system that consists of multiple test modules, it is generally a good idea to design the test modules so that they can run in any order. To do so requires ensuring that each test module completely configures the state of each instrument it uses. If a particular test module does not completely configure the state of an instrument, the state depends on the configuration from a previously executed test module. If you execute the test modules in a different order, the behavior of the instrument and therefore the entire test module can change. This behavior change is generally instrument-specific and represents an interchangeability problem.

You can use the niDCPower Reset Interchange Check VI to test for such cases. After you use this VI, the interchangeability-checking algorithms in NI-DCPower ignore all previous configuration operations. By using this VI at the beginning of a test module, you can determine whether the test module has dependencies on the operation of previously executed test modules.




## niDCPower Get Next Interchange Warning


Returns the interchangeability warning associated with the IVI session. It retrieves and clears the earliest instance in which the class driver recorded an interchangeability warning. Interchangeability warnings indicate that using your application with a different power supply may cause a different behavior. NI-DCPower performs interchangeability checking when the [Interchange Check](#) property is set to TRUE. This VI returns an empty string in **warning** if no interchangeability warnings remain for the session. In general, NI-DCPower generates interchangeability warnings when a property that affects the behavior of the power supply is in a state you did not specify.




- I/O** **instrument handle** identifies a particular instrument session. **instrument handle** is obtained from the [niDCPower Initialize](#) or the [niDCPower Initialize With Options](#) VI.
- TF** **error in (no error)** describes error conditions that occur before this VI runs.
  - TF** **status** is TRUE (X) if an error occurred before this VI ran or FALSE (checkmark) to indicate a warning or that no error occurred before this VI ran. The default is FALSE.
  - I32** **code** is the error or warning code. The default is 0. If status is TRUE, code is a negative error code. If status is FALSE, code is 0 or a warning code.
  - abc** **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning. The default is an empty string.
- I/O** **instrument handle out** passes the handle used to identify the session in all subsequent NI-DCPower VI calls.
- abc** **warning** returns the next interchange warning for the IVI session. If there are no interchange warnings, the VI returns an empty string.
- TF** **error out** contains error information. If **error in** indicates that an error occurred before this VI ran, **error out** contains the same error information. Otherwise, it describes the error status that this VI

produces.

 **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.

 **code** the error or warning code. If status is TRUE, code is a non-zero error code. If status is FALSE, code is 0 or a warning code.

 **source** describes the origin of the error or warning and is, in most cases, the name of the VI that produced the error or warning.

## Examples

NI-DCPower examples are instructional tools that demonstrate power supply functionality. For example locations, refer to the *NI-DCPower Readme*.

## NI-DCPower Properties

Expand this section to view the NI-DCPower properties. Refer to [Using Properties and Attributes](#) for more information.

## Channel-Based Properties

To access a channel-based property, you must wire an Active Channel of an [NI-DCPower property node](#). The Active Channel is listed first in the property node. To access a device-based property, do not wire an Active Channel or wire an empty string.

## **Properties with Multiple Channels**

You can specify multiple channels by using a channel list or a channel range. A channel list is a comma (,) separated sequence of channel names (e.g. 0,2 specifies channels 0 and 2). A channel range is a lower bound channel followed by a hyphen (-) or colon (:) followed by an upper bound channel (e.g. 0-2 specifies channels 0, 1, and 2). In Immediate mode, multiple output channel configurations are performed sequentially based on the order specified in Active Channel.