Rev. 2 - May 7th 2021

LabView Driver

Power Supply Modules LabVIEW Instrument Driver

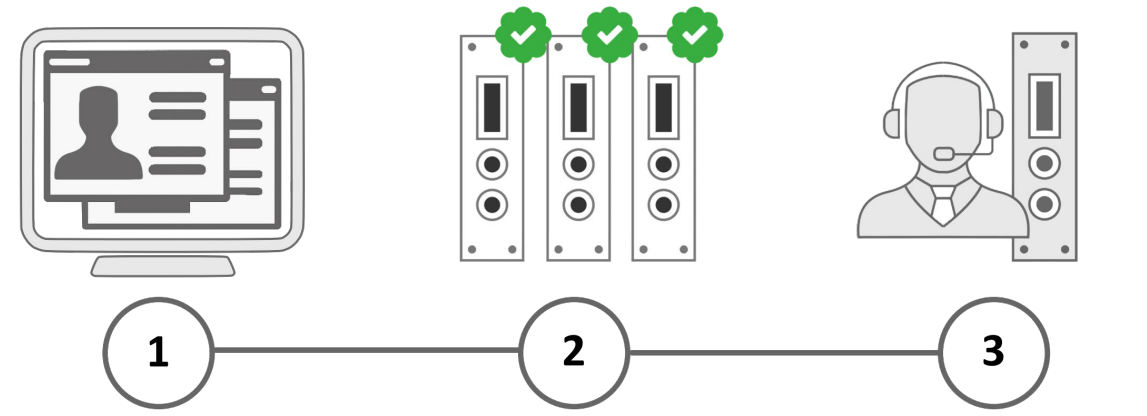
CAEN
Tools for Discovery

User Manual
UM2824

Register your device

Register your device to your **MyCAEN+** account and get access to our customer services, such as notification for new firmware or software upgrade, tracking service procedures or open a ticket for assistance. **MyCAEN+** accounts have a dedicated support service for their registered products. A set of basic information can be shared with the operator, speeding up the troubleshooting process and improving the efficiency of the support interactions.

MyCAEN+ dashboard is designed to offer you a direct access to all our after sales services. Registration is totally free, to create an account go to https://www.caen.it/become-mycaenplus-user and fill the registration form with your data.



https://www.caen.it/become-mycaenplus-user/

Purpose of this User Manual

This User's Manual contains the full description of the **Power Supply Modules LabVIEW Instrument Driver**

Change Document Record

Date	Revision	Changes
2 March 2015	0	First issue of the document
12 September 2019	1	Updated with support for DT55xxE
7 May 2021	2	Updated to CAEN PSM-InstrumentDriver-2.0 (support for SMART HV)

Symbols, abbreviated terms and notation

Not available

Reference Document

[RD1] N1470 - Programmable HV Power Supply user manual

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1 Overview

Power Supply Modules LabVIEW Instrument Driver is a set of VI'S, developed for LabVIEW 2017 and later releases (*LabVIEW™ is a Trademark of National Instruments Corp.*), that allow to configure and monitor all parameters of remotely controlled CAEN Progammable HV Power Supply modules. The supported power supplies (so far) are: DT-N-R-803x, DT-N-NDT-R-14xx, DT55xxE and DT55xx families.

System requirements and installation setup

Host PC running LabVIEW 2017 or later releases and NI-VISA Run-Time Engine 17.0

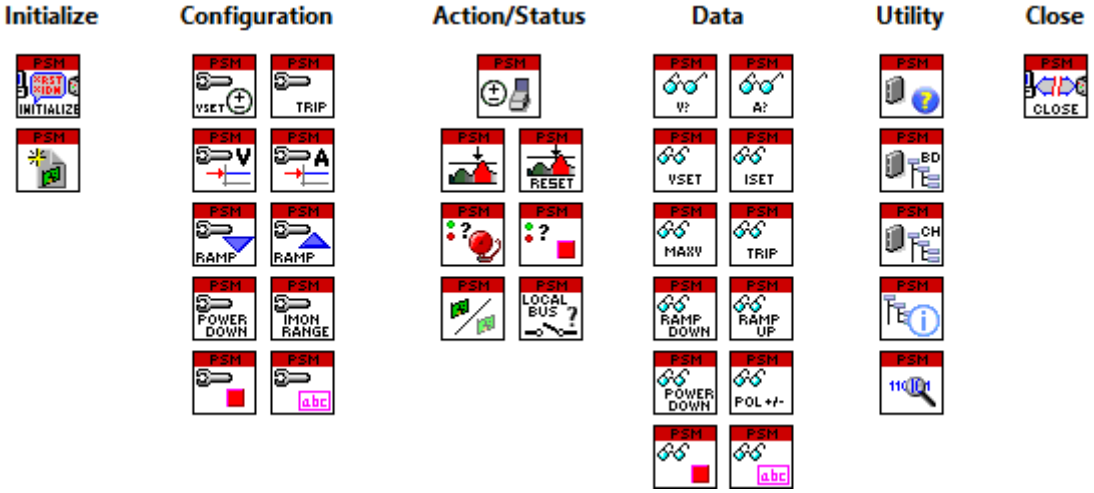
LabVIEW™ is a Trademark of National Instruments Corp.

In order to install the **Power Supply Modules LabVIEW Instrument Driver**:

- Go to CAEN web site in the "Software" area of any NIM/Desktop/Rack Progammable HV Power Supply page.
- Download the **Power Supply Modules LabVIEW Instrument Driver installation package**
- Extract files related to your host PC
- Follow the Set Up wizard instructions

2 Function Classification

Power Supply Modules LabVIEW Instrument Driver Vis are divided into 5 groups:



- Device Initialization/Termination VI's

  CAEN PSM.lvlib:Initialize.vi

  CAEN PSM.lvlib:OpenBoard.vi

  CAEN PSM.lvlib:Close.vi

- Configuration VI's

  CAEN PSM.lvlib:Configure VSET.vi

  CAEN PSM.lvlib:Configure TRIP.vi

  CAEN PSM.lvlib:Configure MAXV.vi

  CAEN PSM.lvlib:Configure ISET.vi

  CAEN PSM.lvlib:Configure RAMP UP.vi

  CAEN PSM.lvlib:Configure RAMP DOWN.vi

  CAEN PSM.lvlib:Configure POWER DOWN.vi

  CAEN PSM.lvlib:Configure IMON RANGE.vi

  CAEN PSM.lvlib:Configure INTERLOCK Mode.vi

  CAEN PSM.lvlib:Configure parameter.vi

- Action/Status VI's

  CAEN PSM.lvlib:Channel Power Enable.vi

  CAEN PSM.lvlib:Channel Status.vi

  CAEN PSM.lvlib:Clear alarm signal.vi

  CAEN PSM.lvlib:Board Alarm Status.vi

  CAEN PSM.lvlib:INTERLOCK Status.vi

  CAEN PSM.lvlib:Control Mode.vi

  CAEN PSM.lvlib:Local Bus Termination.vi

- Data VI's

  CAEN PSM.lvlib:Read out VMON.vi

  CAEN PSM.lvlib:Read out IMON.vi

  CAEN PSM.lvlib:Read out VSET.vi

CAEN PSM.lvlib:Read out ISET.vi

CAEN PSM.lvlib:Read out MAXVSET.vi

CAEN PSM.lvlib:Read out TRIP.vi

CAEN PSM.lvlib:Read out RAMP UP.vi

CAEN PSM.lvlib:Read out RAMP DOWN.vi

CAEN PSM.lvlib:Read out POWER DOWN.vi

CAEN PSM.lvlib:Read out POLARITY.vi

CAEN PSM.lvlib:Read out INTERLOCK Mode.vi

CAEN PSM.lvlib:Read out parameter.vi

- Utility VI's

CAEN PSM.lvlib:Module Info.vi

CAEN PSM.lvlib:Debug Command.vi

CAEN PSM.lvlib:Board Parameters List.vi

CAEN PSM.lvlib:Channel Parameters List.vi

CAEN PSM.lvlib:Parameter Info.vi

Data types


Cluster (error codes)


Cluster (various)


Cluster (numeric)

Input / Output name

Boolean

String

32bit integer

32bit unsigned integer numeric

16bit unsigned integer numeric

8-bit unsigned integer numeric

Single-precision, floating-point numeric

Double-precision, floating-point numeric

3 Function Description

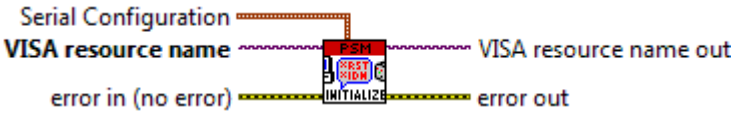
The present sections describe in detail the **Power Supply Modules LabVIEW Instrument Driver**; more details about parameters description and ranges can be found on the Power Supply Modules User's Manual, as well as the required hardware configuration.

Iniatilize and Close VI's

Initialize.vi

Establishes communication with the. Therefore, call this VI before calling other instrument driver VIs for this instrument. Generally, you need to call the Initialize VI only once at the beginning of an application.

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

VISA[1] resource name Specifies which instrument to use. Instruments that are powered on and connected to your computer are visible in the **VISA resource name** pull-down menu. Select the resource name from the **VISA resource name** pull-down menu.
Examples:
Serial: COM1
Refer to the LabVIEW Help for more information about specifying a VISA resource name.

Serial Configuration This control sets the settings that will be used if initializing a device with a serial interface.
These settings must match those on the actual instrument.

Baud Rate Specifies the rate at which data is transmitted across the serial interface.

Parity Specifies which kind of parity is used for error checking.

[1] Virtual Instrument Software Architecture, commonly known as VISA, is a widely used I/O API in the test and measurement (T&M) industry for communicating with instruments from a PC. VISA is an industry standard implemented by several T&M companies. The VISA standard includes specifications for communication with resources (usually, but not always, instruments) over T&M-specific I/O interfaces such as GPIB and VXI. There are also some specifications for T&M-specific protocols over PC-standard I/O, such as HiSLIP or VXI-11 (over TCP/IP) and USBTMC (over USB).

Data Bits Specifies the number of bits used for data transmission.

Stop Bits Specifies the number of stop bits in each frame.

Flow Control Specifies the protocol that is used across the interface for data transmission.

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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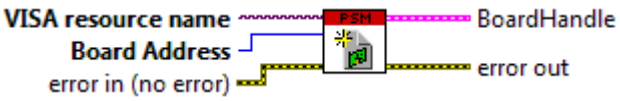
source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

VISA resource name out A copy of the reference to the instrument in use. The reference to the resource name is created in the Initialize VI. Wire the **VISA resource name out** terminal of the Initialize VI to subsequent **VISA resource name** input terminals. You chain instrument driver VIs together by wiring the **VISA resource name out** terminal to subsequent **VISA resource name** input terminals.

OpenBoard.vi

This function allows to open the device. Therefore, call this VI after calling Initialize.vi. You need to call this function more times if you use several boards in daisy chain.

Connector Pane



Controls and Indicators

Board Address is the Local Bus address for remote communication (0÷31). This value is programmed locally on the board (for NIM / DESKTOP HV). Use value -1 for DT55XXE family and -2 for SMART HV family.

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

VISA resource name is the reference to the resource name is created in the Initialize VI

BoardHandle is a reference to an open board. Wire the BoardHandle terminal of the OpenBoard VI to subsequent BoardHandle input terminals.

You can chain Library VIs together by wiring the BoardHandle out terminal to subsequent BoardHandle input terminals.

VISA resource name

Board address

NChannels

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source string describes the origin of the error or warning.
Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Close.vi

This function terminates the software connection to the instrument.

Connector Pane

Controls and Indicators

VISA resource name A reference to the instrument in use. The reference to the resource name is created in the Initialize VI. Therefore, before calling this VI, you need to call the Initialize VI. To run this VI interactively, select the previously initialized resource name from the pull-down menu. To run this VI programmatically, wire the **VISA resource name out** terminal of the Initialize VI to subsequent **VISA resource name** input terminals. You chain instrument driver VIs together by wiring the **VISA resource name out** terminal to subsequent **VISA resource name** input terminals.

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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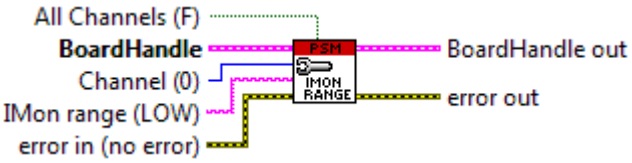
Configuration VI's

Configure IMON RANGE.vi

This function allows to enable Current Monitor Zoom 10x (optional)

Connector Pane



Controls and Indicators

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

IMon range (LOW) Current Monitor Zoom 10x (optional). The admitted values are: HIGH or LOW

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Channel (0) : channel number; meaningless if All Channels is set to TRUE; Default 0

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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source string describes the origin of the error or warning.
Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Configure INTERLOCK Mode.vi

This function allows to select Interlock logic

Connector Pane

Controls and Indicators

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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Interlock mode is the logic of Interlock. The admitted values are: OPEN or CLOSE

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

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Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

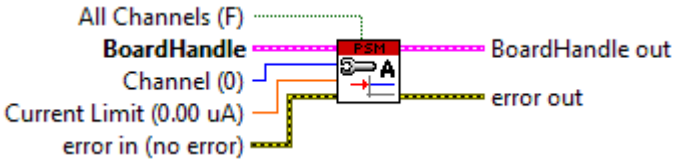
Board address

NChannels

Configure ISET.vi

This function allows to configure Iset

Connector Pane



Controls and Indicators

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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Current Limit (0.00 uA) Current Limit programmed value

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel (0) channel number; meaningless if All Channels is set to TRUE; Default 0

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

error out passes error or warning information out of a VI to be used by other VIs.
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source describes the origin of the error or warning.
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BoardHandle out

VISA resource name

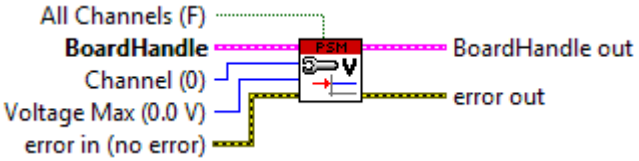
Board address

NChannels

Configure MAXV.vi

This function allows to configure Software VMax value

Connector Pane



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source describes the origin of the error or warning.
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Voltage Max (0.0 V) Absolute maximum High Voltage level that the channel is allowed to reach

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel (0) channel number; meaningless if All Channels is set to TRUE; Default 0

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

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BoardHandle out

VISA resource name

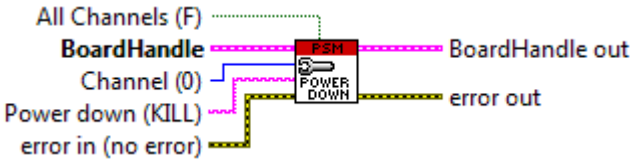
Board address

NChannels

Configure POWER DOWN.vi

This function allows to configure Power Down mode

Connector Pane



Controls and Indicators

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Power down (KILL) Power Down mode after channel TRIP. The admitted values are: RAMP or KILL

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
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  Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** string describes the origin of the error or warning.
  Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

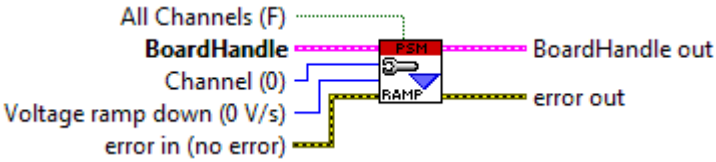
BoardHandle out

- **VISA resource name**
- **Board address**
- **NChannels**

Configure RAMP DOWN.vi

This function allows to configure Voltage Ramp Down rate

Connector Pane



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  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **code** is the error or warning code.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** describes the origin of the error or warning.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Voltage ramp down (0 V/s) Maximum High Voltage decrease rate

BoardHandle is a reference to an open board

- **VISA resource name**

Board address

NChannels

Channel (0)

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

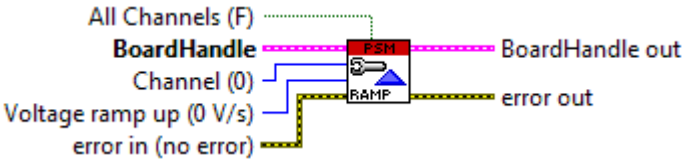
Board address

NChannels

Configure RAMP UP.vi

This function allows to configure Voltage Ramp Up rate

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Voltage ramp up (0 V/s) Maximum High Voltage increase rate

BoardHandle

VISA resource name

Board address

NChannels

Channel (0) channel number; meaningless if All Channels is set to TRUE; Default 0

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

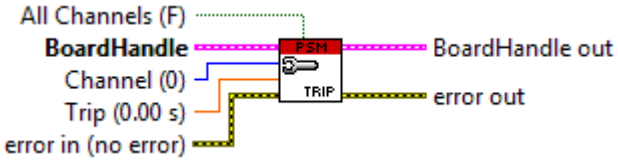
Board address

NChannels

Configure TRIP.vi

This function allows to configure Ouput Trip time

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Trip (0.00 s) Maximum time an "overcurrent" is allowed to
last expressed in seconds

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel (0) channel number; meaningless if All Channels is set to TRUE; Default 0

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

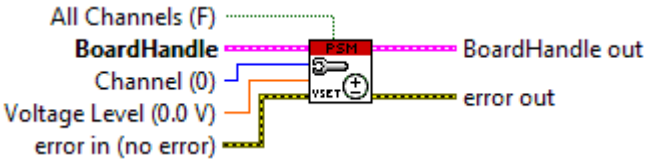
Board address

NChannels

Configure VSET.vi

This function allows to configure Vset

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code. Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning. Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Voltage Level (0.0 V) High Voltage programmed value

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel (0) channel number; meaningless if All Channels is set to TRUE; Default 0

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

error out passes error or warning information out of a VI to be used by other VIs. Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred. Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code. Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning. Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

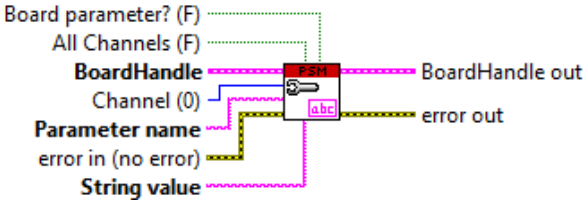
Board address

NChannels

Configure parameter.vi

This function allows configuring a parameter indicated in the input (both of board and channel). The value to be set is in string format.

Connector Pane



Controls and Indicators

error in (no error)

error in can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

String value

High Voltage programmed Value to configure. It must be a string that conforms to the type of the parameter

BoardHandle

BoardHandle is a reference to an open board.

VISA resource name

Board address

NChannels

Channel (0)

channel number; channel number; setting is required if All Channels is set to FALSE, while setting is not needed if Board parameter? is set to TRUE.

All Channels (F)

if TRUE, setting is extended to all channels (can be set TRUE only Board parameter? is FALSE). Default: FALSE

Parameter name

High Voltage programmed value; Set to TRUE for the board parameters. Default: FALSE

Board parameter? (F)

Set to TRUE for the board parameters. Default: FALSE

error out

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

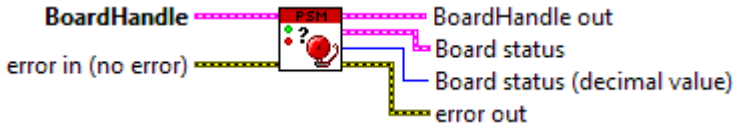
NChannels

Action and Status VI's

Board Alarm Status.vi

This function reports board alarm status

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

- **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **code** is the error or warning code.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** describes the origin of the error or warning.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

- **VISA resource name**
- **Board address**
- **NChannels**

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

- **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **code** is the error or warning code.
  Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** describes the origin of the error or warning.
  Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

- **VISA resource name**
- **Board address**

NChannels

Board status is a cluster that reports alarm status of the channels or board. (This bit configuration is valid only for NIM / DESKTOP family). Use the Board status in decimal value for all families.

CH0 if TRUE Ch0 in Alarm status

CH1 if TRUE Ch1 in Alarm status

CH2 if TRUE Ch2 in Alarm status

CH3 if TRUE Ch3 in Alarm status

PWFAIL if TRUE Board in POWER FAIL

OVP if TRUE Board in OVER POWER

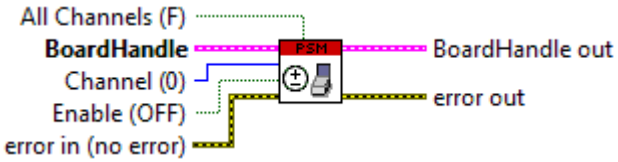
HVCKFAIL if TRUE Internal HV Clock FAIL

Board status (decimal value)

Channel Power Enable.vi

Enables or disables the output of the power supply.

Connector Pane



Controls and Indicators

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Enable (OFF) if TRUE set the channel ON; if FALSE set the channel OFF

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

Channel (0) channel number; meaningless if All Channels is set to TRUE; Default 0

All Channels (F): if TRUE setting is extended to all channels; default: FALSE

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

- **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **code** is the error or warning code.
  Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** string describes the origin of the error or warning.
  Right-click the **error out** indicator on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

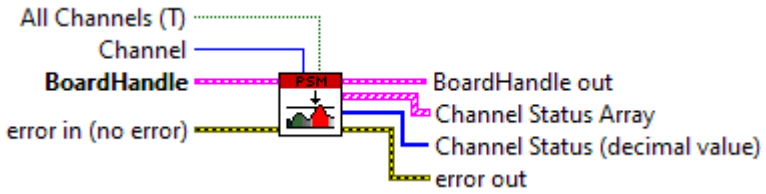
BoardHandle out

- **VISA resource name**
- **Board address**
- **NChannels**

Channel Status.vi

Returns status for channels or a desired channel.

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

- **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **code** is the error or warning code.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** describes the origin of the error or warning.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

- **VISA resource name**
- **Board address**

NChannels

Channel channel number; set is required if All Channels is set to FALSE

All Channels (T): if FALSE, the output will refer only to the desired channel; default: TRUE

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Channel Status Array: array of cluster with status of the channels. By the Index Array Function you can get the cluster with the status for each channel. If All Channels is FALSE the array contains one cluster with status of the desired channel. (This bit configuration is valid only for NIM / DESKTOP family). Use the Channel status in decimal value for all families.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

ON: indicates whether the channel is powered

RUP: indicates whether the channel is performing a voltage ramp-up

RDW: indicates whether the channel is performing a voltage ramp-down

OVC: indicates whether the channel is Over Current

OVV: indicates whether the channel is Over Voltage

UNV: indicates whether the channel is Under Voltage

MAXV: indicates whether the channel is in MAXV protection

TRIP indicates whether the channel will shutdown due to the trip time

OVP: indicates whether the channel is Over Power Max

OVT: indicates whether the channel is Over Temperature

DIS: indicates whether the channel is disables

KILL: indicates whether the channel is in KILL via frontal panel

ILK: indicates whether the channel is in INTERLOCK via frontal panel

NOCAL: indicates there is a calibration error

Channel Status
output Channel Status (decimal value)

Clear alarm signal.vi

Resets the status of alarms that occurred

Connector Pane

Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Control Mode.vi

This function allows to select control mode. (This function is not supported by DT55XXE family)

Connector Pane

Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Control mode can be the string LOCAL or REMOTE and indicates the Control mode set for the board

Remote enable is TRUE if Remote Control is enabled

INTERLOCK Status.vi

This function returns interlock status

Connector Pane

Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

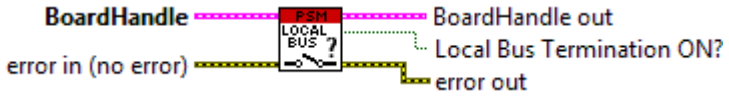
NChannels

Interlock status indicates the INTERLOCK status; if TRUE the board is in the INTERLOCK

Local Bus Termination.vi

This function returns bus termination status. (This is supported by NIM / DESKTOP HV family).

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

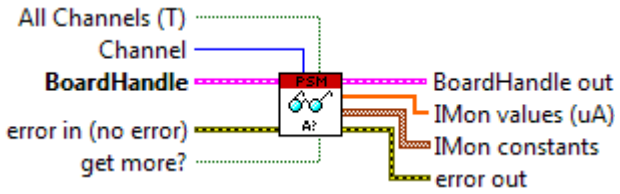
Local Bus Termination ON If TRUE the Local Termination is ON

Data VI's

Read out IMON.vi

This function returns Imon value

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) if FALSE, the output will refer only to the desired channel; default: TRUE;

get more? If TRUE, get more constant information releated a this paramter and return these in acluster .
The default is FALSE.
If is TRUE the VI require more time to execution

error out passes error or warning information out of a VI to be used by other VIs.
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Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

IMon values (uA) array of values. By the Index Array Function you can get the value for each channel. If All Channels is FALSE the array contains one element with value of the desired channel.

IMon value

IMon constants arary array of cluster with constant information for this parameter

IMon constants

Range

Digits of precision

Read out INTERLOCK Mode.vi

This function returns interlock mode

Connector Pane

Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

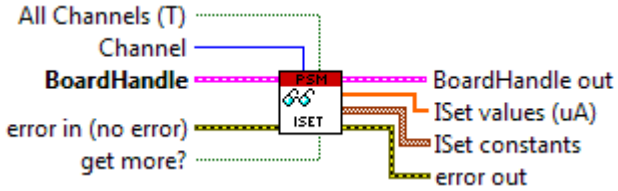
NChannels

Interlock Mode is the logic of Interlock. The values can be: OPEN or CLOSE

Read out ISET.vi

This function returns Iset value

Connector Pane



Controls and Indicators

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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T): if FALSE, the output will refer only to the desired channel; default: TRUE;

get more? If TRUE, get more constant information releated a this paramter and return these in acluster.
If is TRUE the VI require more time to execution.

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

ISet values (uA) array of values. By the Index Array Function you can get the value for each channel. If All Channels is FALSE the array contains one element with value of the desired channel

ISet value

ISet constants array of cluster with constant information for this parameter

ISet constant

Min

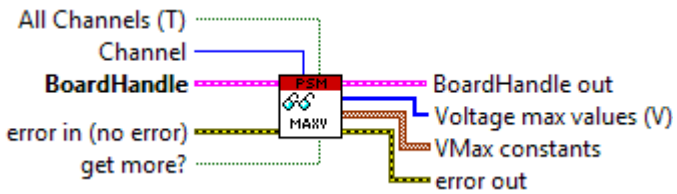
Max

Digits of precision

Read out MAXVSET.vi

This function returns Software MaxV value

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;

get more? If TRUE, get more constant information releated a this paramter and return these in acluster .
The default is FALSE.
If is TRUE the VI require more time to execution**.**

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source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Voltage max values (V) array of values. By the Index Array Function you can get the value for each channel.
If All Channels is FALSE the array contains one element with value of the desired channel

Voltage max value

VMax constants array of cluster with constant information for this parameter

VMax constant

Min

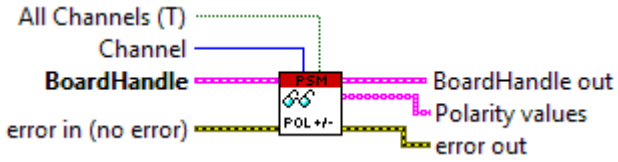
Max

Digits of precision

Read out POLARITY.vi

This function returns channels polarity

Connector Pane



Controls and Indicators

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BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

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BoardHandle out

VISA resource name

Board address

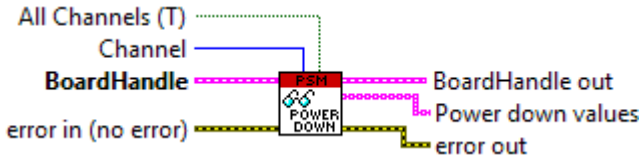
NChannels

Polarity values

Read out POWER DOWN.vi

This function returns Power Down mode

Connector Pane



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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;

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source describes the origin of the error or warning.
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BoardHandle out

VISA resource name

Board address

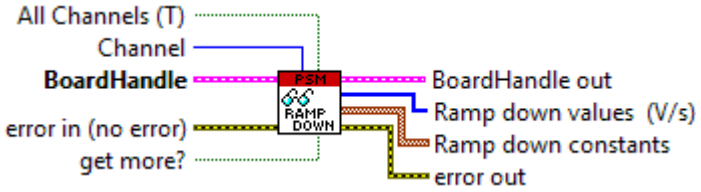
NChannels

Power down values

Read out RAMP DOWN.vi

This function returns Ramp Down rate

Connector Pane



Controls and Indicators

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source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;

get more? If **get more?** is TRUE, get more information from a parameter return in a cluster . The default is FALSE.
If is TRUE the VI require more time to execution.

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

- **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **code** is the error or warning code.

  Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** describes the origin of the error or warning.
  Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

- **VISA resource name**
- **Board address**
- **NChannels**

Ramp down values (V/s)

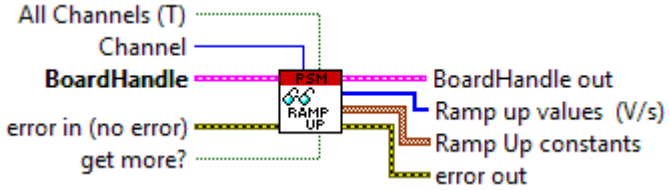
Ramp down constants

- **Min**
- **Max**
- **Digits of precision**

Read out RAMP UP.vi

This function returns Ramp Up rate

Connector Pane



Controls and Indicators

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Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;

get more? If **get more?** is TRUE, get more information from a parameter return in a cluster . The default is FALSE.
If is TRUE the VI require more time to execution.

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Ramp up values (V/s)

Ramp Up constants

Min

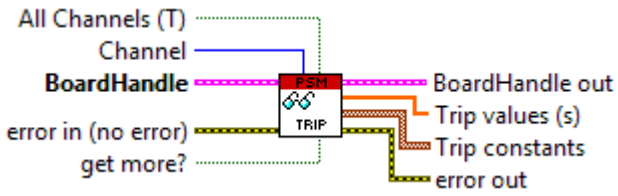
Max

Digits of precision

Read out TRIP.vi

This function returns Trip time

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;

get more? If TRUE, get more constant information releated a this paramter and return these in acluster .
The default is FALSE.
If is TRUE the VI require more time to execution**.**

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Trip values (s) array of values. By the Index Array Function you can get the value for each channel. If All Channels is FALSE the array contains one element with value of the desired channel

Trip value

Trip constants array of cluster with constant information for this parameter

Trip constant

Min

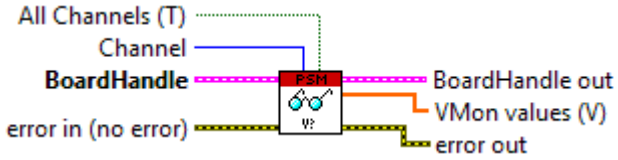
Max

Digits of precision

Read out VMON.vi

This function returns VMon value

Connector Pane



Controls and Indicators

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Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

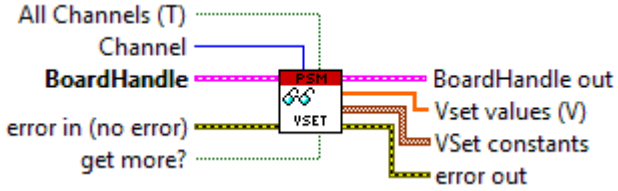
NChannels

VMon values (V) array of values. By the Index Array Function you can get the value for each channel. If All Channels is FALSE the array contains one element with value of the desired channel

Read out VSET.vi

This function returns VSet value

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.


BoardHandle is a reference to an open board


VISA resource name


Board address


NChannels


Channel channel number; set is required if All Channels is set to FALSE;


All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;


get more? If TRUE, get more constant information releated a this paramter and return these in acluster . The default is FALSE.
If is TRUE the VI require more time to execution**.**


error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.


status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred. Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.


code is the error or warning code. Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.


source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.


BoardHandle out


VISA resource name


Board address


NChannels


Vset values (V) array of values. By the Index Array Function you can get the value for each channel. If All Channels is FALSE the array contains one element with value of the desired channel


Vset value


VSet constants array of cluster with constant information for this parameter


VSet constant

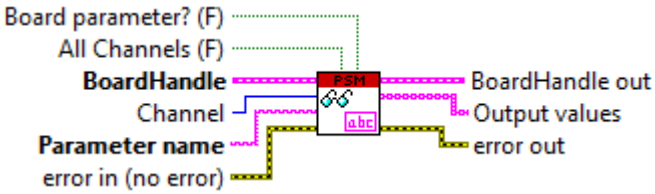

Min


Max


Digits of precision

Read out parameter.vi

This function allows reading a parameter indicated in the input (both of board and channel). The value will be returned as a string.
Connector Pane



Controls and Indicators

error in (no error)

error in can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle

BoardHandle is a reference to an open board.

VISA resource name

Board address

NChannels

Channel

channel number; setting is required if All Channels is set to FALSE, while setting is not needed if Board parameter? is set to TRUE.

All Channels (F)

if TRUE, the array output will have values of all channels (can be set TRUE only Board parameter? is FALSE). Default: FALSE

Board parameter? (F)

Set to TRUE for the board parameters. Default: FALSE

Parameter name

Name of the parameter to read

error out

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Output values

array of values. By the Index Array Function you can get the value for each channel. If All Channels is FALSE the array contains one element with value of the desired channel.

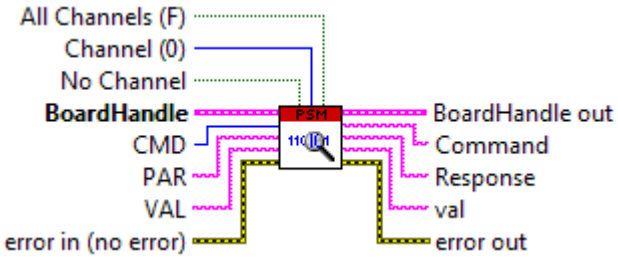
Polarity value

Utility VI's

Debug Command.vi

This function can be used for debug purpose. This allows to prepare and forward a command and view the received response string

Connector Pane



Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

- **status** is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **code** is the error or warning code.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.
- **source** describes the origin of the error or warning.
  Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

- **VISA resource name**
- **Board address**
- **NChannels**

Channel channel number; set is required if All Channels is set to FALSE;

All Channels (T) : if FALSE, the output will refer only to the desired channel; default: TRUE;

CMD MON (monitor) or SET. In addition INFO, only for SMART HV.

PAR parameter to be monitor or set

VAL If required, value to set

No Channel set TRUE for commands related to the module; FALSE for commands related to the channels

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

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

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

val If expected, the value field in the response

Response Response received from board

Command Command sent to board

Module Info.vi

This function returns some information of the board

Connector Pane

Controls and Indicators

error in (no error) can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle is a reference to an open board

VISA resource name

Board address

NChannels

error out passes error or warning information out of a VI to be used by other VIs.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status is TRUE (X) if an error occurred or FALSE (checkmark) to indicate a warning or that no error occurred.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code is the error or warning code.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source describes the origin of the error or warning.
Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Module Info is a cluster with some information on the board

Name

Num. Channels

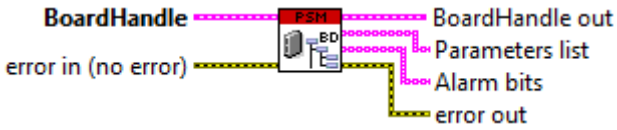
Firmware Release

Serial Num.

Board Parameters List.vi

This function returns the list of board parameters supported by the device

Connector Pane



Controls and Indicators

error in (no error)

error in can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle

BoardHandle is a reference to an open board.

VISA resource name

Board address

NChannels

error out

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Parameters list

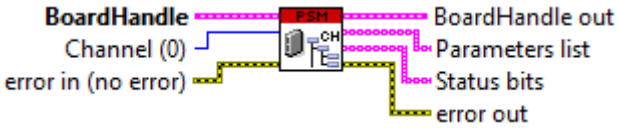
String

Alarm bits specifies the meaning of the bits of the BDALARM parameter

Channel Parameters List.vi

This function returns the list of channel parameters supported by the device

Connector Pane



Controls and Indicators

error in (no error)

error in can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle

BoardHandle is a reference to an open board.

VISA resource name

Board address

NChannels

Channel (0)

channel number.

error out

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Parameters list

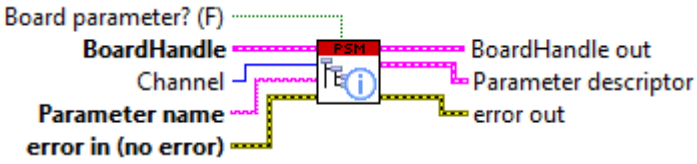
String

Status bits specifies the meaning of the bits of the CHSTATUS type parameter

Parameter Info.vi

This function returns information of a parameter indicated in the input (both of board and channel).

Connector Pane



Controls and Indicators

error in (no error)

error in can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error in** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle

BoardHandle is a reference to an open board.

VISA resource name

Board address

NChannels

Channel

channel number; setting is not needed if Board parameter? is set to TRUE.

Parameter name Name of the parameter to read

Board parameter? (F) Set to TRUE for the board parameters. Default:FALSE

error out

error out passes error or warning information out of a VI to be used by other VIs.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

status

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

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

code

code is the error or warning code.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

source

source describes the origin of the error or warning.

Right-click the **error out** control on the front panel and select **Explain Error** or **Explain Warning** from the shortcut menu for more information about the error.

BoardHandle out

VISA resource name

Board address

NChannels

Parameter descriptor


Type parameter type (NUMERIC, ONOFF, CHSTATUS, BDSTATUS, BINARY, STRING, ENUM)


Acc parameter access (READ, WRITE, READ/WRITE)


Min minimun value


Max maximun value


Dec number of decimal digits


Res resolution; the allowed increment of the numerical parameters is 1 divided by the resolution


Exp exponential of unit of measure


Um unit of measure


On_state ON value of the ONOFF type parameter


Off_State OFF value of the ONOFF type parameter

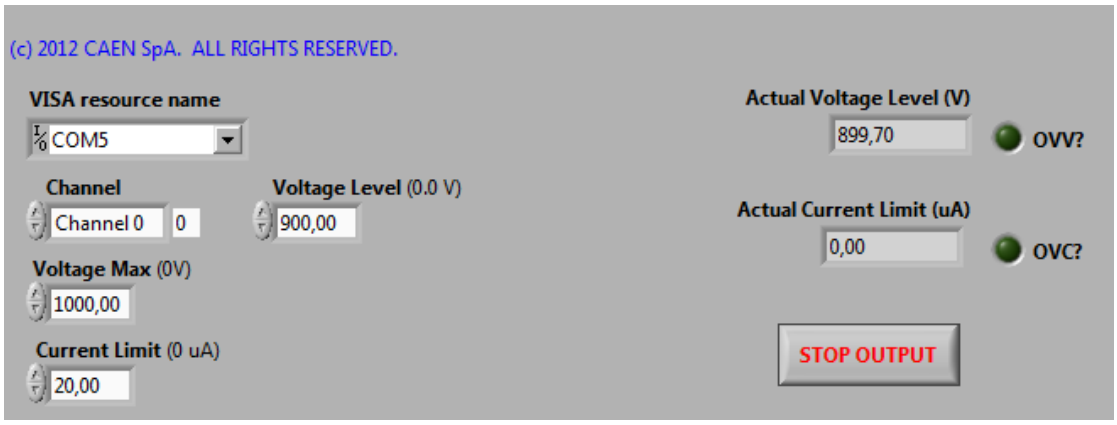
4 Application Softwares

The present section describes two applications provided as examples of Power Supply Modules LabView Instrument Driver usage; they are provided both as excutable file and source code. In order to install them, follow these steps:

- have the Power Supply Modules LabView Instrument Driver installed
- go to CAEN web site in the “Software” area of any NIM/Desktop/Rack Progammable HV Power Supply page
- download the Power Supply Modules application related to your OS.
- unzip the downloaded package
- launch the Installation set up file
- follow the installer instructions

Power Supply Modules LabView Channel Output Setting

This is a very simple example that allows to set output voltage and current limits to all channels

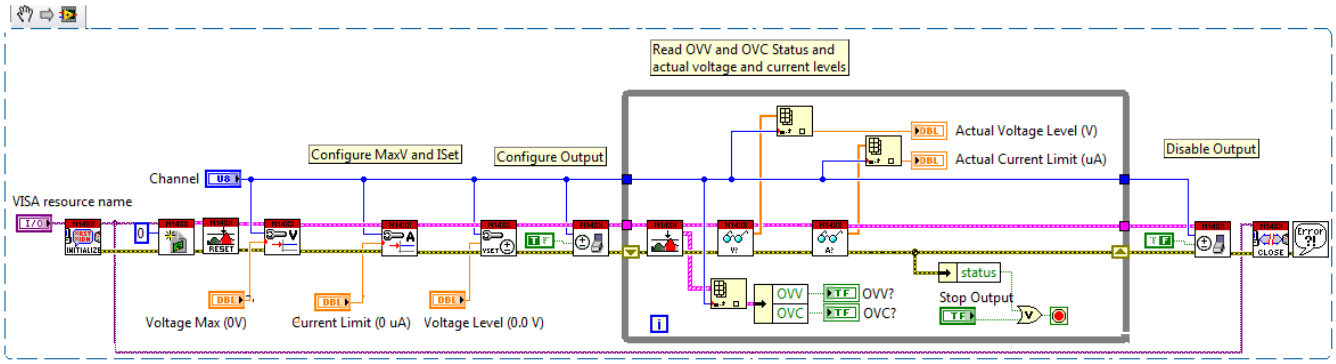


In order to do this:

- Select the host port (VISA Resource Name)
- Select the Channel number
- Set Voltage and Current Software limits
- Set Output Voltage

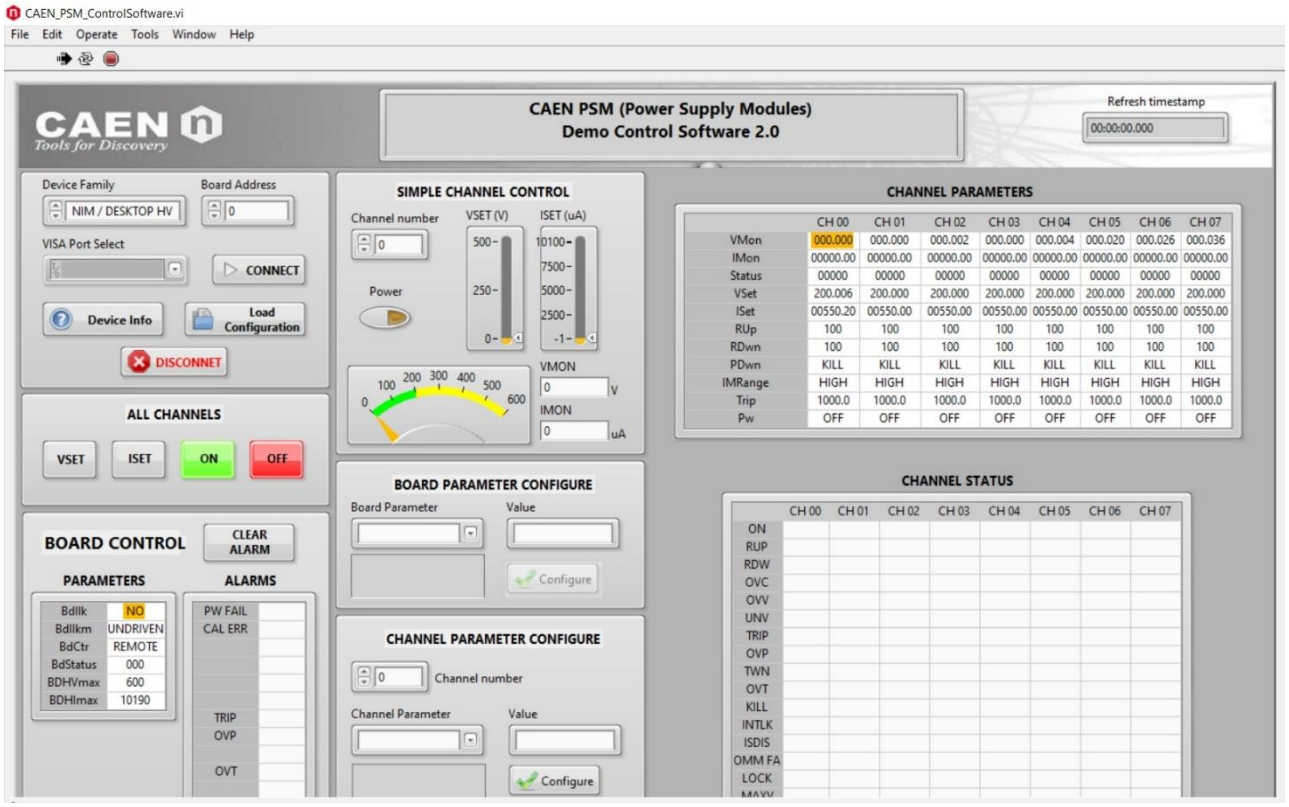
The boxes on the right monitor Output values and signal possible OVC and OVV alarms
The STOP button allows to shut down the channel

The project layout of the PSM Channel Output Setting application is the following:



Power Supply Modules LabView Control Software

This is a demo control software that allows to set and monitor, through a graphical interface, all the modules functional parameters:



Select the Board to communicate with, by setting the board family and board address (if present), then confirm with [CONNECT] in the **Connection** box:

“Disconnect” button allows to quit the device.

“Device info” button allows to access to module information.

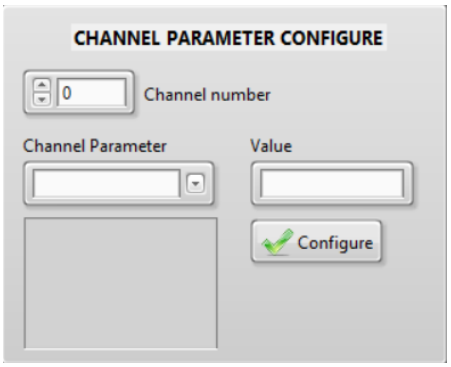
“Load Configuration” allows to load a file with proper settings: click it then browse and select the desired file (for example: *Configuration_N1470.ini*)

Configuration files shall have the following layout:

```
[Module Settings]
;Set Interlock mode (OPEN / CLOSED)
BDILMKM = CLOSED

[Channel Setting #00]
VSET = 0.0
ISET = 3100.00
MAXV = 8100
RUP = 500
RDW = 500
TRIP = 10.0
```

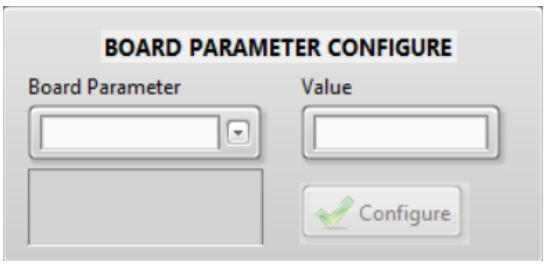
```
;Set Power Down mode (RAMP / KILL)
PDWN = KILL
;Set IMON RANGE (HIGH / LOW)
IMRANGE = HIGH

[Channel Setting #01]
VSET = 0.0
ISET = 3100.00
MAXV = 8100
RUP = 500
RDW = 500
TRIP = 10.0
;Set Power Down mode (RAMP / KILL)
PDWN = KILL
;Set IMON RANGE (HIGH / LOW)
IMRANGE = HIGH

[Channel Setting #02]
VSET = 0.0
ISET = 3100.00
MAXV = 8100
RUP = 500
RDW = 500
TRIP = 10.0
;Set Power Down mode (RAMP / KILL)
PDWN = KILL
;Set IMON RANGE (HIGH / LOW)
IMRANGE = HIGH

[Channel Setting #03]
VSET = 0.0
ISET = 3100.00
MAXV = 8100
RUP = 500
RDW = 500
TRIP = 10.0
;Set Power Down mode (RAMP / KILL)
PDWN = KILL
;Set IMON RANGE (HIGH / LOW)
IMRANGE = HIGH
```

Channel Parameter Configure box allow to set Channel parameters:



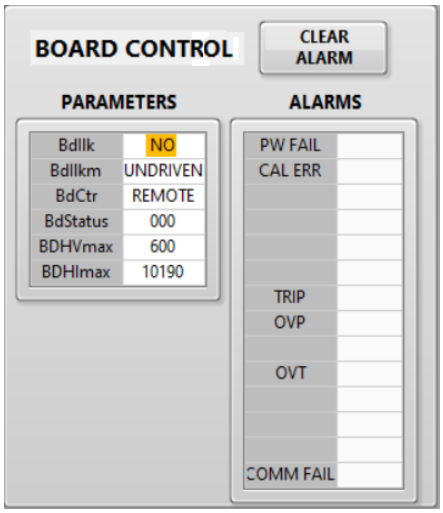
Select the Channel number and parameter, then enter the set value and confirm with “Configure”.

Board Parameter Configure box allow to set board parameters:



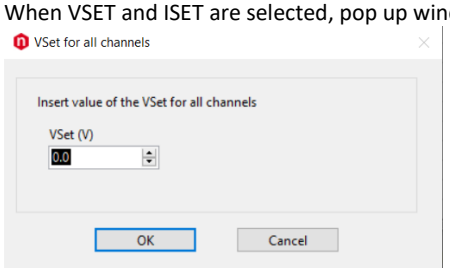
Select the parameter, then enter the set value and confirm with “Configure”.

The **Board Control** box allows to monitor board settings; “Clear Alarm” button allows to remove all alarm conditions.

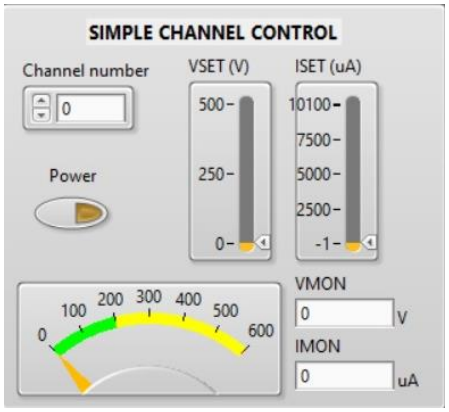


The **All-Channels** box allows to perform group settings (VSET/ISET) and to turn all channels ON/OFF:

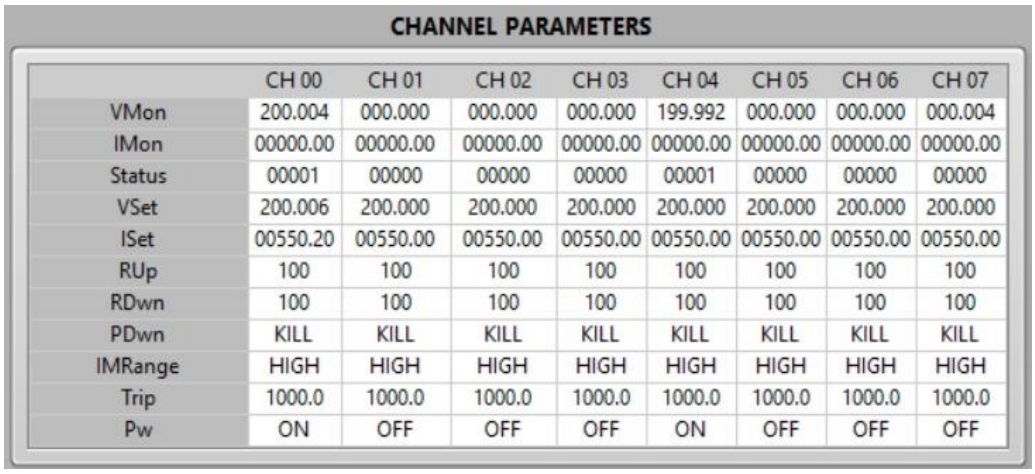
When VSET and ISET are selected, pop up windows will open:



The **Simple Channel Control** box allows to turn ON one channel per time, and to set and monitor its voltage and current output values:



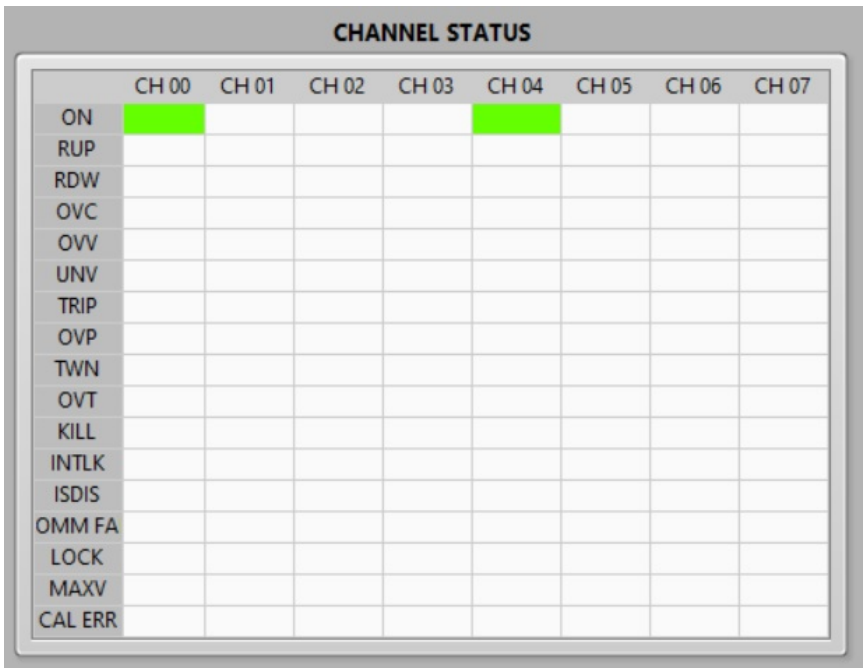
The **Channels Parameters** box allows to monitor the parameters values of all channels:



CHANNEL PARAMETERS

	CH 00	CH 01	CH 02	CH 03	CH 04	CH 05	CH 06	CH 07
VMon	200.004	000.000	000.000	000.000	199.992	000.000	000.000	000.004
IMon	00000.00	00000.00	00000.00	00000.00	00000.00	00000.00	00000.00	00000.00
Status	00001	00000	00000	00000	00001	00000	00000	00000
VSet	200.006	200.000	200.000	200.000	200.000	200.000	200.000	200.000
ISet	00550.20	00550.00	00550.00	00550.00	00550.00	00550.00	00550.00	00550.00
RUp	100	100	100	100	100	100	100	100
RDwn	100	100	100	100	100	100	100	100
PDwn	KILL	KILL	KILL	KILL	KILL	KILL	KILL	KILL
IMRange	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Trip	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0
Pw	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF

The **Channel Status** box reports the flags of the relevant channels status bits; “true” = high lit in green (ON, RUP, RDW) or red (Alarm condition).



CHANNEL STATUS

	CH 00	CH 01	CH 02	CH 03	CH 04	CH 05	CH 06	CH 07
ON								
RUP								
RDW								
OVC								
OVV								
UNV								
TRIP								
OVP								
TWN								
OVT								
KILL								
INTLK								
ISDIS								
OMM FA								
LOCK								
MAXV								
CAL ERR								

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