



OSI *Ohio Semitronics, Inc.*

The **LEADER** in power measurement

ISO 9001 : 2008 CERTIFIED

USER'S MANUAL FOR PDM DRIVER VIs



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Introduction

This manual contains information on the Virtual Instruments (VIs) created for use with OSI model PDM Power Display meters. This collection of virtual instrument PDM drivers for LabVIEW™ can be used to create your own PDM applications.

NOTE: Do not execute a command to the PDM more than once per second. Doing so for several minutes will prevent the PDM from collecting data correctly. The time limit inputs on the driver VI's can be overridden by external loops, so make sure that data polling is indeed no more than once per second. (Read Data and Read Register each count as one command, so when polling using both, the overall rate is a full reading every 2 seconds – one second per command.)

OSI PDM VI Tree.vi

This is the instrument driver for the PDM series. The VI Tree displays all available VIs in an organized table.

Connector Pane



OSI PDM Application Example.vi

This VI allows testing of all OSI PDM driver VIs and provides an example of how to use them. This is a simplified application example compared to the standalone monitor also packaged with the drivers.

Connector Pane



OSI PDM Initialize.vi

This VI sets up a serial port for communicating with PDMs. It is not strictly necessary to use this VI, but it is a good idea to verify that the port is correct and open.

Connector Pane



Controls and Indicators



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status The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

I32 **code** The code input identifies the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

abc **source** The source string describes the origin of the error or warning.

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I32 **Port# In** When you use the serial port VIs under Windows, the port number parameter can have the following values:

0: COM1	5: COM6	10: LPT1
1: COM2	6: COM7	11: LPT2
2: COM3	7: COM8	12: LPT3
3: COM4	8: COM9	13: LPT4
4: COM5		

On the Macintosh, port 0 is the modem, using the drivers .ain and .aout. Port 1 is the printer, using the drivers.bin and .bout. To get more ports on a Macintosh, you must install other boards, with the accompanying drivers.

On SunOS, the default mapping for port numbers is /dev/ttya, /dev/ttyb, and so on.

On Solaris, the default mapping for port numbers is /dev/cua/a, /dev/cua/b, and so on.

On HP-UX, the default mapping for port numbers is /dev/tty00, /dev/tty01, and so on. NOTE that these defaults work for HP-UX 9.x but don't work for HP-UX 10.x. Use the serialDevices preference in your preferences file to adjust the names. On HP-UX 10.x the built-in serial ports are usually named /dev/tty0p0 and /dev/tty1p0.

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Port# Out When you use the serial port VIs under Windows, the port number parameter can have the following values:

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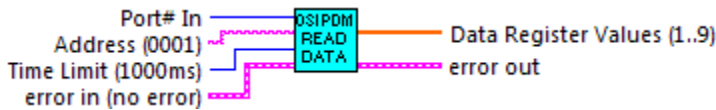
On HPUNIX, the default mapping for port numbers is /dev/tty00, /dev/tty01, and so on. NOTE that these defaults work for HPUNIX 9.x but don't work for HPUNIX 10.x. Use the serialDevices preference in your preferences file to adjust the names. On HPUNIX 10.x the built-in serial ports are usually named /dev/ttyOp0 and /dev/tty1p0.

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OSI PDM Read Data.vi

Meter responds with up to 9 data register values (6 digits ea w/decimal point) as a comma-delimited string: 1,2,..9

Connector Pane



Controls and Indicators



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 **Time Limit (1000ms)**

 **Address (0001)**


 **Data Register Values (1..9)**

 **Data Values**

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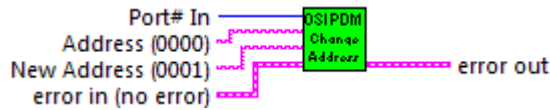
The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

OSI PDM Change Address.vi

Change address. Note that 0000 can always be used as a present address when changing to a new address.

The rear panel Program Enable jumper must be installed to allow this command to store settings in non-volatile memory. Configuration will revert to the previous setting(s) at the next instrument power ON/OFF cycle if the jumper is not installed.

Connector Pane



Controls and Indicators

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 **Address (0000)**

 **New Address (0001)**


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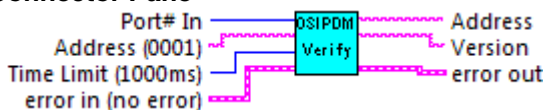
 **source** The source string describes the origin of the error or warning.

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OSI PDM Verify.vi

Meter responds with unit address and firmware version.

Connector Pane



Controls and Indicators

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 **Time Limit (1000ms)**


 **Address (0001)**

 **Version**

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Address

OSI PDM Freeze Data.vi

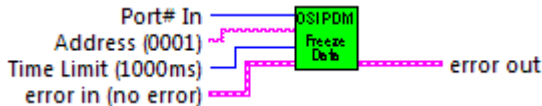
All data values are 'Frozen' simultaneously.

'Frozen' values may still be read using the RD and RR commands.


'Frozen' values may still be displayed using the front panel push-buttons.

The CF command may be used to configure the unit so that pressing the front panel Menu button will 'Freeze' data.

Connector Pane



Controls and Indicators

 **Port# In** When you use the serial port VIs under Windows, the port number parameter can have the following values:

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 **Address (0001)**

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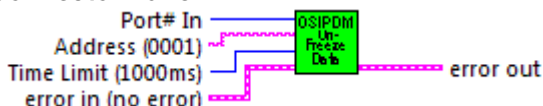
The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

OSI PDM Unfreeze Data.vi


All data values are 'Unfrozen' and return to normal updating.

The CA command may be used to configure the unit so that pressing the front panel Menu button while frozen data is displayed will 'Unfreeze' data.

Connector Pane



Controls and Indicators

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 **Time Limit (1000ms)**

 **Address (0001)**

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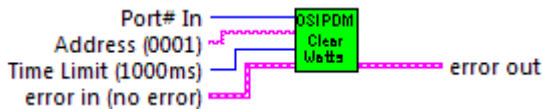
The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

OSI PDM Clear.vi


Clears accumulated Watthour values.

This command has the same effect as pressing the front panel Select button.

Connector Pane



Controls and Indicators

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U32 **Time Limit (1000ms)**

abc **Address (0001)**

FF **error out** error out is a cluster that describes the error status after this VI executes. If an error occurred before this VI was called, error out is the same as error in. Otherwise, error out shows the error, if any, that occurred in this VI. Use the error handler VIs to look up the error code and to display the corresponding error message. Using error in and error out clusters is a convenient way to check errors and to specify execution order by wiring the error output from one subVI to the error input of the next.

TF **status** The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

I32 **code** The code input identifies the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

abc **source** The source string describes the origin of the error or warning.

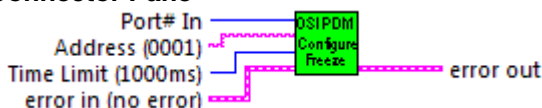
The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

OSI PDM Configure Freeze.vi

Configure the front panel Menu button to act as a Freeze/Unfreeze control.

The rear panel Program Enable jumper must be installed to allow this command to store settings in non-volatile memory. Configuration will revert to the previous setting(s) at the next instrument power ON/OFF cycle if the jumper is not installed.

Connector Pane



Controls and Indicators

I32 **Port# In** When you use the serial port VIs under Windows, the port number parameter can have the following values:

0: COM1	5: COM6	10: LPT1
1: COM2	6: COM7	11: LPT2
2: COM3	7: COM8	12: LPT3
3: COM4	8: COM9	13: LPT4
4: COM5		


On the Macintosh, port 0 is the modem, using the drivers .ain and .aout. Port 1 is the printer, using the drivers.bin and .bout. To get more ports on a Macintosh, you must install other boards, with the accompanying drivers.


On SunOS, the default mapping for port numbers is /dev/ttya, /dev/ttyb, and so on.

On Solaris, the default mapping for port numbers is /dev/cua/a, /dev/cua/b, and so on.


On HPUX, the default mapping for port numbers is /dev/tty00, /dev/tty01, and so on. NOTE that these defaults work for HPUX 9.x but don't work for HPUX 10.x. Use the serialDevices preference in your preferences file to adjust the names. On HPUX 10.x the built-in serial ports are usually named /dev/tty0p0 and /dev/tty1p0.

On Concurrent, the default mapping for port numbers is /dev/console, /dev/tty1, /dev/tty2, and so on.

 **error in (no error)** error in is a cluster that describes the error status before this VI executes. If error in indicates that an error occurred before this VI was called, this VI may choose not to execute its function, but just pass the error through to its error out cluster. If no error has occurred, then this VI executes normally and sets its own error status in error out. Use the error handler VIs to look up the error code and to display the corresponding error message. Using error in and error out clusters is a convenient way to check errors and to specify execution order by wiring the error output from one subVI to the error input of the next.

 **status** The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

 **code** The code input identifies the error or warning.


The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.


 **source** The source string describes the origin of the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.


 **Time Limit (1000ms)**

 **Address (0001)**

 **error out** error out is a cluster that describes the error status after this VI executes. If an error occurred before this VI was called, error out is the same as error in. Otherwise, error out shows the error, if any, that occurred in this VI. Use the error handler VIs to look up the error code and to display the corresponding error message. Using error in and error out clusters is a convenient way to check errors and to specify execution order by wiring the error output from one subVI to the error input of the next.

 **status** The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

 **code** The code input identifies the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.



source The source string describes the origin of the error or warning.

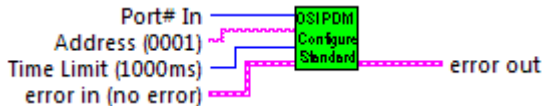
The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

OSI PDM Configure Standard.vi

Configure the front panel Menu button to act as a Standard/Extended Averaging control for data updates.

The rear panel Program Enable jumper must be installed to allow this command to store settings in non-volatile memory. Configuration will revert to the previous setting(s) at the next instrument power ON/OFF cycle if the jumper is not installed.

Connector Pane



Controls and Indicators



Port# In When you use the serial port VIs under Windows, the port number parameter can have the following values:

0: COM1	5: COM6	10: LPT1
1: COM2	6: COM7	11: LPT2
2: COM3	7: COM8	12: LPT3
3: COM4	8: COM9	13: LPT4
4: COM5		

On the Macintosh, port 0 is the modem, using the drivers .ain and .aout. Port 1 is the printer, using the drivers.bin and .bout. To get more ports on a Macintosh, you must install other boards, with the accompanying drivers.

On SunOS, the default mapping for port numbers is /dev/ttya, /dev/ttyb, and so on.

On Solaris, the default mapping for port numbers is /dev/cua/a, /dev/cua/b, and so on.

On HP-UX, the default mapping for port numbers is /dev/tty00, /dev/tty01, and so on. NOTE that these defaults work for HP-UX 9.x but don't work for HP-UX 10.x. Use the serialDevices preference in your preferences file to adjust the names. On HP-UX 10.x the built-in serial ports are usually named /dev/ttyOp0 and /dev/tty1p0.

On Concurrent, the default mapping for port numbers is /dev/console, /dev/tty1, /dev/tty2, and so on.



error in (no error) error in is a cluster that describes the error status before this VI executes. If error in indicates that an error occurred before this VI was called, this VI may choose not to execute its function, but just pass the error through to its error out cluster. If no error has occurred, then this VI executes normally and sets its own error status in error out. Use the error handler VIs to look up the error code and to display the corresponding error message. Using error in and error out clusters is a convenient way to check errors and to specify execution order by wiring the error output from one subVI to the error input of the next.



status The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

I32 **code** The code input identifies the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

abc **source** The source string describes the origin of the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

U32 **Time Limit (1000ms)**

abc **Address (0001)**

err **error out** error out is a cluster that describes the error status after this VI executes. If an error occurred before this VI was called, error out is the same as error in. Otherwise, error out shows the error, if any, that occurred in this VI. Use the error handler VIs to look up the error code and to display the corresponding error message. Using error in and error out clusters is a convenient way to check errors and to specify execution order by wiring the error output from one subVI to the error input of the next.

TF **status** The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

I32 **code** The code input identifies the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

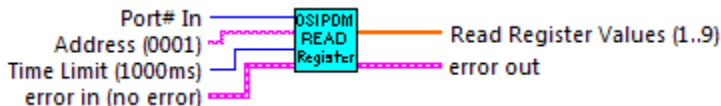
abc **source** The source string describes the origin of the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

OSI PDM Read Register.vi

Meter responds with up to 9 read register values (6 digits ea w/decimal point) as a comma-delimited string: 1,2,..9

Connector Pane



Controls and Indicators

I32 **Port# In** When you use the serial port VIs under Windows, the port number parameter can have the following values:

0: COM1	5: COM6	10: LPT1
1: COM2	6: COM7	11: LPT2
2: COM3	7: COM8	12: LPT3
3: COM4	8: COM9	13: LPT4
4: COM5		

On the Macintosh, port 0 is the modem, using the drivers .ain and .aout. Port 1 is the printer, using the drivers.bin and .bout. To get more ports on a Macintosh, you must install other boards, with the accompanying drivers.

On SunOS, the default mapping for port numbers is /dev/ttya, /dev/ttyb, and so on.

On Solaris, the default mapping for port numbers is /dev/cua/a, /dev/cua/b, and so on.

On HPUX, the default mapping for port numbers is /dev/tty00, /dev/tty01, and so on. NOTE that these defaults work for HPUX 9.x but don't work for HPUX 10.x. Use the serialDevices preference in your preferences file to adjust the names. On HPUX 10.x the built-in serial ports are usually named /dev/tty0p0 and /dev/tty1p0.

On Concurrent, the default mapping for port numbers is /dev/console, /dev/tty1, /dev/tty2, and so on.



error in (no error) error in is a cluster that describes the error status before this VI executes. If error in indicates that an error occurred before this VI was called, this VI may choose not to execute its function, but just pass the error through to its error out cluster. If no error has occurred, then this VI executes normally and sets its own error status in error out. Use the error handler VIs to look up the error code and to display the corresponding error message. Using error in and error out clusters is a convenient way to check errors and to specify execution order by wiring the error output from one subVI to the error input of the next.



status The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.



code The code input identifies the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.



source The source string describes the origin of the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.



Time Limit (1000ms)



Address (0001)



Read Register Values (1..9)



Data Values



error out error out is a cluster that describes the error status after this VI executes. If an error occurred before this VI was called, error out is the same as error in. Otherwise, error out shows the error, if any, that occurred in this VI. Use the error handler VIs to look up the error code and to display the corresponding error message. Using error in and error out clusters is a convenient way to check errors and to specify execution order by wiring the error output from one subVI to the error input of the next.



status The status boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.



code The code input identifies the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.



source The source string describes the origin of the error or warning.

The pop-up option Explain Error (or Explain Warning) gives more information about the error displayed.

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