Easy LV | HV

Control software for W-IE-NE-R Power Electronics low voltage and Iseg Spezialelektronik high voltage power supplies

User's Manual v1.1

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CHAPTER 1 EASY LV | HV

Easy LV|HV allows to control W-IE-NE-R low voltage MPV modules and Iseg high voltage power supplies. It supports various interfaces on several platforms:

- SNMP over an Ethernet connection. This allows to control all MPOD crates equipped with low and high voltage power supply modules. This includes MPOD, MPOD Mini and MPOD Micro. The W-IE-NE-R PL500 power supply series also uses the SNMP protocol. It is also supported. Easy LV|HV can also connect to the Iseg CC24 crate controller if the SNMP protocol has been enabled over it's web interface.
- Iseg SCPI over a serial or USB port. This allows to control Iseg NHS and Iseg NHR modules.
- Iseg SCPI over an Ethernet connection. This interface supports the controller for Iseg MMC systems.
- Iseg CAN-EDCP protocol. The Peak PCAN-USB and the LAWICEL CANUSB adapter are supported on Windows, MacOs and Linux. Socket CAN is supported on Linux.
- SNMP over an USB connection. This allows co configure W-IE-NE-R MPOD crate controllers and PL500 power supplies. For regular usage this connection is a bit too slow. This option is only available for Linux and MacOs.

For support in France contact Physical Instruments: https://www.physical-instruments.fr/

For international support contact Analog Flavor: http://www.analogflavor.com

CHAPTER 2 QUICKSTART

Easy LV|HV is delivered as installer or compressed folder on Windows, as dmg package on Mac and tar.gz archive on Linux. After having installed the software it can be started either from the Windows Menu, the Applications Folder or the command line.

The software is operated as follows:

- Launch the software.
- Establish one or several connections to the supported hardware.
- Double-click a hardware item in the hardware browser to select it. The hardware item can be a connection, a crate, a module or a channel.
- The workspace refers to this hardware item (connection, crate, module or channel). The workspace is the right side of the interface. It contains several pages implementing different functionalities. The workspace header specifies which hardware item is currently selected.
- Monitor and configure the hardware item in the pages of the workspace.

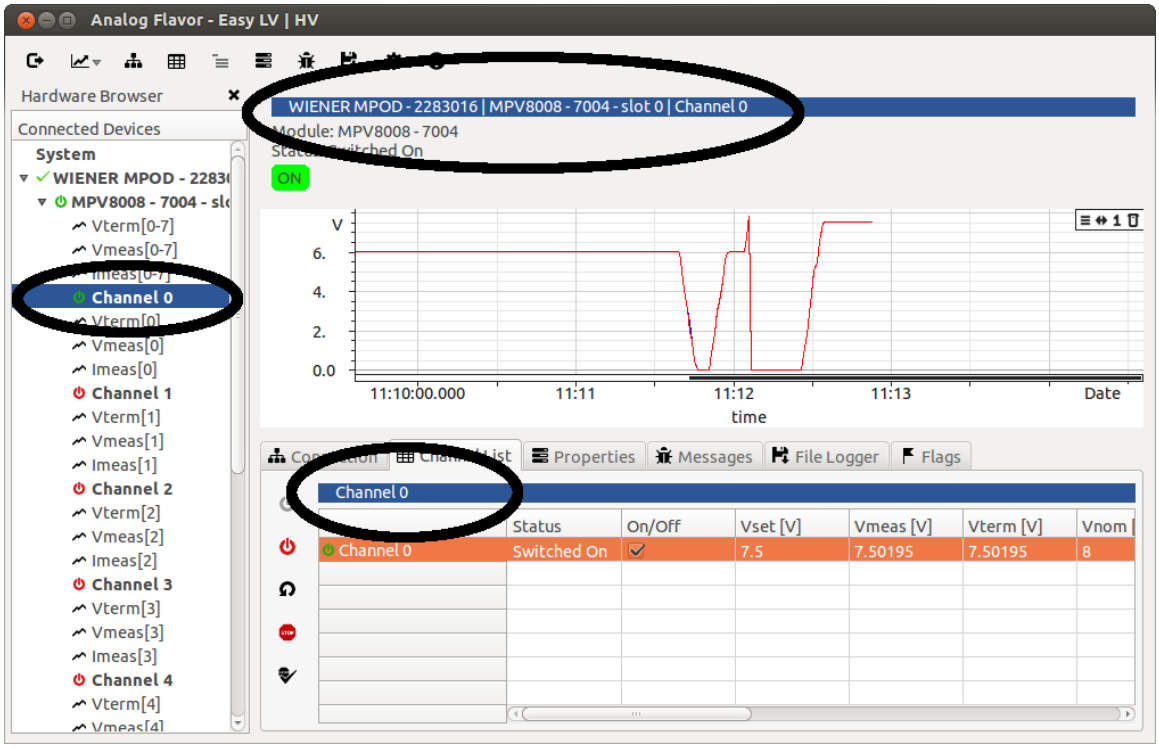


Illustration 1: Channel 0 of the first module has been selected. The workspace header shows some basic information, the graph shows Vmeas and Vterm over time, the pages in the workspace refer to channel 0.

After the software has been launched a connection to the controlled hardware has to be established.

Switch to the “Connections” page. Select a connection type such as “Network SNMP Connection”. Enter the IP address of the connected MPOD crate into the “Define a snmp connection” field. After pressing return or the “Search For Device” button, Easy LV|HV will attempt to establish a connection.

The IP address of the MPOD crate might have to be configured previously. This can be done by using MUSEcontrol software over an USB connection. Alternatively a “USB SNMP connection” can be established for this purpose. See the chaper “MPOD specifities” of this manual.

If the attempt to connect is successful, the hardware will appear among the “Found Devices”. When double-clicking the new device it will be added to the list of controlled devices in the “Hardware Browser”.

The list in the hardware browser can be expanded to show all controlled channels.

A right click on a hardware item will bring up a menu that allows to perform basic operations such as switching a crate or a channel on.

By double clicking on a hardware item it will be selected. The item is highlighted in a dark blue. All information in the workspace on the right side of the user interface will refer to this item. The header line will show the complete name, it’s status and the active flags.

The “Channel List” tab allows to set voltages and currents for all visible channels.

The “Properties” tab allows to set properties such as the supervision behavior for low voltage channels and the delayed current trips for high voltage output channels.

The message log keeps track of all changes that occur during operation. Clicking on the message annotates this message to the graph window to illustrate for example status changes together with the measured values.

The “File Logger” page allows to write values over a long period to a csv file. The file logger is blocked on a hardware when it runs. That means that selecting a different item in the hardware browser will not affect it. The file logger closes when Easy LV| HV closes.

The “Flags” page shows the status and event flags of the selected hardware. These flags inform on the current status and errors that might have occurred. If an error flag is active, it might be necessary to clear it before being able to switch the concerned channel on again.

The “Configuration” page is only visible when the corresponding tool bar button (wheel) has been clicked. This page allows to change the appearance and the behavior or the tool. The changes must be confirmed by clicking the “Accept Changes” button.

CHAPTER 3 THE INTERFACE

The Easy LV|HV window is split in 2 parts, the “Hardware Browser” on the left and the “Workspace” with a graph window and several tabs on the right. This chapter explains how to use the tool. It also gives an overview on the component’s functionalities.

3.1 The Tool Bar

The tool bar allows to exit the application, control the curves shown in graph window and to change the page shown in the workspace. The “Configuration” page is not shown by default. It is made visible by clicking the corresponding tool bar button (wheel).

3.2 The Hardware Browser

The hardware browser shows the currently connected hardware in a hierarchical list. It also shows all curves that can be displayed in the graph window.

By double-clicking on a hardware item in the browser, this hardware item is shown in the entire workspace. That means that the graphs and the tabs will show information corresponding to this hardware item. An exception is the “Connection” and “Configuration” tab. The “File Logger” is blocked on a hardware item when it is running.

The currently selected hardware and some status information is shown in the workspace header.

Curves can be shown in the graph window by double-clicking on the curve names in the hardware browser or by dragging them to the graph window.

3.3 The Workspace

The workspace on the right of the user interface holds the graph window and a number of tabs that allow to visualize and modify parameters of the controlled hardware. The header just above the graph window shows which hardware item is currently selected. It also shows the flags that are currently active for this item.

3.4 The Graph Window

The graph window shows the evolution of measured values over time. The time interval is limited to a certain number of points. That means that old data is overwritten after a while.

The parameters shown in the graph window can be configured from the tool bar icon showing a graph. If “Show Currents” is selected, the currents measured for a hardware item are shown when this hardware item is selected.

Selecting “Clear Curve Data” will erase all curves. All other operations will only show or hide curves but never erase data.

Double-clicking on a item with graph icon in the hardware browser will clear the graph window and show the corresponding curve. Dragging this item to the graph window will add this curve without

removing existing curves. The “Clear Plot” icon in the graph window can also be used to clear a graph window; this will not erase any data.

Some aspects of the graph window can be configured from the “Configure” page.

3.5 The Connections Page

The connections page allows to add a new connection to the list of controlled devices in the hardware browser. The procedure is identical for all supported connection types.

- Define the connection type and connection parameters as described below for each connection type.
- In most cases the connection will be established automatically. However in some cases the “Search for device” icon has to be clicked.
- The detected device will appear in the “Found Devices” field below.
- Double click the device you want to control to add it to the hardware browser. Alternatively the device can be selected and then added by clicking the “Add selected device” icon.

3.5.1 Adding a network SNMP connection (MPOD crate, PL5xx, CC24)

Choose “Network SNMP connection” from the “Connection type” selector to add a device that is controlled over SNMP. This concerns for example MPOD crates or PL5xx power supplies.

Now specify the connection parameters in the “Define a SNMP connection” field. The used syntax is:

snmp://<ip>:<port>:<community>

Only the connection ip is mandatory the other parameters will be completed. The default port is 161 and the default community is “guru”.

The drop-down menu in the “Define a SNMP connection” field allows to find a previous connection.

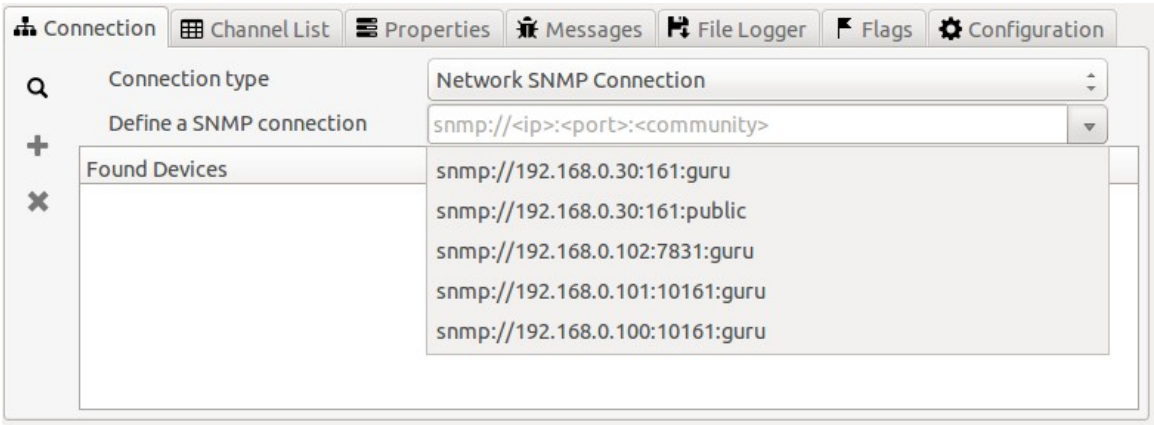


Illustration 2: To add an SNMP connection, select the appropriate connection type and connection parameters.

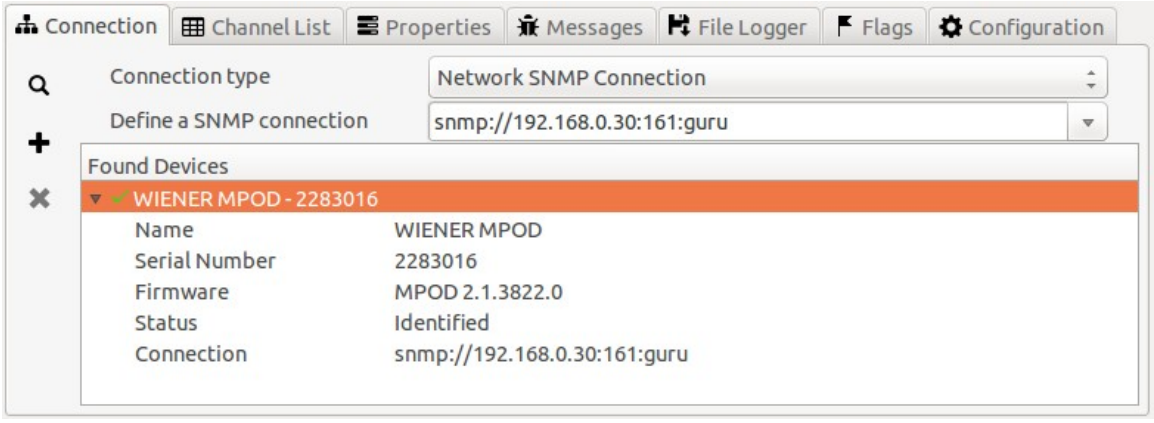


Illustration 3: Once a device has been found it can be added to the hardware browser by double-clicking on the concerned device.

3.5.2 Adding a serial port SCPI connection (NHS, NHR)

Choose “Serial port SCPI connection” from the “Connection type” selector to add a device that is controlled over a serial port or a USB to serial port adapter.

Now select the serial port. Alternatively all serial ports can be scanned by clicking on “Search for device” when “Search serial ports” is selected. All connected SCPI devices will be shown in the “Found Devices” field.

Warning: this might interrupt serial connections that are already in use.

3.5.3 Adding a network SCPI connection

Choose “Network SCPI connection” from the “Connection type” selector to add a device that is controlled over a network connection.

Now specify the connection parameters in the “Define a network SCPI connection” field. The used syntax is:

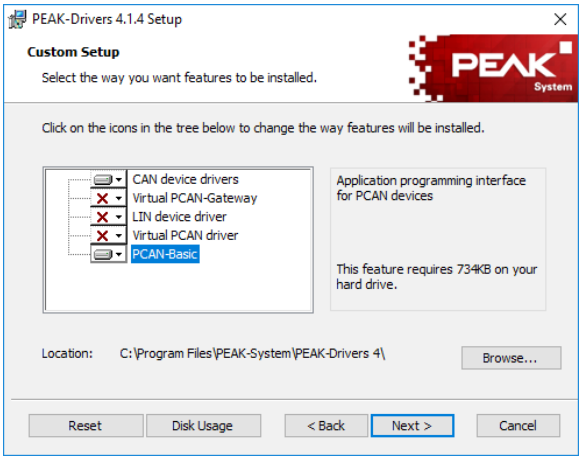
network-scpi://<ip>:<port>

The default port is port 10001. The drop-down menu in the “Define a network SCPI connection” field allows to find a previous connection.

3.5.4 Adding a CAN bus connection (Iseg edcp protocol)

Easy LV|HV allows to connect to Iseg high voltage modules over a CAN bus adapter. The Peak PCAN-USB and the LAWICEL CANUSB adapter are supported on Windows, MacOs and Linux. Socket CAN is supported on Linux.

On Windows the Peak PCAN-USB adapter can only be used is the option “PCAN-Basic” has been checked when installing the driver.

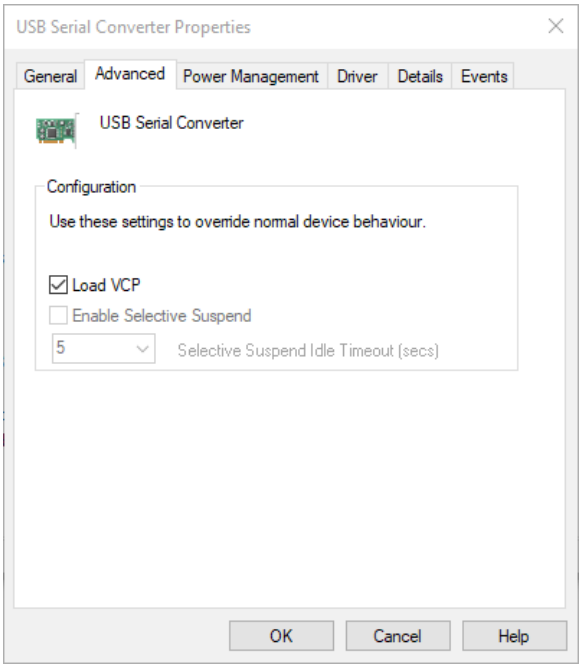


On Linux the Peak PCAN-USB adapter can only be used after having copied the file “pcan-usb.rules” to /etc/udev/rules.d/ and rebooted the computer. Copying the file requires root permissions. The file “pcan-usb.rules” is available in the documentation folder of the Easy LV|HV software distribution.

For testing purposes Easy LV|HV can also be run with root permissions instead.

On Windows the LAWICEL CANUSB adapter needs to be configured as VCP (virtual com port). This option is available from the corresponding USB serial driver properties.

Easy LV|HV supports the current Iseg edcp and the older dcp protocol.



To establish a CAN bus connection select the corresponding type in “Connection type”. Then select the concerned port.

3.5.5 Adding a USB SNMP connection (MPOD crate, PL5xx)

Easy LV|HV can control MPOD crates and PL5xx power supplies over an USB connection. This option is only available for MacOs and Linux. This connection is relatively slow. However it allows to configure the IP address if MUSEControl isn’t available.

On Linux the USB SNMP connection can only be established after having copied the file “wiener-mpod-usb.rules” to /etc/udev/rules.d/ and rebooted the computer. The file “wiener-mpod-usb.rules” is available in the documentation folder of the Easy LV|HV software distribution.

For testing purposes Easy LV|HV can also be run with root permissions instead.

3.6 The Channel List Page

The channel list shows the basic values for the currently selected hardware. Some values such as measured values are read-only, others can be edited. In the entire system, a crate or a module is shown, and the writable values can be set for several channels at once.

The columns shown in the channel list page and the order of the columns can be configured in the “Configure” page.

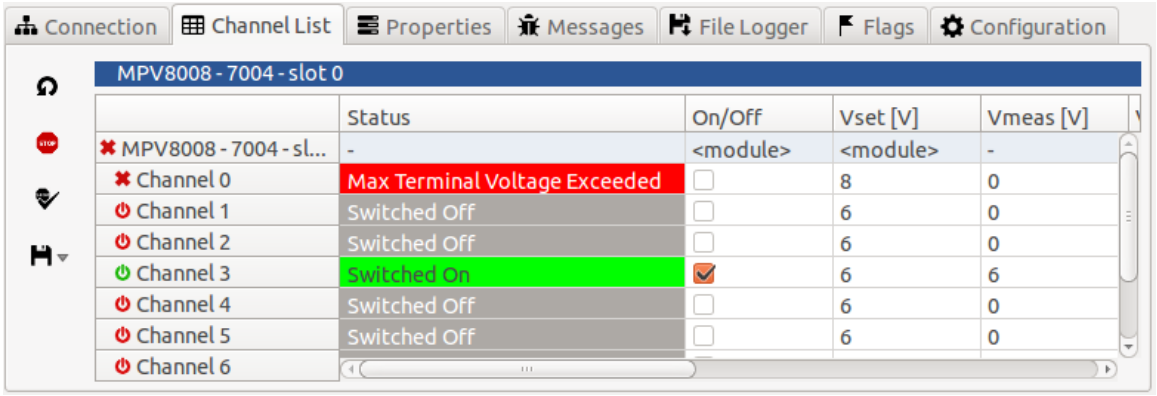


Illustration 4: The channel list showing the channels of a low voltage MPV module. The status of channel 0 appears in red as it was shut down when the maximum terminal voltage was exceeded.

3.7 The Properties Page

The channel, module or crate parameters that aren't available in the channel list can be visualized and edited in the "Properties" page. This page shows the properties of the currently selected hardware item (a crate, a module or a channel).

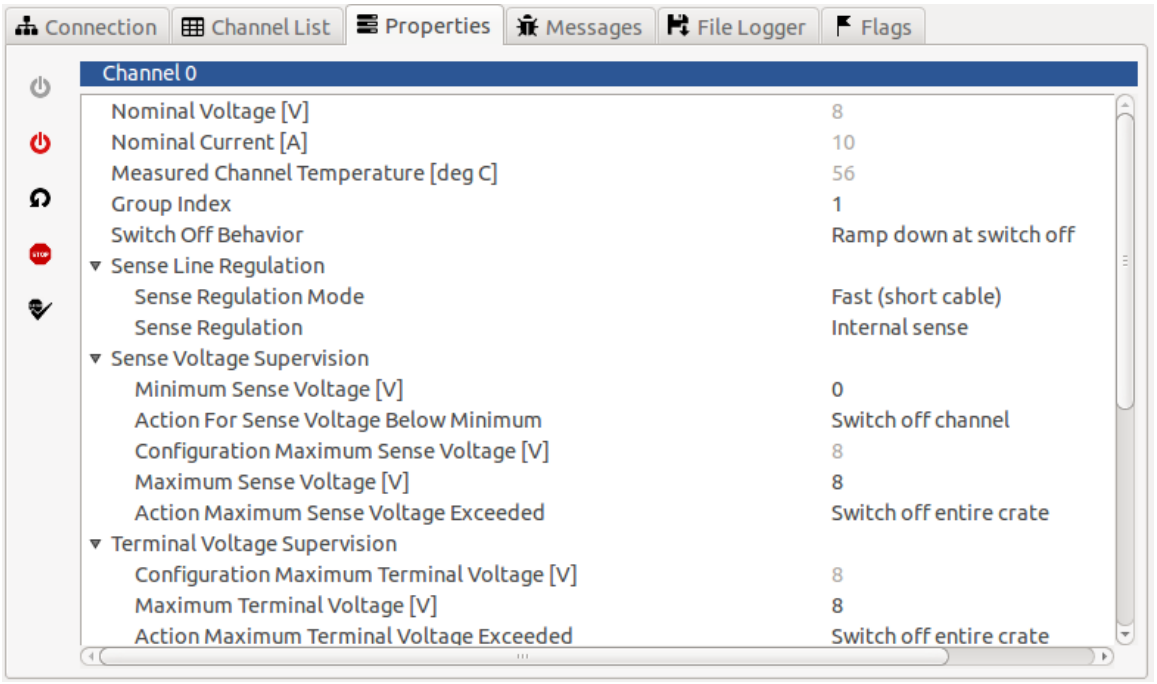


Illustration 5: The properties page showing parameters of a low voltage channel. The supervision behavior can be visualized and adjusted here. The properties page can also show crates, modules and high voltage channels.

3.8 The Messages Page

The “Messages” page lists a number of events that have occurred for the currently selected hardware item such as a status change or changes in Vset. By clicking on a message, Easy LV|HV will attempt to add the message to the curves shown in the graph window. This is only possible if the currently shown curve and the message correspond to the same hardware item and if the zoom range allows to visualize the message.

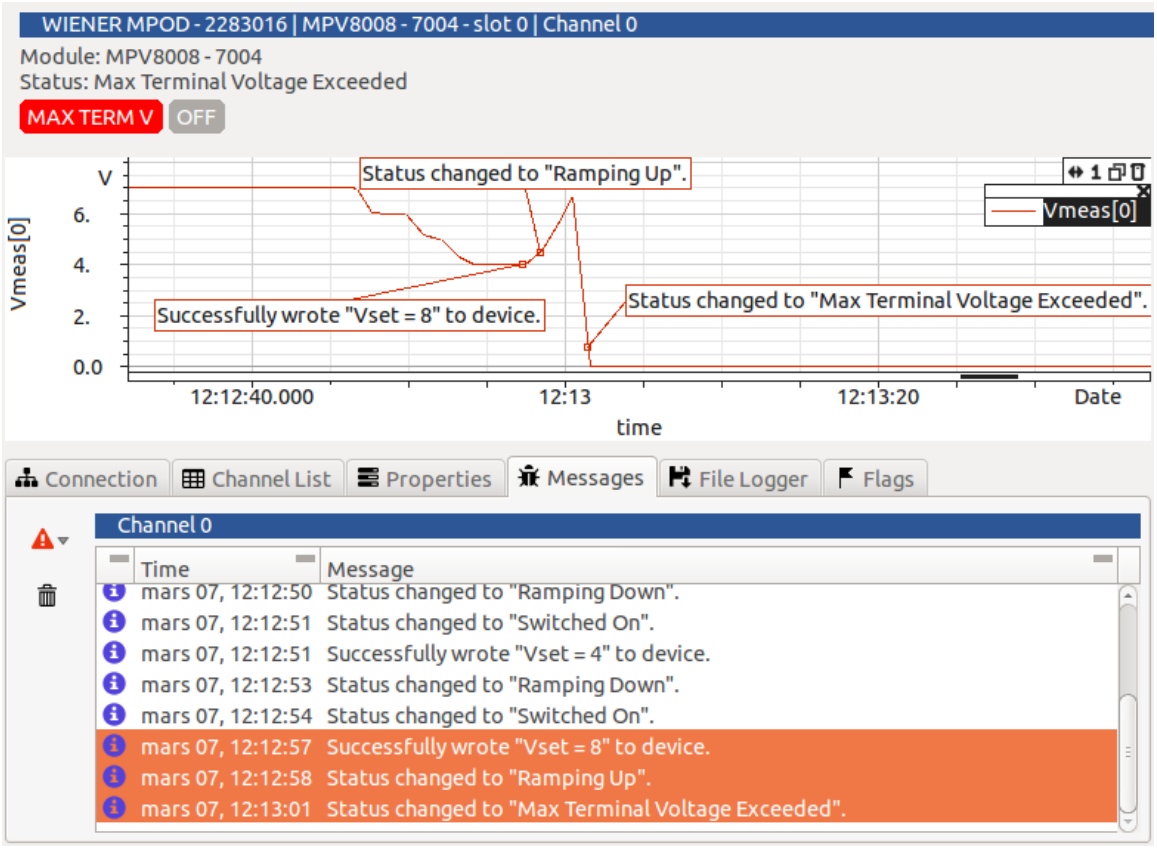


Illustration 6: The message page showing events that occurred for low voltage channel 0. Clicking on one or several messages generates annotations in the graph window. This allows to monitor an experiment and to debug unexpected behavior.

3.9 The File Logger Page

The “File Logger” page allows to write the measured values to a csv file. This can be done at regular

intervals or based on an error tolerance. Several file formats are supported. The file logger is locked while it is running. That means selecting another hardware item will not affect the file logger.

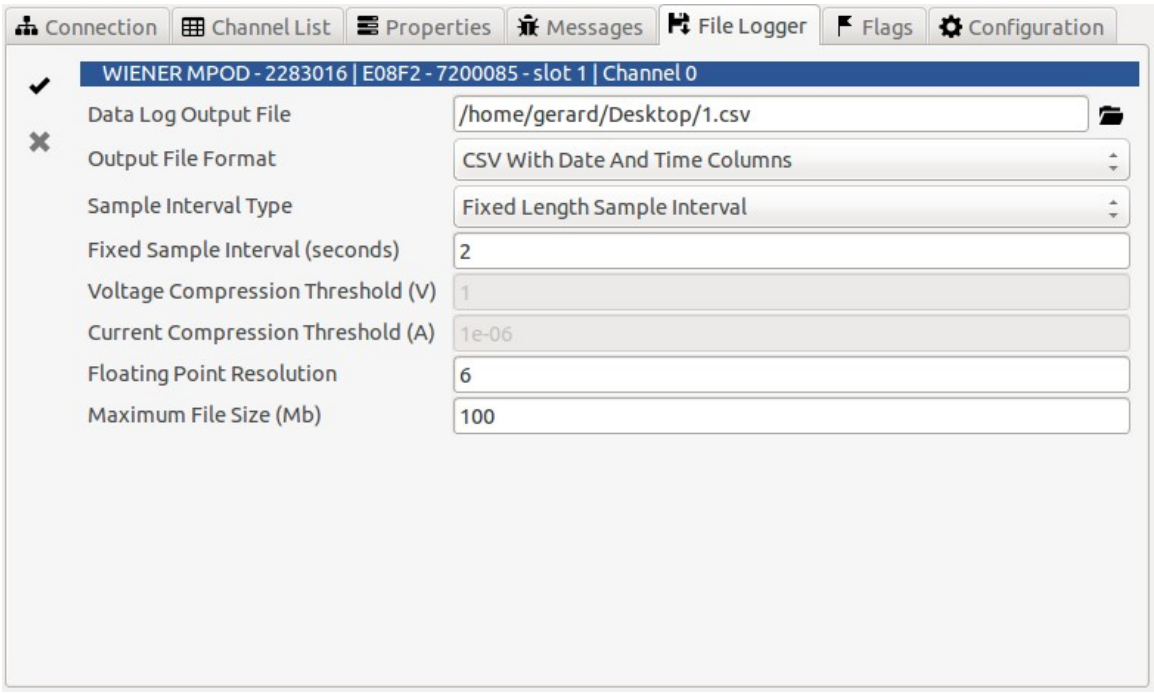


Illustration 7: The file logger allows to write measured values to a csv file. When started it will be locked to the currently selected hardware.

3.10 The Flags Page

The “Flags” page shows status and event flags for the currently selected hardware item. The active flags are colorized in a color corresponding to the importance of the flag. The page also gives an explanation on the flag. Therefore an individual flag has to be selected by clicking on it.

If “Use simplified view for flags” in the “Configure” page is unchecked, control flags and masks are shown too.

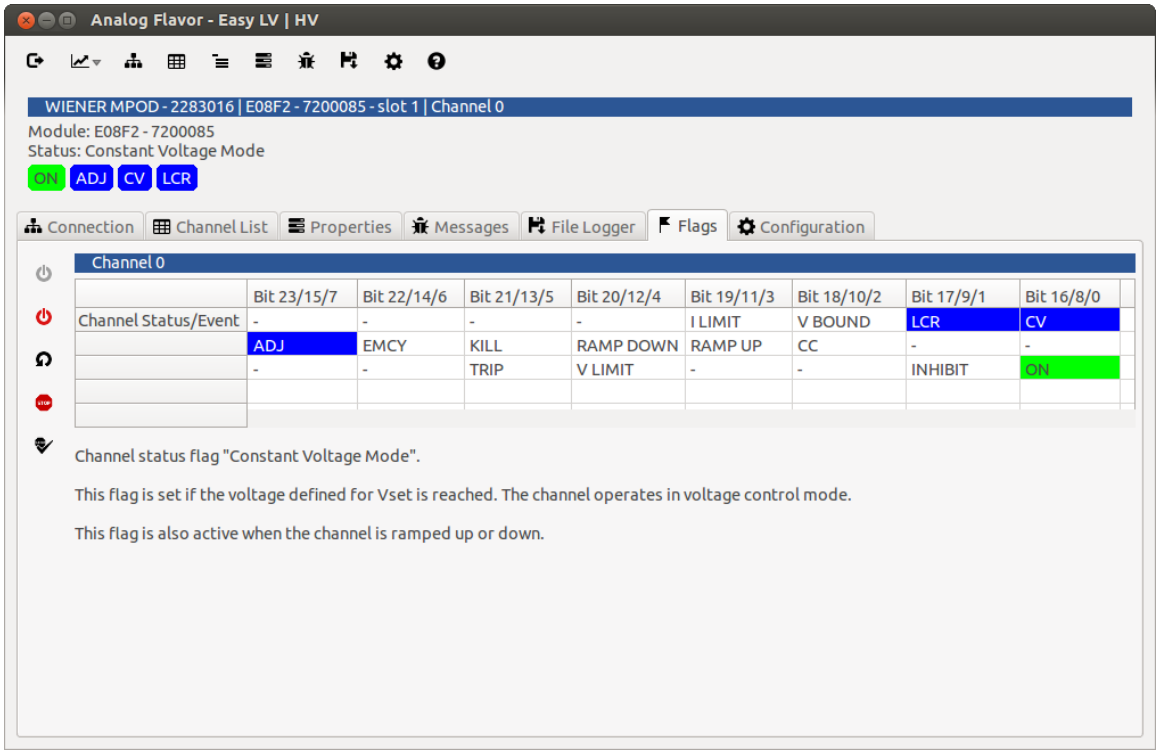


Illustration 8: The flags page showing the events of a high voltage channel. Clicking on a flag gives a short explanation of the flag. The active flags are also shown in the workspace header. Error flags appear in red.

3.11 The Configuration Page

The “Configure” page allows to configure various aspects of the interface.

- It allows to configure how to reconnect to previously connected devices on startup.
- It allows to configure the current units used for low and high voltage channels in the “Channel List” page. If the unit for Iset is changed for to “mA”, this also affects the Inom and Ilim columns.
- It allows to enable or disable the confirm dialog.
- It allows to define which columns are shown in the “Channel List” and how they are ordered. To move a column up or down, select it and change it’s position with the arrows in the tars bar.
- It allows to define a communication log file. This file is used for debugging the application.

All changes have to be confirmed by clicking the “Accept Changes” icon. The task bar also allows to reset all values to factory defaults or to cancel the current changes.

The configuration is saved and restored when Easy LV|HV is launched again.

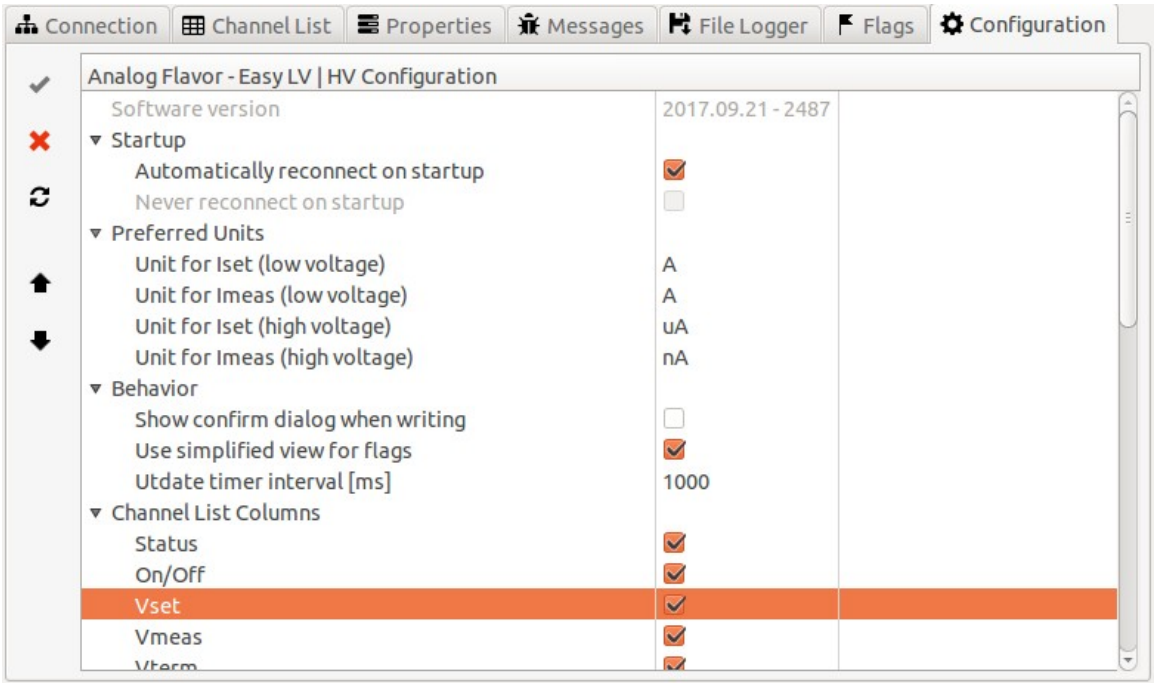


Illustration 9: The configuration page allows to change the behavior and the appearance of the tool. Selected channel list items can be moved up and down using the arrow icons. The preferred current units define the units to be used in the channel list page.

CHAPTER 4 SOFTWARE USAGE

Easy LV|HV integrates functionality that allows to exploit the controlled hardware at it's best. This chapter gives an overview on how Easy LV|HV can be used to increase stability and reliability of experiments.

4.1 Power Monitoring

Easy LV|HV computes the consumed power where it is possible.

- Low voltage channels: Pterm and Pload are computed as product of the measured voltage at the terminal and the sense lines and the measured current. The values can be visualized in the "Channel List" and the curves can be visualized from "Module Monitoring".

- High voltage channels: Pterm is computed as product of the measured voltage and current. The values can be visualized in the "Channel List" and the curves can be visualized from "Module Monitoring".

- MPOD crates: Pterm is computed as sum of all high and low voltage channels. The curves can be visualized from "Crate Monitoring".
- MPOD crates: the power delivered by auxiliary power supplies is monitored. In general the auxiliary power is used for powering the high voltage modules. The curves can be visualized from "Crate Monitoring".

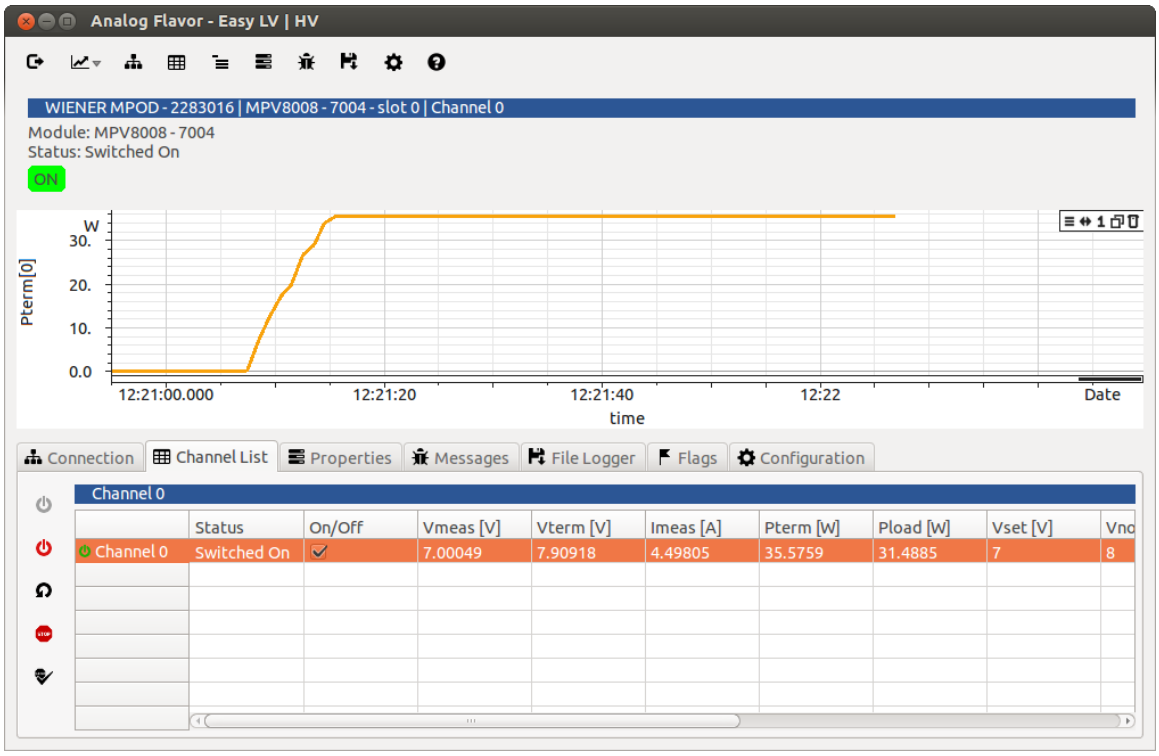


Illustration 10: The channel list showing the measured voltages and current for a low voltage channel. It also shows the compute values for Pterm and Pload. They differ as an external sense is used due to cable losses. The graph window shows Pterm.

4.2 Temperature Monitoring

Easy LV|HV monitors the temperature of channels and modules. Temperature monitoring can be used to make sure that the warm-up phase is over and a stable temperature has been reached. This might be required for critical experiments requiring high voltage. A typical warm-up phase takes between 30 minutes and 1 hour as shown in the below illustration.

- High voltage modules: the module temperature curves can be visualized from “Module Monitoring”. The “Channel List” shows the module’s temperature which is identical for all high voltage channels of a module.

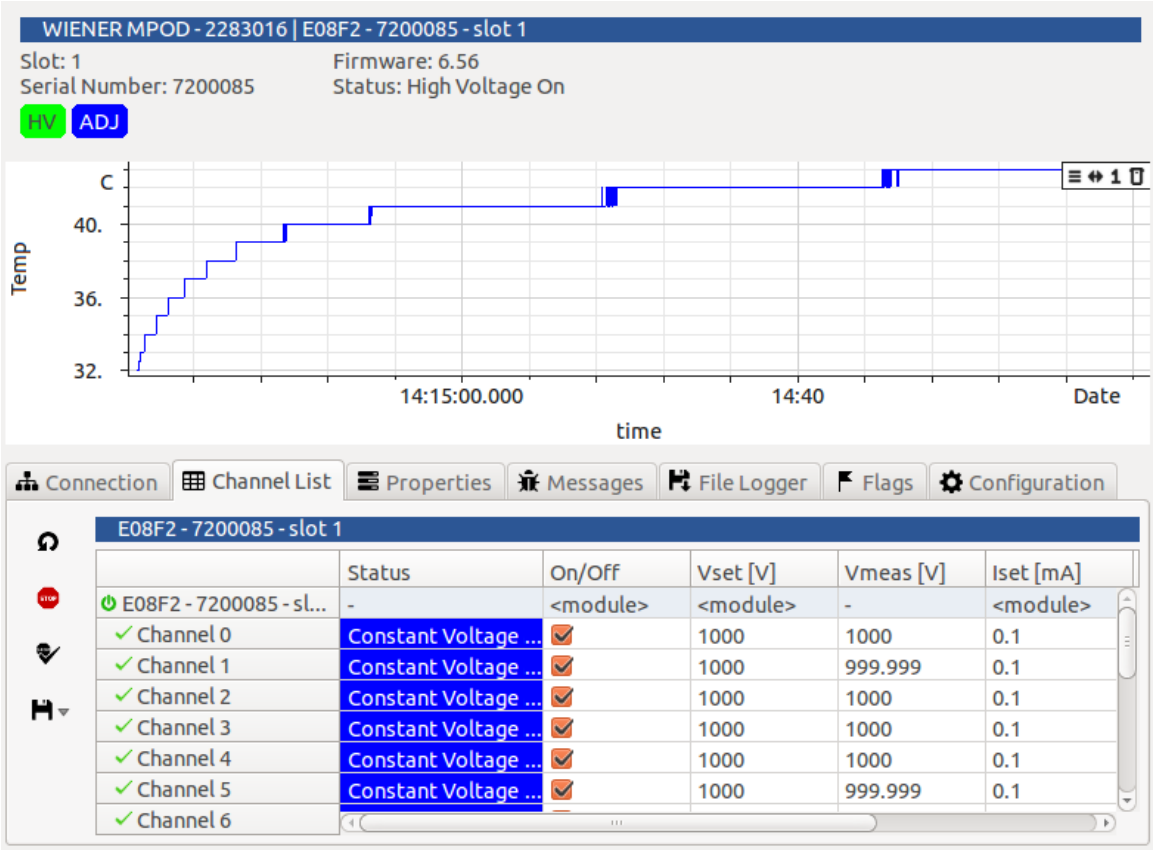


Illustration 11: the temperature curve of a high voltage module heating up.

- Low voltage channels: the temperature of each channel can be visualized in the “Channel List” and the curves can be visualized from “Module Monitoring”.

CHAPTER 5 HARDWARE SPECIFICITIES

Easy LV|HV controls high and low voltage modules and accepts different connection types and protocols. All controlled devices can be manipulated in an identical way.

The modules and protocols have some differences and limitations. Some aspects of the controlled hardware might require special care. These points are explained in this chapter.

5.1 MPOD Specifities

Before controlling an MPOD it must be configured using MUSEcontrol software over an USB connection.

- The IP address of the MPOD controller must be configured.
- On MacOs and Linux the IP address can also be configured from Easy LV|HV. Therefore an "USB SNMP connection" has to be established. The IP address is visible in the "Properties" page of the MPOD. To enable DHCP the IP address has to be set to "0.0.0.0". Changing the IP address requires to enter the password "config".
- When controlled by an MPOD controller, the high voltage module flags "Kill Enable" and "Fine Adjust" for high voltage modules can only be set at crate level.
- Easy LV|HV can generate *.db files for EPICS. This requires the NSCL EPICS snmp device driver. This driver can be downloaded from https://groups.nscl.msu.edu/controls/. It can also be found from the EPICS website → Resources and Support → Modules → Soft Support. To generate the *.db files select "Generate .db files for EPICS" from an MPOD context menu in the hardware browser. A generic file can also be generated from the "Tools" button. The generated files might have to be adjusted in a text editor.
- The crate controller's "inhibit" functionality is triggered by the the crate controller's pins referred to as "interlock pins" in the MPOD user's manual. The crate controller must be configured to use the global inhibit functionality. This is only possible by using MUSEcontrol software. The "Ignore hardware interlock" check box must be unchecked. The global interlock is independent from the inhibit for high and low voltage modules.

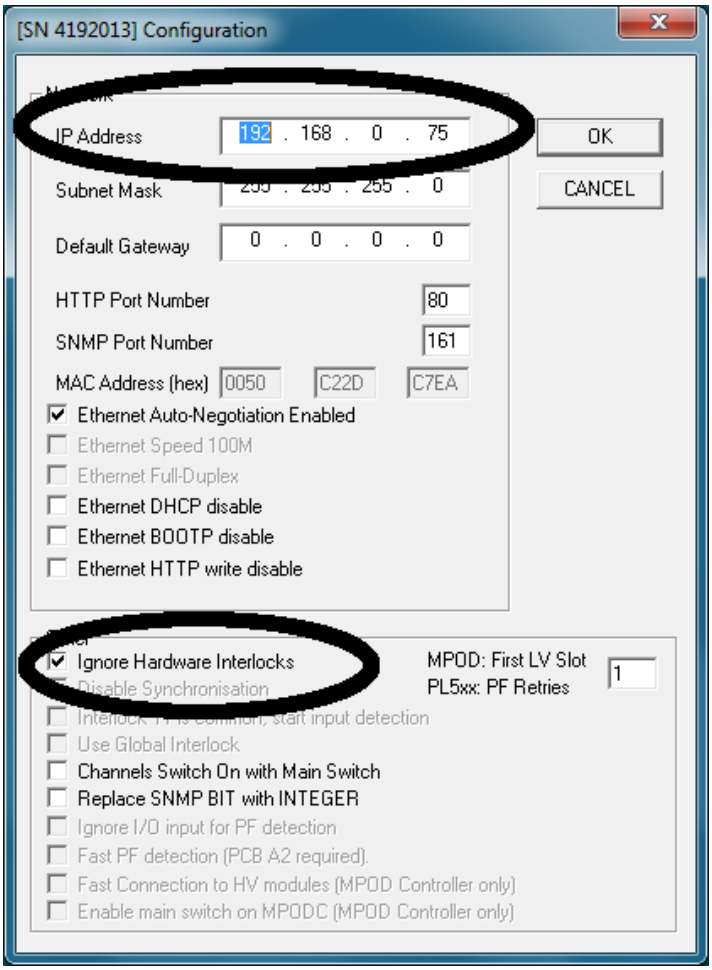


Illustration 12: MUSE control software is required to define the MPOD controller's IP and to enable or disable the global interlock.

Controlling high voltage modules in an MPOD is different from controlling a high voltage module over SCPI or CAN bus.

5.2 SNMP Protocol Specificities

Depending on the used SNMP community (public, admin, guru or user-defined) some values might be write-protected. If some values can't be set over the interface the chosen SNMP community must be adjusted.

The SNMP protocol can also be exploited by using the open source SNMP tools from NetSNMP. NetSNMP can be downloaded from the WIENER support website or installed from the included CD-ROM. Please see http://net-snmp.sourceforge.net/ for more details.

The MPOD user manual gives further details on how to use NetSNMP to control an MPOD crate from a Terminal.

The SNMP protocol can be analyzed efficiently by performing a SNMP walk. The command line tool "snmpwalk" is contained in the NetSNMP installation. Alternatively an identical command can be launched directly from Easy LV|HV. Therefore the menu item "SNMP Walk (Debug)" needs to be selected from the crate's dropdown menu. The output of the command will be written to a temporary file that is directly opened in the built-in text editor.

The resulting file should be generated and sent with all support requests concerning the SNMP protocol.

5.3 Low Voltage Module Specificities

- For low voltage channels the events are cleared by sending the "switch off" command to channels that are already switched off. This is equivalent to the "Clear Events" command for high voltage modules.
- Low voltage modules don't define module flags. Easy LV|HV generates them by applying a logic "or" operation on all channel flags.
- The "Emergency Off" functionality doesn't exist for low voltage channels. If the button is clicked the channel is switched off with or without ramp according to the user-defined channel properties. A software flag "Emergency" is set. The channel can only be switched on again after having cleared this flag by clicking the button "Clear Emergency". For high voltage modules the behavior is identical but it is handled by the hardware. High voltage modules require "Clear Events" to clear the emergency flag. As "Emergency Off" is a software flag for low voltage modules, it will not be visible to other connected software clients and it will be lost if the software is restarted.
- Vmeas is measured on the sense lines of the channel. Vset defines a target voltage for Vmeas. If the internal sense is used, Vmeas is identical to Vterm, the voltage measured on the channel's output.
- The channel property values for "Config Max Sense Voltage", "Config Max Terminal Voltage" and "Config Max Current" are read-only in the SNMP protocol. They can only be set using

MUSEcontrol software.

- Iset defines a maximum current for the channel. This value will not be exceeded. If it is reached the channel switches to current regulation mode. Iset can’t be used to define a trip current like for high voltage modules. Use the “current supervision” from the channel properties instead.
- The values for the temperature limit for the channel’s temperature supervision can only be set using MUSEcontrol software.
- The “inhibit” functionality is triggered by the module's pins referred to as “interlock pins” in the MPOD user's manual. The crate controller must be configured to use the inhibit functionality. This is only possible by using MUSEcontrol software. For each concerned channel the “Enable external inhibit” check box must be checked. The channel wise inhibit doesn’t depend on the global interlock. Please check the MPOD user guide for more details.
- The “Communication Timeout” value must be set using MUSEcontrol software. The behavior can be set in Easy LV | HV.
- Some flags available for high voltage channels aren’t available for low voltage channels and vice versa. These flags don’t appear in the “Flags” page.
- Easy LV|HV sets the values for Imeas, Vsense, Vterm to 0.0 when the channel is switched off. However the crate controller might maintain the last valid values if the shutdown is due to the violation of a supervision condition.
- Warning: the temperature measurement is frozen when the maximum temperature supervision condition was exceeded! The software does not show the real channel temperature.
- Compared to high voltage channels some columns aren’t available in the “Channel List” page. This concerns “Vlim: , “Ilim”, “Vbound” and “Ibound”.

5.4 High Voltage Module Specifities

- After a clear emergency the events should also be cleared before switching the high voltage channels on again.
- Some flags available for low voltage channels aren’t available for high voltage channels and vice versa. These flags don’t appear in the “Flags” page.
- When used in an MPOD crate the group index doesn’t apply to high voltage modules and channels.

- When used in an MPOD crate the module flags “Kill Enable” and “Fine Adjust” can only be set at crate level.
- A delayed current trip is be configured as follows: select a channel, define a “Delayed trip time” and a “Delayed trip action” different from “ignore failure” in the “Properties” page. Define a maximum current by setting Iset in the “Channel List” page.
- An ordinary trip is configured as follows: enable the “Kill” option for the entire module. The delayed trip must be disabled by selecting “ignore failure” as “Delayed trip action”. Define a maximum current by setting Iset in the “Channel List” page. A delayed trip with a delay of 0 ms should be preferred over an ordinary trip.
- Compared to low voltage modules some columns aren’t available in the channel list. This concerns:
    - “Vterm” which isn’t available for high voltage channels as they don’t implement sense lines.
    - “Vrise” and “Vfall” as the ramp speed is defined in the module’s properties for all high voltage channels. As a consequence the rise and the fall speed are identical.
    - “Pload” which is identical to “Pterm” for high voltage channels as no sense lines are available.

5.5 Iseg CIO controler

Easy LV|Hv also supports the older dcp protocol over CAN bus. The iseg CIO controller uses this protocol. As a consequence only a subset of the commands an features of the newer CAN controllers is supported.

An important difference concerns the status flags. They are handled differently by the controller and Easy LV|HV.

The module status flag “sum error” and the channel flag “current trip” are erased by the controller as soon as they have been read by the connected software. To make these flags exploitable by the user, Easy LV|HV latches these flags. The “clear channel events” button clears these flags in the software.

The current trip handling of the CIO controller is a bit different from more recent hardware. If the current defined in Iset is exceeded, the “current trip” flag is set for the corresponding channel.

If the “kill enable” functionality is enabled, an “emergency off” is triggered. This will shut down the channel without a ramp and set the “emergency” flag of the channel.

The channel can only be switched on after having cleared the emergency. This can also be done by clicking “clear channel events” or “clear module and channel events”.

CHAPTER 6 TROUBLESHOOTING

This chapter gives answers to frequently asked questions and helps in analyzing and understanding unexpected behavior of hard- and software.

6.1 Enable / disable the confirm dialog

Each action performed in the software that requires to send a command to the hardware needs to be confirmed by the user. This allows to prevent operating errors on experiments where this could be critical.

However for some experiments it might be advantageous to disable this dialog.

This can be achieved by unchecking the “Show confirm dialog when writing” option in the “Configuration” page.

6.2 MPOD: changing the supervision behavior

Easy LV|HV allows to adjust the supervision behavior of low and high voltage channels. To achieve this the corresponding channel has to be selected by a double-click on the corresponding item in the “Hardware Browser”.

Now the item is highlighted in a dark blue. All information on the right side of the user interface will refer to this channel. The header line will show the complete name, it’s status and the active flags.

The supervision behavior parameters and values are available in the “Properties” page. The available parameters aren’t the same for low voltage and high voltage channels.

Some parameters for low voltage channels can only be set using MUSEcontrol software.

6.3 Adding a second crate or connection

Easy LV|HV can control several hardware connections at once. A new connection can be added from the “Connection” page.

Select the connection type and the connection parameters. If the new device or connection is not detected automatically click on “Search for device”. The found devices appear in the below window with some basic information.

Select the device to be added and click on “Add selected device” to add the new device to the “Connected Devices” in the “Hardware Browser”.

The button “Close current connections” in the “Connection” page allows to remove all currently controlled devices from the “Hardware Browser”.

6.4 MPOD: how to change the fan speed

Select the corresponding MPOD crate by a double-click on the corresponding item in the “Hardware Browser”. Now the item is highlighted in a dark blue. All information on the right side of the user interface will refer to this crate. The header line will show the complete name, it’s status and the active flags.

The fan speed can be set by changing the corresponding value in the “Properties” page. The operation has to be confirmed by the password “config”.

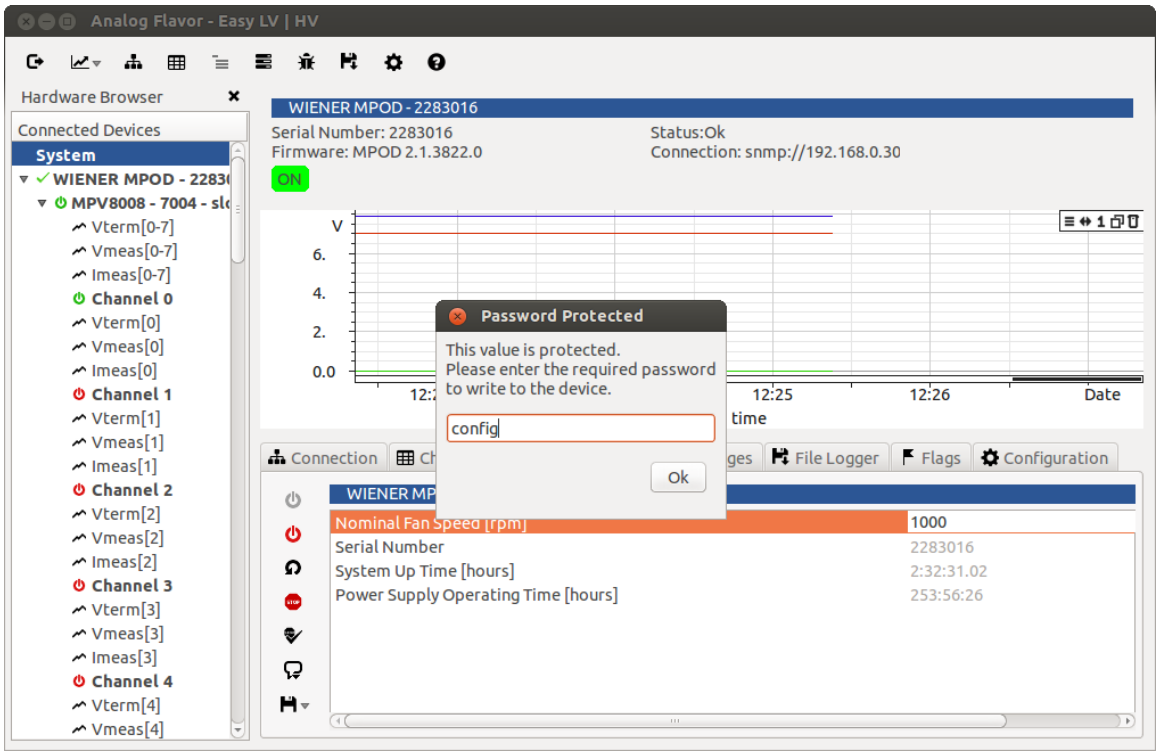


Illustration 13: The fan speed can be changed from the crate's properties page. The required password is "config".

6.5 MPOD: change the SNMP community

The SNMP protocol that is used when controlling MPOD crates defines communities. These communities allow to define users with restricted and full access. The default community names are “guru” for full access and “public” for read-only access.

The community can’t be changed. Instead a crate has to be disconnected and then re-connected with a different community name.

- Show the crate’s context menu by right-clicking the corresponding item in the “Hardware Browser”. Select “Remove Device” to disconnect the crate.
- Switch to the “Connection” page. Select the connection type “Network SNMP Connection”.
- The “Define a SNMP connection” field has a dropdown menu that allows to choose a connection among the previously used ones. Choose the connection that was previously removed.
- Change the community name for example to “guru” or “public”.

- Click the “Search for device” icon if the connection isn’t established automatically.
- Select the crate on the list of found devices below.
- Click the “Add selected device” to add the crate to the “Connected Devices” in the “Hardware Browser”.

6.6 Unexpected behavior of a device connected over SNMP

The SNMP protocol can be analyzed efficiently by performing a SNMP walk. The command line tool “snmpwalk” is contained in the NetSNMP installation. Alternatively an identical command can be launched directly from Easy LV|HV. Therefore the menu item “SNMP Walk (Debug)” needs to be selected from the crate’s dropdown menu. The output of the command will be written to a temporary file that is directly opened in the built-in text editor.

The resulting file should be generated and sent with all support requests concerning the SNMP protocol.

6.7 The voltage ramp of a High Voltage Module is limited

If a current trip or a delayed current trip is configured for a high voltage channel, the voltage ramp speed for the entire module is limited. As a consequence a ramp speed higher than 1% isn’t accepted by the module.

To avoid this limitation the following steps must be taken:

- disable the “Kill Enable” option for the module. The corresponding flag must be unchecked in the module’s properties. For an MPOD this option must be deactivated at crate level (menu in the browser).
- set the delayed trip time to 0 for all channels of the module.
- set delayed trip action to “disable delayed trip action” for all channels of the module. If the HV module is controlled over an MPOD controller, it has to be set to “ignore failure”.

Now the voltage ramp can be used over its full range.

6.8 Writing a communication log file

For debugging or analyzing the communication to a device it can be useful to create a communication log file. This is a text file that monitors all data that is sent or received from all connected devices.

This file is also very useful for all software related support requests.

Here is how to define a communication log file and enable writing to it:

- Open the “Configuration Page” by clicking on the corresponding toolbar button.
- Scroll down to “Debug → Communication Log File”.

- Click on “<file>” to open a file dialog and choose a file path.
- Click on the green check button “Accept Changes” to open the file and enable logging.

The application has to be restarted to terminate logging.

