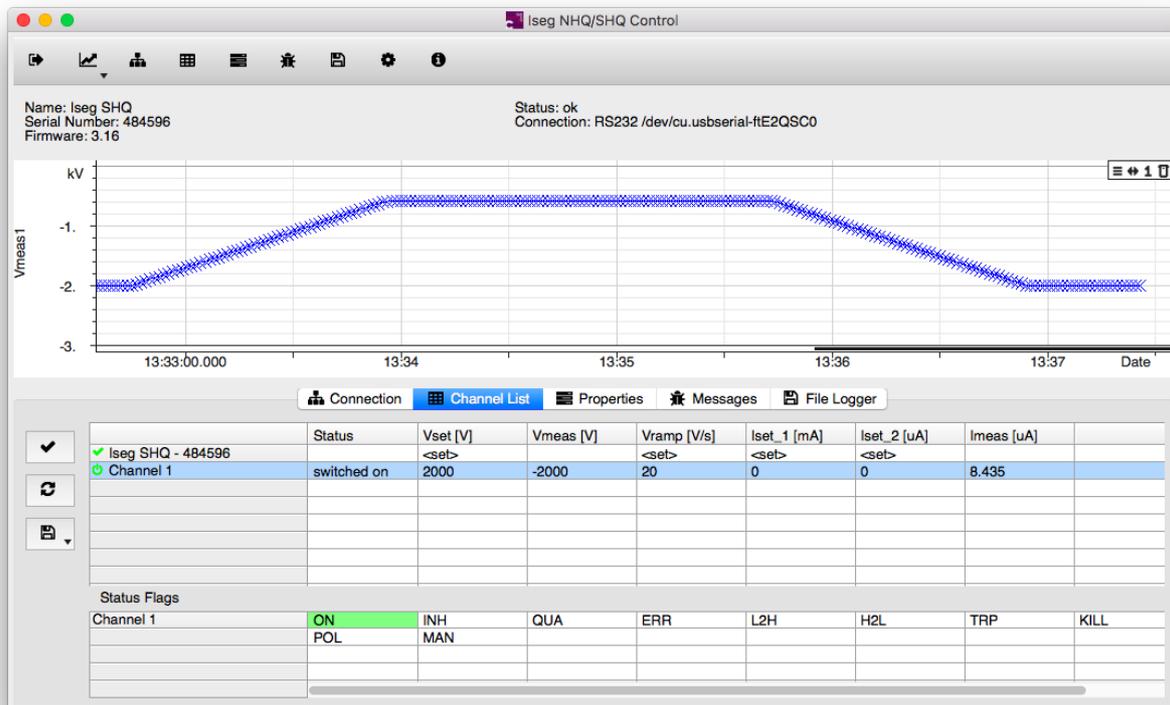


Technical documentation  
 Last changed on: 06.07.2017

# iseq NHQ/SHQ control2 (Windows, Mac, Linux)

Control software for NHQ and SHQ HV power supplies with RS232 interface



## Document history

Version	Date	Major changes
1.0	06.07.2017	Initial documentation

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It is strongly recommended to read the operator´s manual before operation. To avoid injury of users it is not allowed to open the unit. There are no parts which can be maintained by users inside of the unit. Opening the unit will void the warranty.

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### WARNING!



WARNING!

The non-observance of the advices marked as "Warning!" could lead to possible injury or death.

### ATTENTION!



ATTENTION!

Advices marked as "Attention!" describe actions to avoid possible damages to property.

### INFORMATION



INFORMATION

Advices marked as "Information" give important information.

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## 2 About

This manual describes how to control and monitor iseq NHQ/SHQ control2 power supply devices using iseq NHQ/SHQ control2. The provided application controls iseq NHQ/SHQ hardware connected locally over a serial (RS232) cable connection. iseq approved USB to RS-232 adapters allow the control with contemporary hardware. The software runs on a personal computer (PC) using Windows, Linux and Mac operating systems (see system requirements). The software allows to control the standard and high precision series. iseq NHQ/SHQ control2 uses the ASCII command set defined in the power supply's users manual.

ATTENTION!



It is highly recommended to read the power supply's manual before using this software.

ATTENTION!

The following user guide describes the functionality of iseq NHQ/SHQ control2 that allows to control and monitor the connected high voltage power supplies. It illustrates the purpose of iseq NHQ/SHQ control2 including examples.

## 3 System requirements

	WINDOWS	LINUX	MAC
OS versions	XP, Vista, 7 professional, 8, 10 (32 / 64bit)	Ubuntu(14.04 or higher), Debian(jessie), others on request	OS X (10.6 and higher)
Interfaces	<b>RS-232</b> Recommended USB to RS232 interfaces:		
CPU	<b>Minimum:</b> Intel Core 2 Quad CPU Q6600 @ 2.40GHz / AMD Phenom 9850 Quad-Core Processor@ 2.5GHZ <b>Recommended:</b> Intel Core i5 3470 @ 3.2GHZ (4 CPUs) / AMD X8 FX-8350 @ 4GHZ (8 CPUs)		
RAM	<b>Minimum:</b> 4 GB <b>Recommended:</b> 8 GB		
Free disc space	50 MB	50 MB	50 MB
Display	<b>Minimum:</b> 1,024x768px / <b>Recommended:</b> 1,280x1,024 or higher		

Table 1: System requirements

## 4 Installation and Updates

Follow these general steps to install iseq NHQ/SHQ Control

### Windows:

- Download and unpack the application from its distribution format (.zip).
- Locate the executable file path (NHQ SHQ Control/bin/iseq\_nhq\_shq\_control.exe) to open the application.

### Linux:

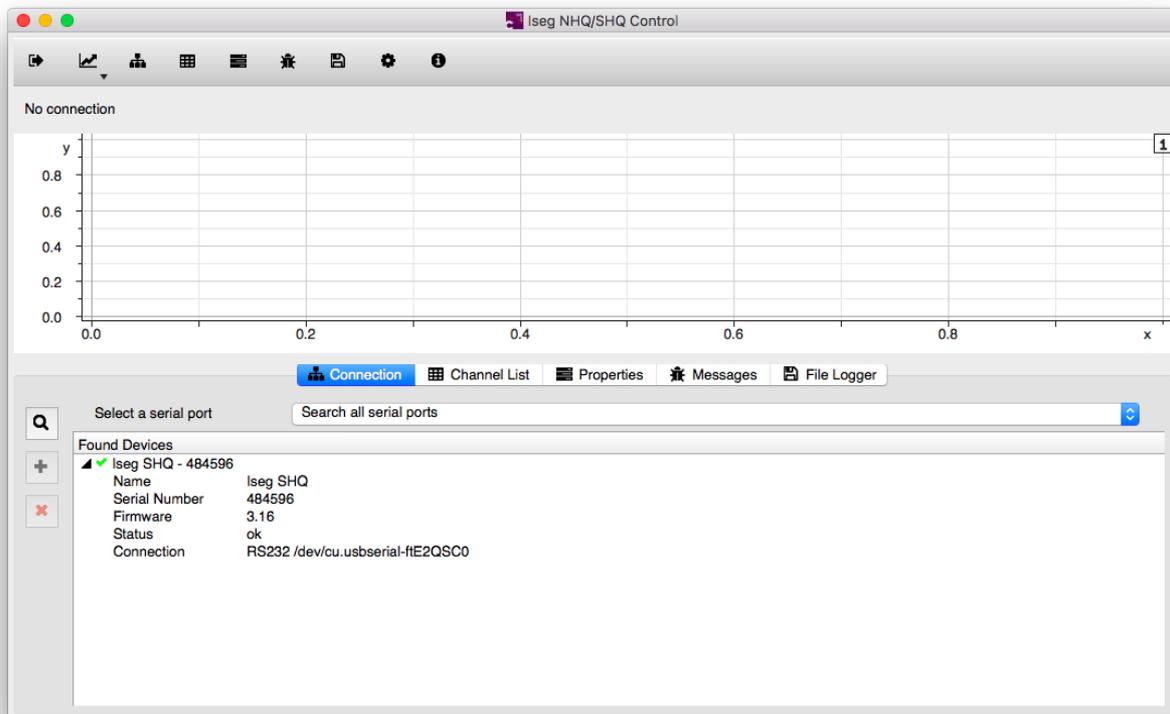
- Download the application from its distribution format (.tar.gz)
- untar the application and convert the shell script to executable  
\$ sudo tar -xvf iseq\_nhq\_shq\_control  
\$ cd NHQSHQControl  
\$ chmod +x ./bin/iseq\_nhq\_shq\_control
- open the application  
\$ ./bin/iseq\_nhq\_shq\_control.sh

### Mac:

- Download the application from its distribution format (.dmg)
- Open .dmg and agree the license information.
- A new finder window is opened with iseq\_nhq\_shq\_control.app and Applications folder.
- Drag and drop iseq\_nhq\_shq\_control.app to Applications and find the executable file in Applications.
- Open iseq\_nhq\_shq\_control in Applications folder.

## 5 Usage

### 5.1 The Connection Page

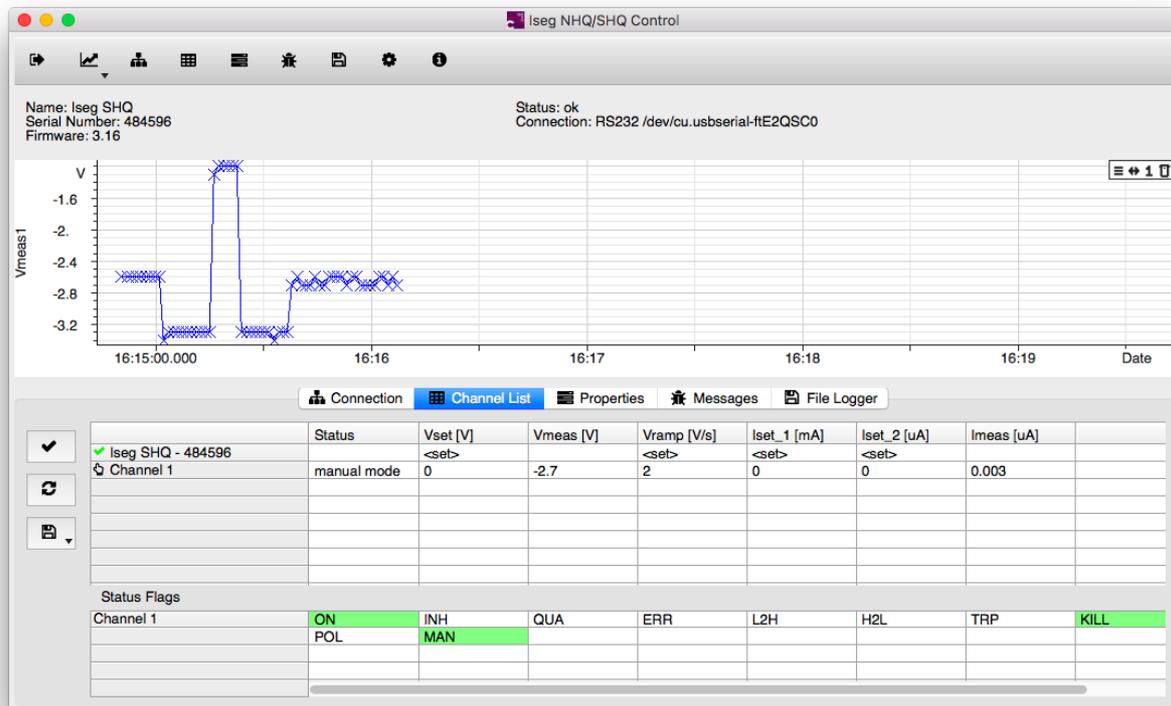


The first step in using iseg NHQ/SHQ is to establish a connection to the controlled power supply. The available serial ports can be searched for SHQ or NHQ power supplies. Therefore select “Search all serial ports” and click on the “Search For Device” button. All serial ports will be scanned for connected devices. If a SHQ or NHQ power supply is found it appears in the “Found Devices” list.

- To control a found device, select this device in the list and click on the “Add Selected Device” button.
- The connection to the device is established in a permanent way. The tool automatically switches to the “Channel List” page.
- The currently controlled device can be disconnected by clicking on the “Close Current Connection” button.

iseg NHQ/SHQ allows to control only one device at a time.

## 5.2 The Channel List Page



The channel list shows the main parameters and values used to control the power supply. All channels are listed. Values that can be set such as “Vset” and “Iset” can be edited by clicking on the corresponding cell in the shown table. The fields denoted “<set>” can be used to set values for all channels in a single operation.

- The new values aren’t shown immediately but only when they have been confirmed by the connected SHQ or NHQ power supply.

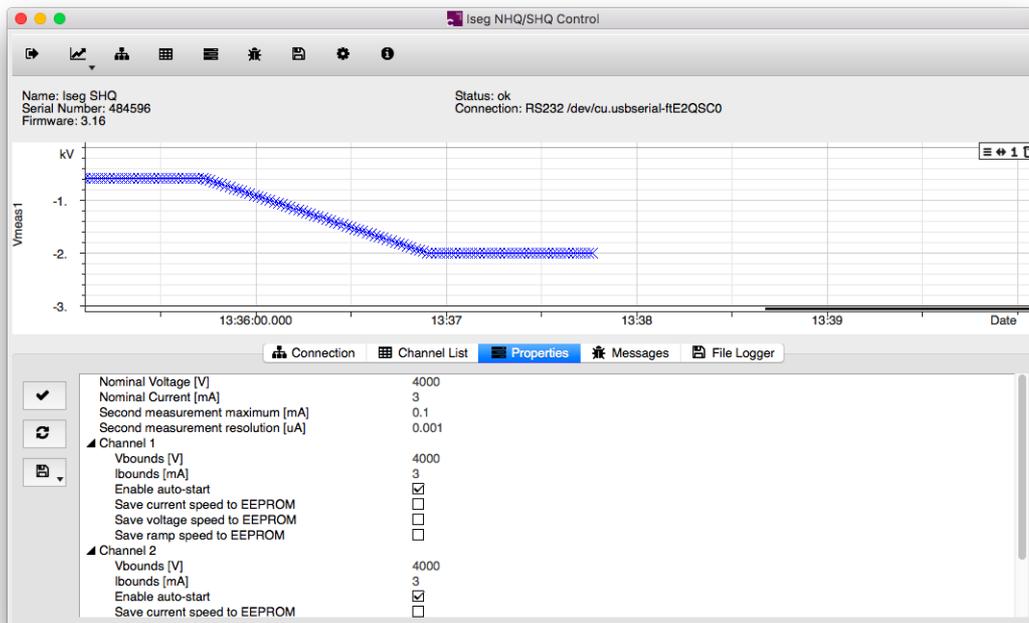
The SHQ power supplies allow to set values for “Iset” for the mA and the  $\mu$ A range. Which value applies depends on the position of the mA/ $\mu$ A switch on the device front panel.

- After having set a new value for Vset, the device doesn’t start to ramp to the new value immediately. Instead the new value has to be confirmed by clicking on the “Confirm Voltage Settings” button. This behavior can be changed by setting the “Enable auto-start” flag in the “Properties” page.

The status flags shown in the lower part of the channel list page disappear quickly after having been set by the power supply. However each status change is logged in the “Messages” page. In addition the message “event occurred” appears in the “Status” column of the table. This message can be cleared by clicking the “Clear Events” button.

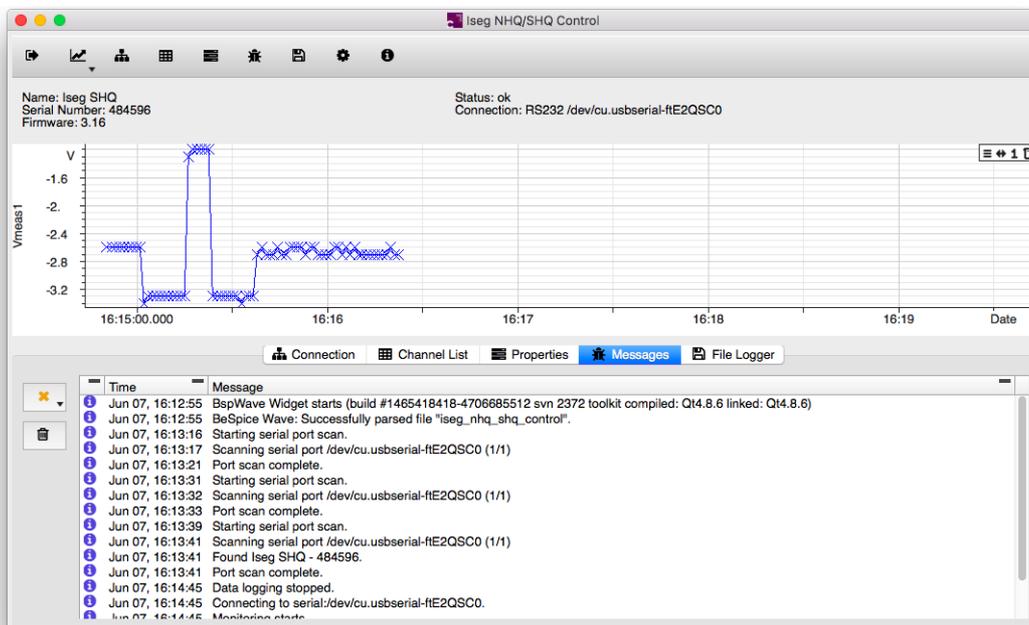
The device profile, that means the voltage, current and ramp settings, can be saved and restored by clicking on the “Save And Restore Profile” button.

## 5.3 The Properties Page



The parameters and values of the power supply that aren't shown in the channel list are available in the "Properties" page. Only the flags "Enable auto-start" and the buttons allowing to save the current settings to the EEPROM can be set by the user. Please read the NHQ/SHQ user manual to find out how auto-start works.

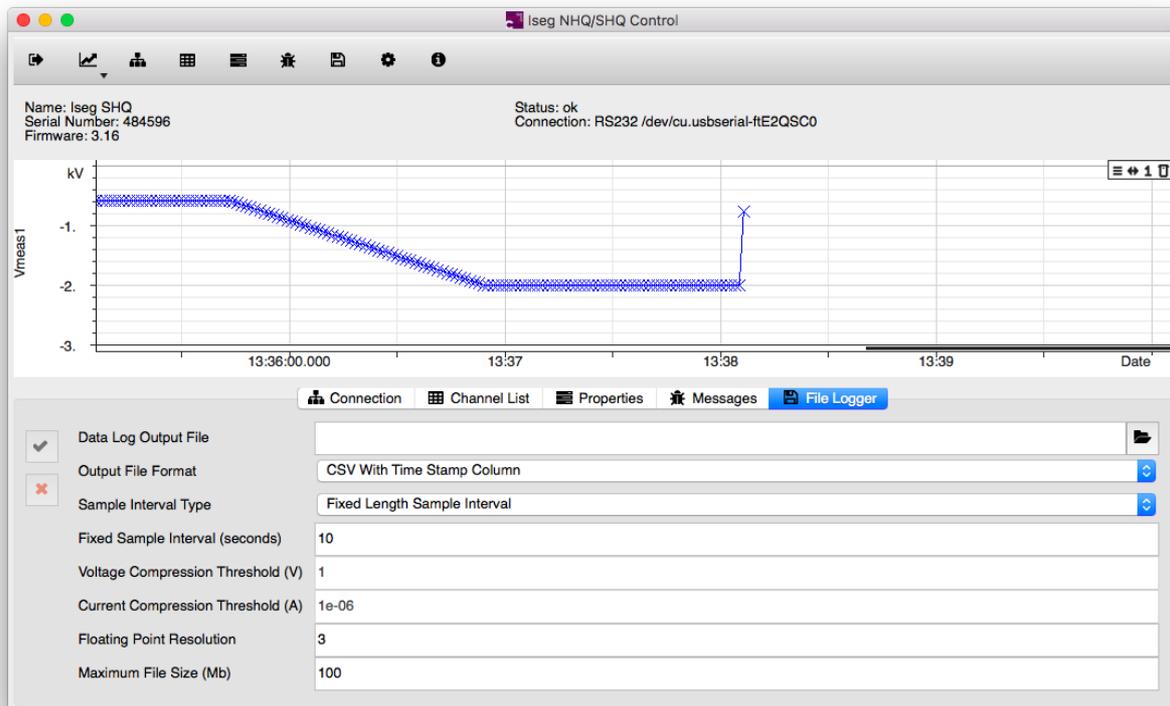
## 5.4 The Messages Page



Actions, messages and errors are written to the "Messages" page. The "Message Filter" button allows to select which messages are shown in the list. The list can also be cleared by clicking the "Clear Messages" button.

When selecting a particular message in the list, IseG NHQ/SHQ will attempt to add an annotation to the shown graphs. This allows for example to visualize where a current trip or similar event occurred. However due to the time required to communicate to the device these annotations might appear with a delay after the event occurred.

## 5.5 The File Logger Page



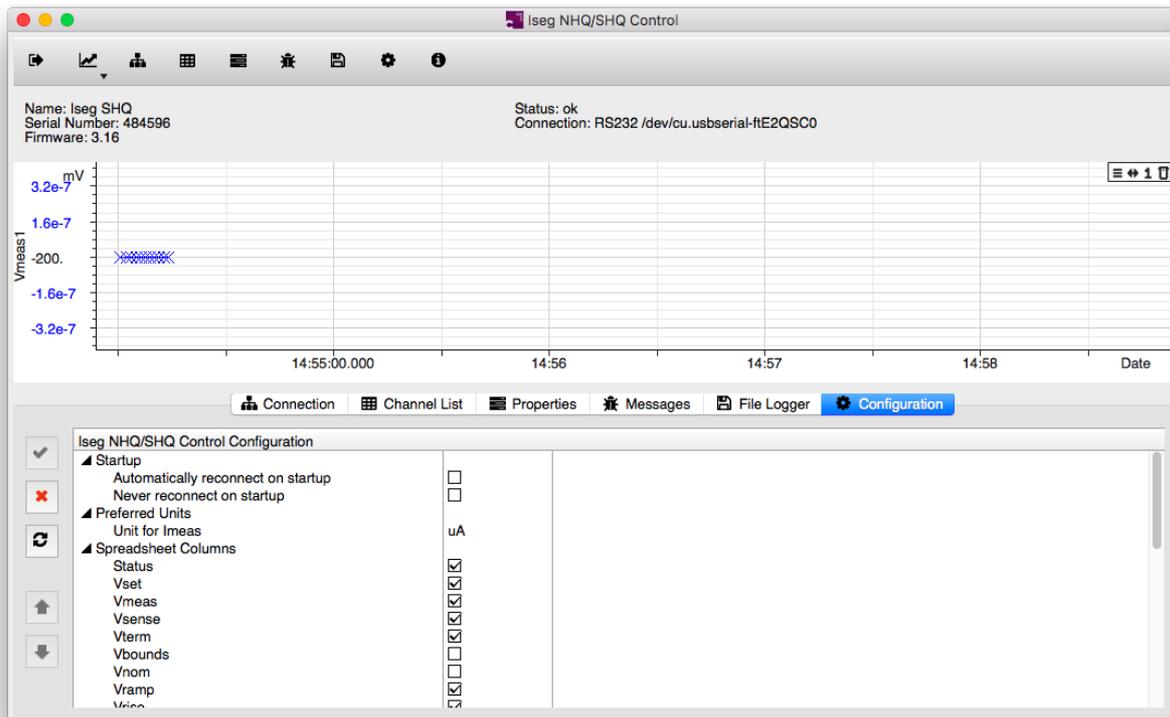
The "File Logger" allows to write measured values to a CSV file while operating the high voltage power supply.

Therefore a file has to be defined in the "Data Log Output File" field. The file can also be chosen by clicking the "Define Data Log Output File" button. The field "Sample Interval" allows to define the time intervals in the CSV file. Small values can lead to very large files if the file logger runs for a long time. The floating point resolution can be used to define the accuracy of the output.

The field "maximum File Size" allows to limit the file size. Data logging stops when this file size is reached.

The button "Start Data Logger" starts logging. The button "Stop Data Logger" ends the logging process.

## 5.6 The Configuration Page



The “Configuration” page is only visible when the “Show Configuration” button has been clicked. It is closed after having accepted or canceled the changes made in the list of configurable items.

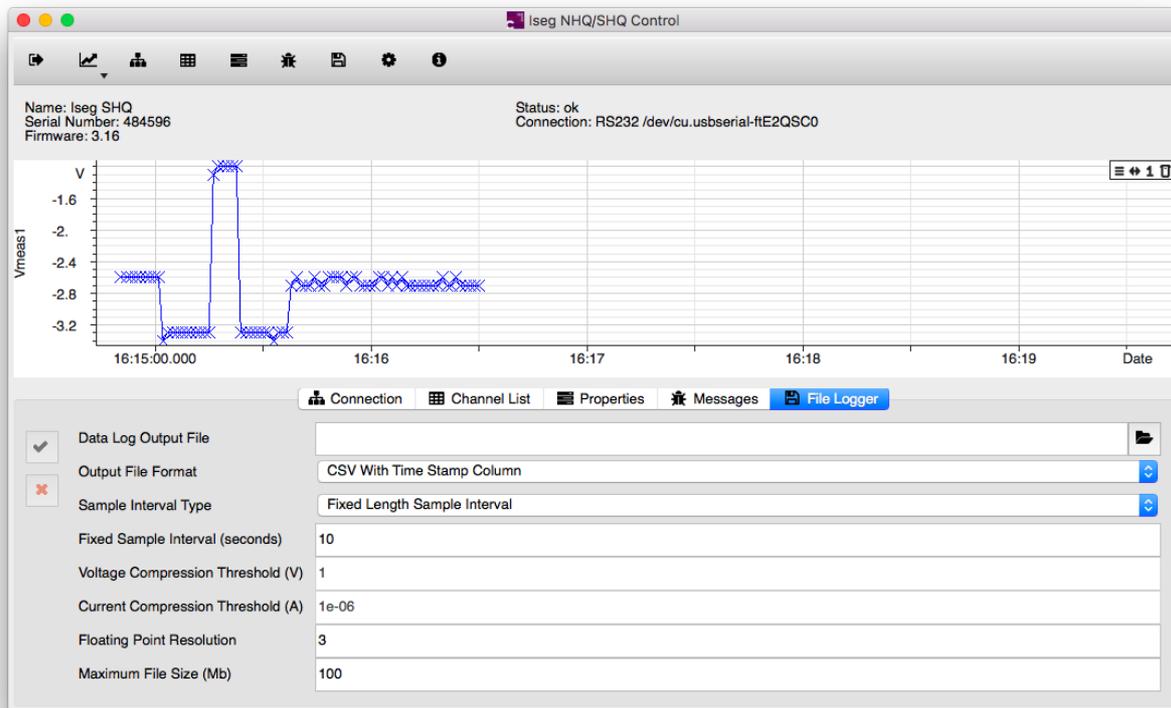
Several aspect of the user interface can be configured. Such as the startup behavior, the columns shown in the channel list and some aspects of the graph window.

The graph window can be configured to show symbols for each data point. The graph always shows the last part of the measured values except if the user interacts by zooming to another part of the curve. After each user action the graph windows waits some time before falling back to showing the last part of the curve.

The interval shown by default can be configured by changing the “automatic zoom interval” value. The time the graph window waits after each user interaction can be configured by changing the value for “user zoom timeout”.

Iseg NHQ/SHQ updates after having clicked the “Accept Changes” button. The “Set To Default Values” button re-establishes factory defaults. The “Cancel Changes” restores the previous settings and closes the configuration page.

## 5.7 The Graph Window



The graph window can be used to display the measured voltages and currents over time. It can show the measured voltages, the measured currents or both. Which curves are shown is defined in the drop-down menu for the “Show Curves” button in the tool bar.

The curves in the graph window can be highlighted by clicking on them. Highlighted curves can be removed from a graph by typing the “DEL” key. They can be dragged from one graph to another if 2 graph windows are shown. By default the graph window shows the last 5 minutes of the measured values. This interval can be configured in “Configuration” page.

However the shown section of the curve can be changed by zooming in or out using the mouse wheel. The way the graph changes depends on the position of the mouse pointer. The x- and y-axes can be zoomed independently. The right mouse button can be used to define a zoom box. While the zoom box is drawn hitting the “SPACE” key changes the zoom box in order to allow to zoom only one of the axes or to zoom out.

If no further user action occurs for 20 seconds, the graph window shows the last 5 minutes of the measured values again. Annotations for events that have been generated from the “Message” page can be edited and moved.

The curves shown in the graph windows can be dragged to external tools such as Excel® and OpenOffice Calc.

- The graph window operates with a data buffer limited to 10000 values. After having read 10000 values, the oldest values in the curves are removed. However the “File Logger” page allows to monitor the connected power supply for longer time periods.

## 6 Appendix

For more information please use the following download links:

<b>This document</b>
<a href="http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_manual_iseqNHQ-SHQcontrol_en_1.0.pdf">http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_manual_iseqNHQ-SHQcontrol_en_1.0.pdf</a>
<b>Windows installation File</b>
<a href="http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_software_iseqNHQ-SHQcontrol_win_1.0.zip">http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_software_iseqNHQ-SHQcontrol_win_1.0.zip</a>
<b>Mac OS X installation File</b>
<a href="http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_software_iseqNHQ-SHQcontrol_mac_1.0.zip">http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_software_iseqNHQ-SHQcontrol_mac_1.0.zip</a>
<b>Windows installation File</b>
<a href="http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_software_iseqNHQ-SHQcontrol_linux_1.0.zip">http://download.iseq-hv.com/SOFTWARE/iseqControl2/iseq_software_iseqNHQ-SHQcontrol_linux_1.0.zip</a>

## 7 Manufacturer's contact

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