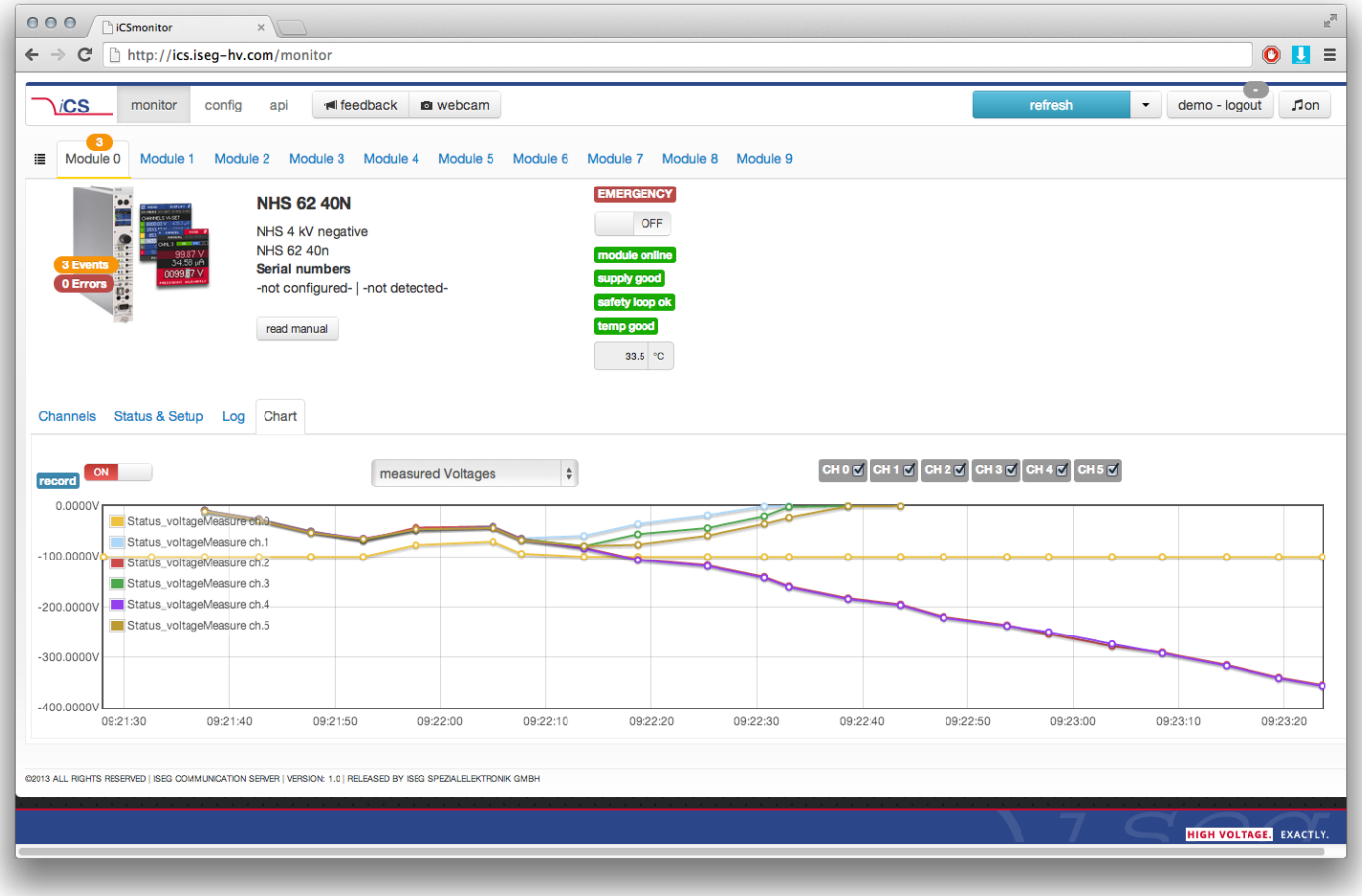
Getting started with *i*CS - iseg Communication Server

Version 1.0 | http://www.iseg-hv.com/ics



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System description

iCS is a multi component integrated hard- and software solution to control CAN based iseg HIGH VOLTAGE hardware from multiple devices over wired or wireless network.
The hardware comes in standalone version iCSmini or integrated in device, eg. the iseg SYS-6U crate ECH 44a series.

The frontend is based on browser technology to keep installation and maintenance effort low and communicate with many device types.
iCS comes with an integrated role and user management, and is also able to update soft- and firmware of iseg hardware.

iCS Software parts	
iCSmonitor	browser based monitoring and control solution
iCSremote	browser based monitoring and control solution for mobile devices, eg. tablets
iCSconfig	configuration section for iCS software and iseg hardware, eg. firmware updates, database, manuals etc.
iCSapi	SOAP based API stack to control iCS by 3rd party software, including item and functional documentation
iCSservice	internal websocket based server
iCSwatch	watchdog software to maintain software services, start iCS, start hardware (WiFI, Webcam, CAN etc.)

Factory defaults

WIFI FACTORY DEFAULTS	
SSID	iCS
Channel	5
Password	ABCDEFGH
IP (fixed)	192.168.0.1

ETHERNET FACTORY DEFAULTS		
IP	DHCP	
GATEWAY	auto	
NAMESERVER	auto	
DNS	auto	
iCSservice	0.0.0.0 (autodetect)	internal gateway address, do not change

USER DEFAULTS	
Username	admin
Password	password

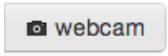
USB-SD card

The iCS system ships with a SD card, located in a USB 2.0 compatible reader.
This card contains the complete iCS runtime and configuration. This gives you the ability to setup different crate configuration on different SD cards, for example to maintain different experiments over longer time or for multiple installations of one crate.

In case that you purchased a crate bundled with iseg modules, the card is preconfigured with the crate configuration.
A factory default iCS installation can be downloaded at iseg.hv.com. The zip-file should easily be unpacked on a FAT-formated SD card.

Webcam

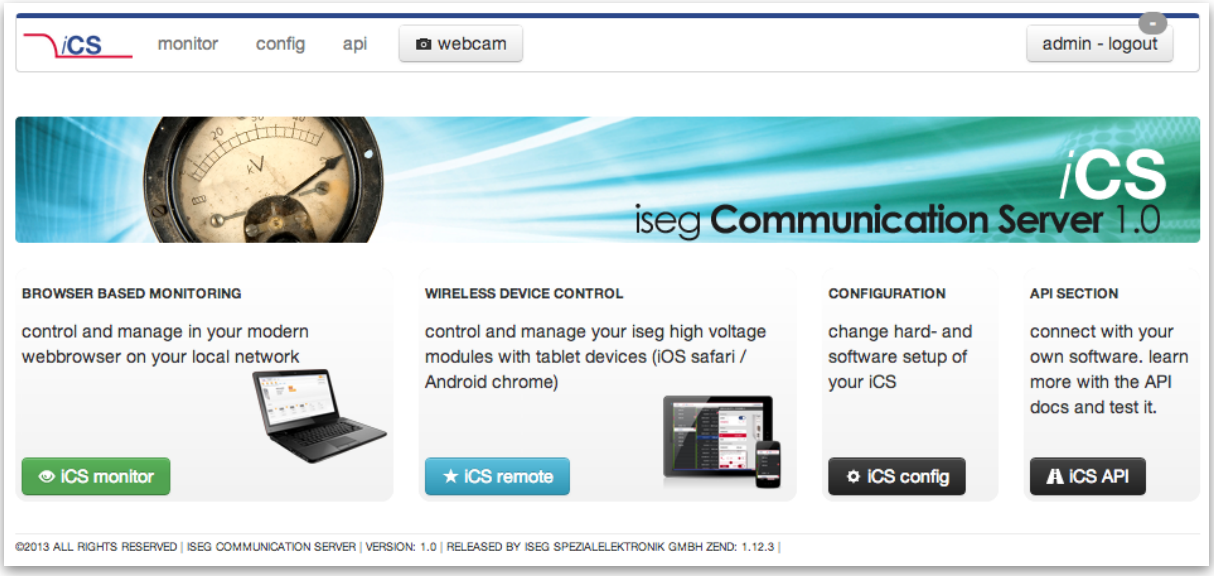
To use experiment surveillance feature you can connect a DirectX compatible USB webcam with the iCS hardware. After a reboot the camera will be detected automatically. Now you can open the webcam image by using the button on the top of the iCS navigation bar.



First start

1. Start the crate. Ensure you have the Wifi adapter installed and the SD card is in the external slot.
2. If you connect via Wifi search for existing wifi networks and select „iCS“. Enter the factory default password (see table).
    1. open a webbrowser (Chrome >= v33 / Firefox >= 25 recommended) and enter the factory default IP-address (see table)
    2. enter the factory default username and password
3. If you like to connect via Ethernet with factory defaults, please fetch the IP-address lease for iCS by consulting your DHCP server (mostly router setup) or ask your administrator.

    If you wish to set a fixed address, please use a (temporary) wifi connection to setup (see step 2)
    1. open a webbrowser (Chrome >= v33 / Firefox >= 25 recommended) and enter the leased IP address
    2. enter the factory default username and password
    3. enter iCSconfig to change hardware preferences like Ethernet setup, crate configuration etc.

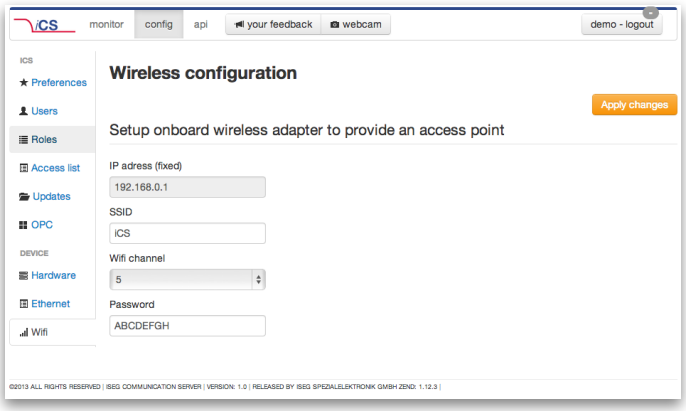


iCS config

iCS has a comprehensive set of configurable properties. All of them are stored on a XML file on the SD card, to keep configuration flexible. This enables the possibility to have multiple configuration setups stored on a SD card, while changing or testing different hardware setups while always having an instant running backup.

iCS config sections	
preferences	software application preferences (browser adjustments, standalone / crate mode, sound…
users	create & edit users, set passwords etc.
roles	create & edit roles, assign users to roles
access lists	versatile edit functionality to give right on item base
updates	download iCS and hardware firmware updates from iseg-server or import them locally
OPC	configuration of integrated OPC server
Hardware	manage connected hardware, do firmware updates, set configuration
Ethernet	edit settings of iCS ethernet port, use DHCP vs. static IP address
WIFI	if iCS comes with Wifi option, enter Wifi SSID or change channel and password

Wifi setting

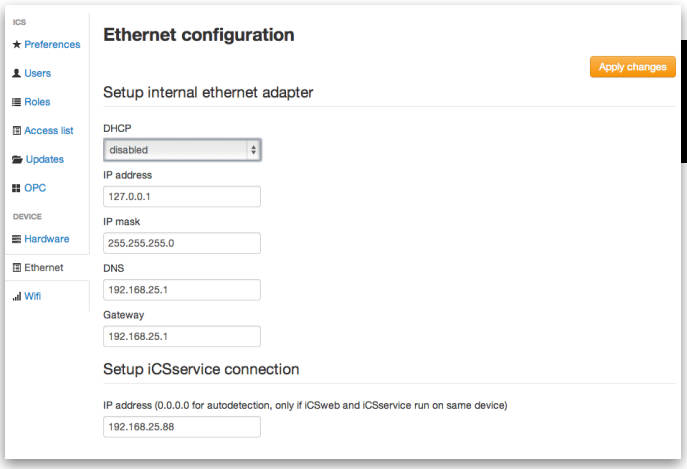


The iCS systems ships with an optional wifi-adapter.
See section factory defaults.

Ethernet adapter

The iCS systems ships with a preinstalled network adapter.

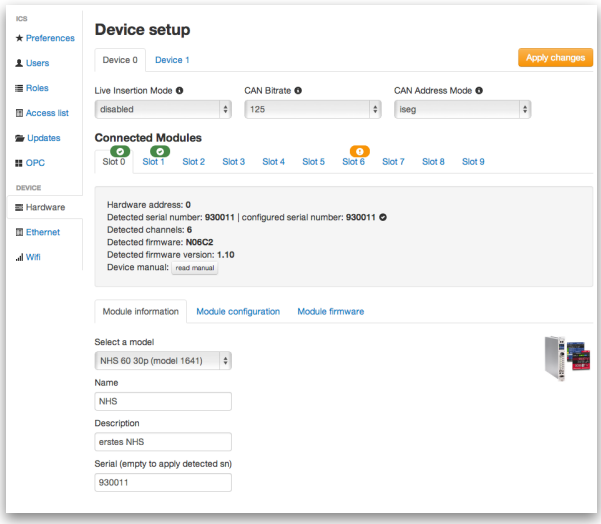
See section factory defaults.



NOTICE: Use a wifi connection to change factory default network configuration.

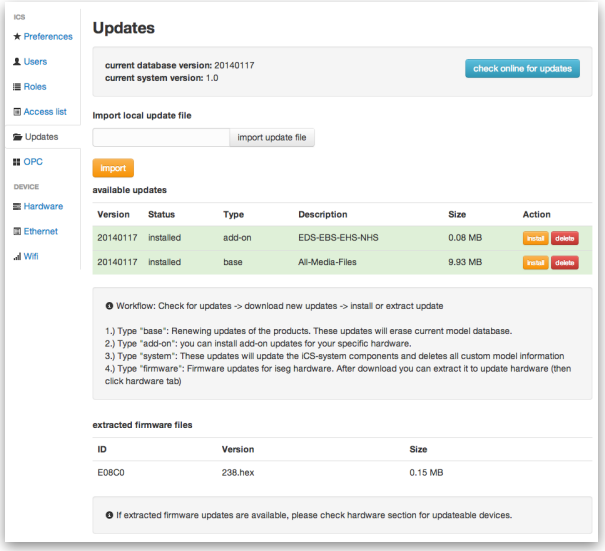
Hardware configuration

1. Trigger Device Scan:
    1. Open iCSmonitor
    2. Open Dropdown of Connect-Widget and select „rescan“
2. Change to iCSconfig / preferences : Choose if you like iCS in **Crate mode** or **Standalone mode**
3. Change to iCSconfig / Hardware : Select the crate
4. Select a slot
5. Select the module from the list your hardware (if not available please use update section)
6. Enter a name and description for the module. This will be displayed in monitor.



Catalog update / Firmware update

1. check for online updates (blue button) or alternatively import a file from your local computer
2. For Catalog files select „install“
3. For Firmware Files select „extract“
4. Goto hardware section to update firmware
5. Delete old files if necessary



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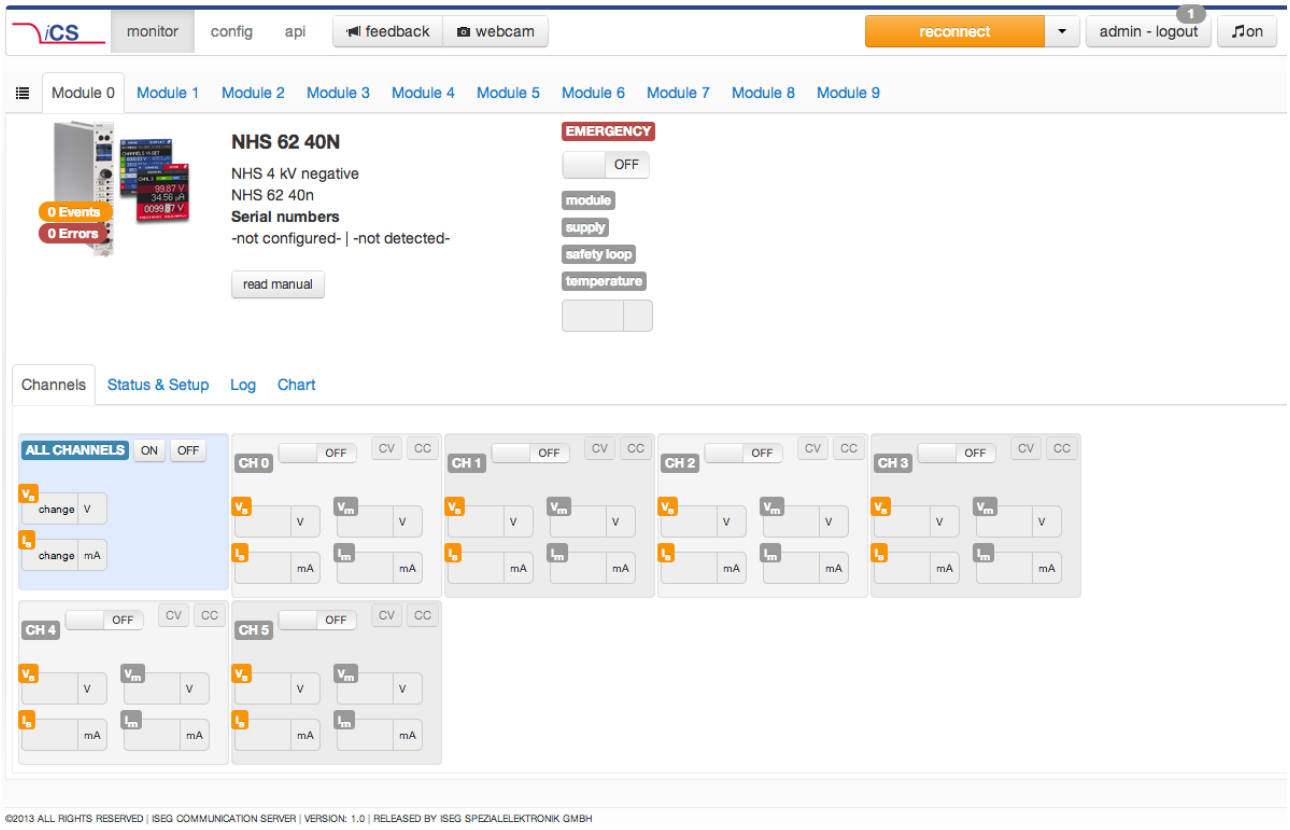
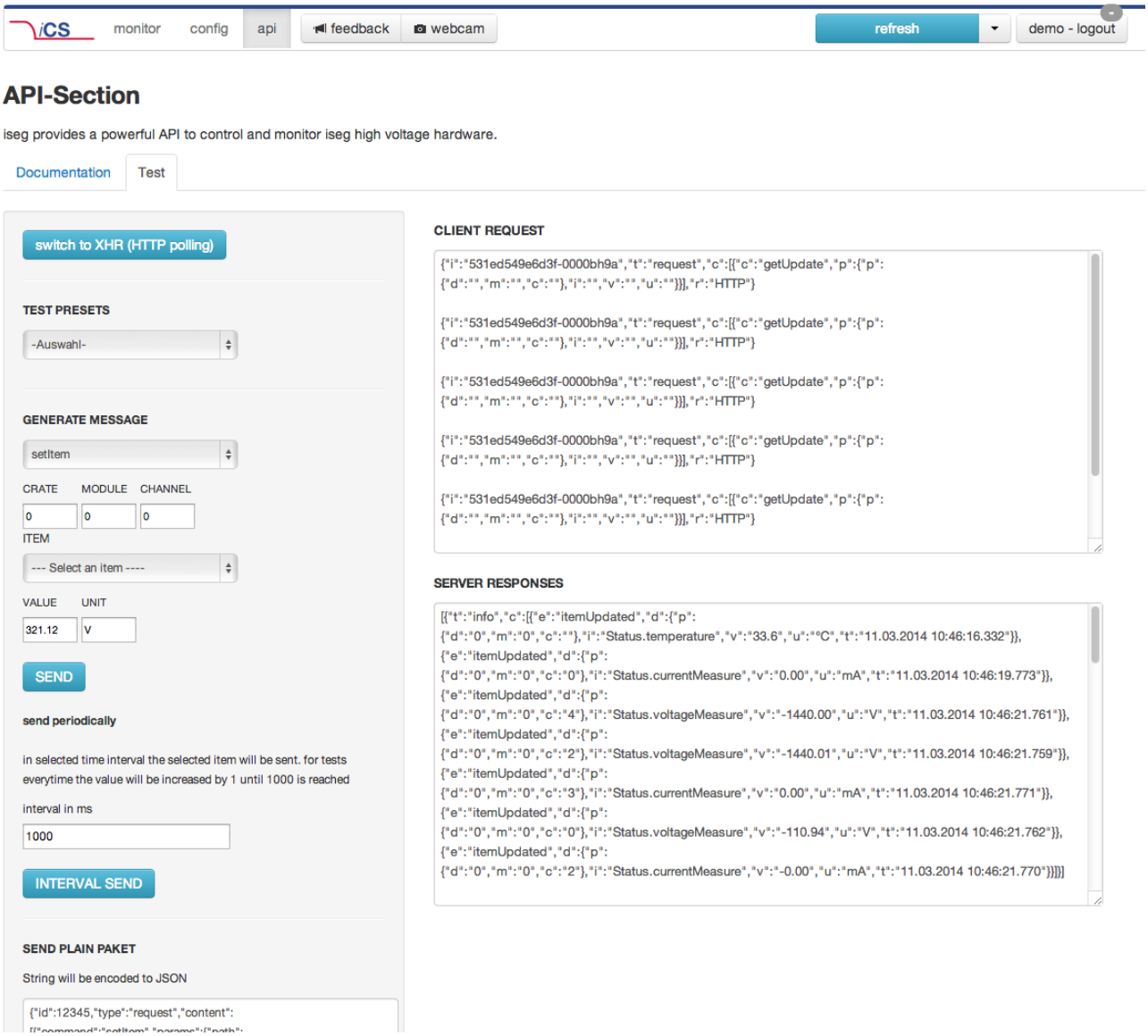
iCSmonitor



1. Crate-mode only: Select the crate to manage. If you wish to use list mode click on list icon.
2. Select module to control or monitor.
3. Channel section: control each channel separately by using channel widget or set mass-operations by using „all channels“-widget (blue). By clicking on a set value field (orange badge), a dialog with a slider and text input will be shown.
4. Status & Setup: change some module specific parameters, e.g. ramp speed direct during operation
5. Log : use live log system to trace events, status updates and errors. Note: Logs are recorded only during the current browser session. For more sophisticated use please refer to API section.
6. Chart: iCS comes with a integrated live - chart functionality. This helps to monitor value changes visually. Please select item to be shown by using the drop down menu.

iCSapi



iCS comes with a full featured interface to connect with third party software. The API is based on the SOAP protocol. The full description of the interface comes by a WSDL - file, a XML based standard web service description language document. A wide range of programming languages already got SOAP implementations.

NOTICE: iseg provides a C based library which wraps the SOAP interface, for a quick start with your own tools. Please contact sales department by sales@iseg-hv.de

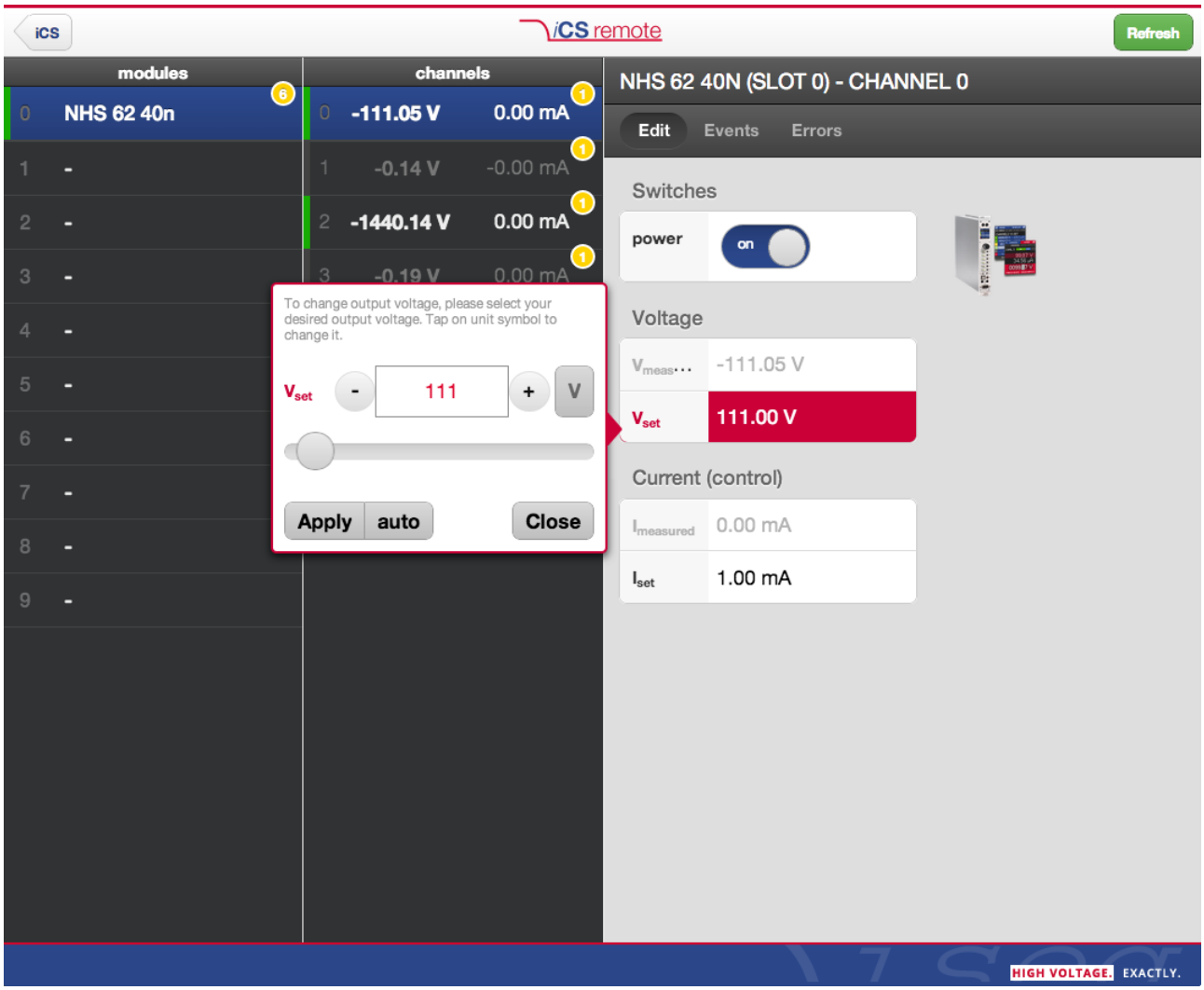
Documentation

Under the iCSapi section documentation, all interface methods, communication objects and items are shown in detail.

Test - section

In this section iCS gives you the opportunity to test the server interface directly. You can prepare a message and see, what iCSserver responses. Furthermore you can send changes periodically. For testing purpose the value will be increased by 1 each time.

iCSremote



The iCSremote is a web based application optimized to mobile devices as tablets or phones.
It is limited to control 1 crate with multiple module or a daisy chain setup of modules with iCS standalone device.

1. Connect with iCS Wifi network or local WIFI
2. Open browser on mobile devices, e.g. Safari on iPad or Chrome (recommended) on Android devices.
3. Enter IP address of iCS (see factory defaults) in address bar

4. Login with your credentials
5. Open remote section by clicking the button on the dashboard

Note: On iOS device, eg. apple iPad or iPhone, you can bring iCS as native app feeling without browser bars etc. by using „to homescreen“ functionality

Quick assistance

To get quick support to iCS issues, please contact iseg support department:

iCS support	
Internet	http://www.iseg-hv.com/en/support/
E-Mail	support@iseg-hv.de
Phone	+49 351 26996-0