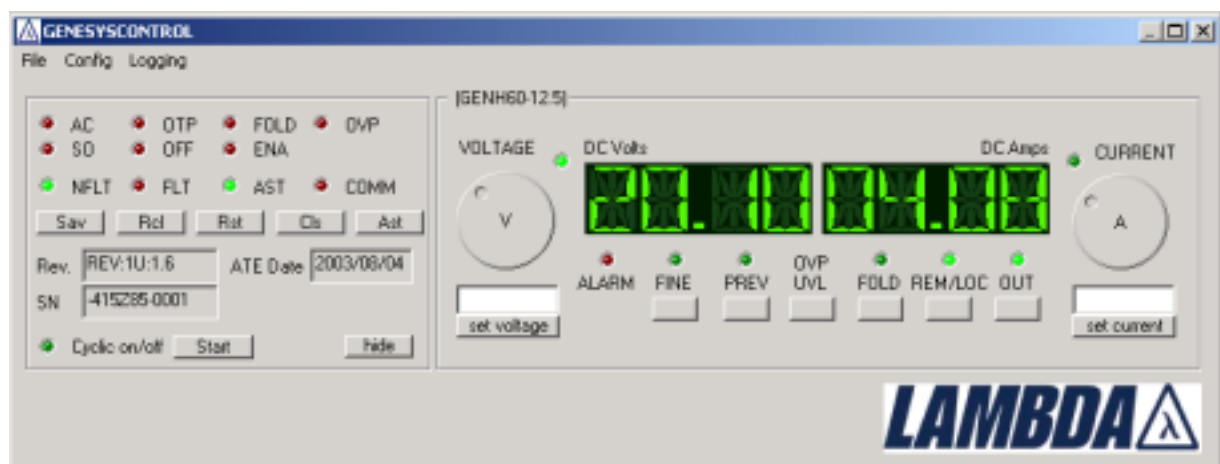


GenesysControl

User guide



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1.0 General Information

1.1 What is GenesysControl

- GenesysControl is an application to control up to two Genesys devices via the serial line.
- GenesysControl supports all Genesys types (GEN and GENH) and all available firmware versions. (up to Rev. 1.6)
- GenesysControl tries to look and behave like the original Genesys devices. Note that there might be some differences between a Genesys device and GenesysControl!

1.2 Prerequisites

- A Windows PC with Win 95, 98, 98SE, ME, 2000 or XP, > 200MHz CPU, at least 32MB Ram and 1MB of HD space.
- One or two Genesys device(s).
- Connect your Genesys device(s) to an empty serial port of your PC. Check the "Genesys User Manual" for more details on this.
- If you use two Genesys devices, ensure that different device addresses are used!

1.3 Disclaimer

This Software was taken due care in preparation of this software and this documentation. But there is no warranty from Powerware GmbH that any failure could occur with this software. Program author Powerware GmbH have no liability to purchaser or any other entity, with respect to any liability, loss, or damage caused directly or indirectly resulting from the use of or operation of this software.

The operation of this software is taken exclusive on your own risk!

For further questions to the Genesys Line up or any other questions please contact your LAMBDA contact address

Powerware GmbH

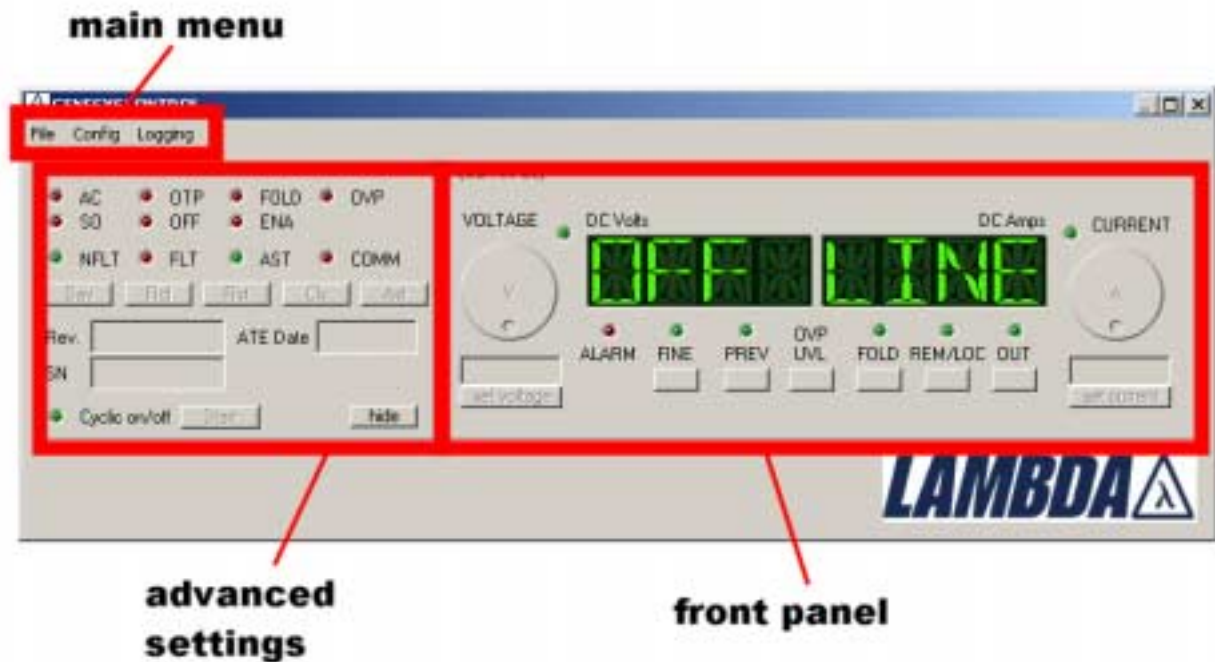
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2.0 The application

2.1 The main menu

The main menu consists out of three sub-menus: *File*, *Config* and *Logging*.

In *File* you find commands to start and stop a Genesys session and to exit the application.

Config offers three possibilities for an individual setup: For the application and the two Genesys devices.

In *Logging* you find everything to control the applications log window.

File

Run

Choose Run if you want to start a Genesys control session.

Stop

Choose Stop if you want to stop a Genesys control session.

Exit

Choose Exit to close the GenesysControl application.

Note: You can't close GenesysControl if a control session is running.

Config

General configuration

Here you can adjust the main parameters to your individual needs. Also you can call the Genesys autodetection from *General Configuration*.

Device 1 / Device 2

In the device configuration you can setup the Genesys device type, the device address and a name for each device, which will be displayed on the front panel.

Also you can select a voltage and/or current range.

Last you can choose out of a couple of commands to execute at session start and at session stop. This feature helps you to bring the Genesys device to a safe state after session start.

Logging

Show log window

Shows the GenesysControl logging window.

Hide log window

Hides the GenesysControl logging window.

2.2 GUI elements

The GenesysControl GUI (graphic user interface) consists out of two parts: The so-called front panel, which contains all necessary elements to control the Genesys device and the Advanced Settings which contain informations and functions for the advanced GenesysControl user.

The front panel

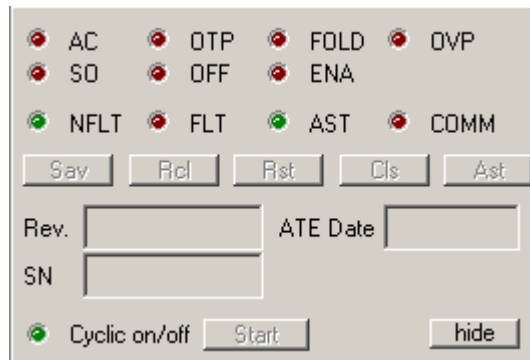


- For each Genesys device there exists one front panel. A front panel contains:
- Two four-digit-displays to display the current and the voltage (or other information depending on the mode).

- Two round sliders to set the current and the voltage (or other values depending on the mode).
- Two LEDs to indicate if the device is in constant-current or constant-voltage mode.
- Two direct input buttons and input fields below the sliders to enter a voltage or a current directly.
- Five buttons to change the mode or enable or disable some functions of the Genesys device.
- Five LEDs to indicate different modes and provide necessary information about the Genesys device.

Advanced settings

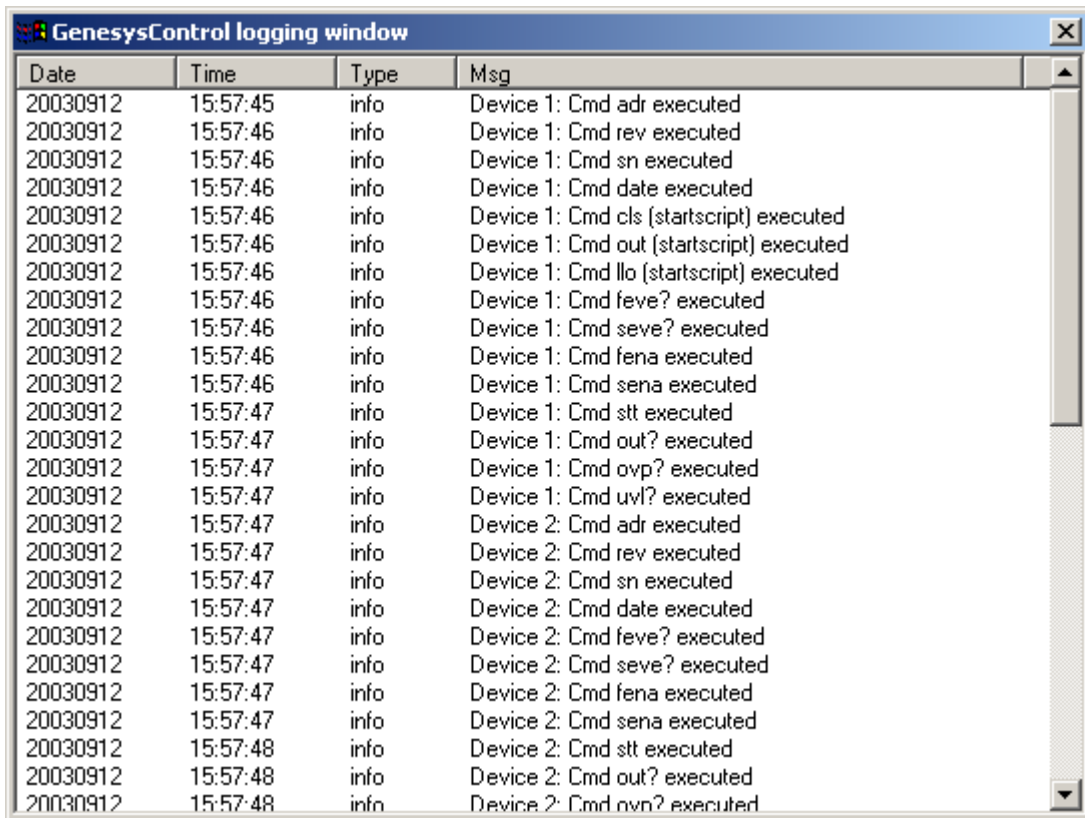
The *Advanced settings* provide access to a lot of information and some function not all GenesysControl users would use every day. Therefore this part is hidden and has to be opened via a click on the *Advanced settings* area.



The *Advanced settings* provide:

- Seven error LEDs to display all possible kinds of Genesys alarm-errors.
- Four state LEDs to display the actual Genesys device state.
- Five direct access buttons to execute a set of Genesys commands with one mouseclick.
- Three information controls which display the serialnumber, the last caldate and the firmware-revision of the Genesys device.
- An extra Button to start/stop the cyclic ON/OFF function.

2.3 The logging window



Date	Time	Type	Msg
20030912	15:57:45	info	Device 1: Cmd adr executed
20030912	15:57:46	info	Device 1: Cmd rev executed
20030912	15:57:46	info	Device 1: Cmd sn executed
20030912	15:57:46	info	Device 1: Cmd date executed
20030912	15:57:46	info	Device 1: Cmd cls (startscript) executed
20030912	15:57:46	info	Device 1: Cmd out (startscript) executed
20030912	15:57:46	info	Device 1: Cmd llo (startscript) executed
20030912	15:57:46	info	Device 1: Cmd feve? executed
20030912	15:57:46	info	Device 1: Cmd seve? executed
20030912	15:57:46	info	Device 1: Cmd fena executed
20030912	15:57:46	info	Device 1: Cmd sena executed
20030912	15:57:47	info	Device 1: Cmd stt executed
20030912	15:57:47	info	Device 1: Cmd out? executed
20030912	15:57:47	info	Device 1: Cmd ovp? executed
20030912	15:57:47	info	Device 1: Cmd uvl? executed
20030912	15:57:47	info	Device 2: Cmd adr executed
20030912	15:57:47	info	Device 2: Cmd rev executed
20030912	15:57:47	info	Device 2: Cmd sn executed
20030912	15:57:47	info	Device 2: Cmd date executed
20030912	15:57:47	info	Device 2: Cmd feve? executed
20030912	15:57:47	info	Device 2: Cmd seve? executed
20030912	15:57:47	info	Device 2: Cmd fena executed
20030912	15:57:47	info	Device 2: Cmd sena executed
20030912	15:57:48	info	Device 2: Cmd stt executed
20030912	15:57:48	info	Device 2: Cmd out? executed
20030912	15:57:48	info	Device 2: Cmd ovp? executed

The logging window is a useful tool, when a problem occurs in your setup. There are four columns in the log window:

- Date: The date the information was logged.
- Time: The time the information was logged.
- Type: The type of information: error, warning or info.
- Msg: The message itself.

3.0 Configuration of GenesysControl

The standard procedure to set up GenesysControl is to do first the *General Configuration* and then the *Device configuration* for each device you want to control.

3.1 General configuration

The *General configuration* is splitted into three parts. In *General options* you find all parameters to configure you serial connection. *GUI update interval* provides parameters to adjust the runtime behaviour of GenesysControl acc. to your system. In *Logging level* you can choose what kind of informations should be logged by GenesysControl.

General configuration

General options

Com port: 1

Baudrate: 9600

of Devices (1/2): 2

Autodetect comport and devices

Autodetect devices

GUI update interval

Update device properties every (recommended: 2000ms): 2000 ms

Update after an alarm every (recommended: 500ms): 250 ms

Logging level

☒ log all messages

☐ log warnings and errors

☐ log only errors

OK Apply Cancel

General options

If you know all parameters of your serial connection, enter here the parameters, which are the number of the serial port (com port), the baudrate to use for communication with the Genesys devices and the number of Genesys devices connected to the serial port.

If you know the types of Genesys device(s) and their addresses too, you are done with the *General options*. If you know the number of the serial port and the baudrate, but don't know the device types and/or addresses click the button "Autodetect devices". If you don't know anything about the serial connection – or just don't want to do a journey behind or into to your pc – click the button "Autodetect comport and devices".

Both autodetect features will find out the neccessary parameters to communicate with the Genesys devices.

Autodetect devices

This function tries to find up to two Genesys devices connected to the serial port given by the com port input field of the *General options*.

After clicking the button a window will appear on the screen, that gives you information about the progress of autodetection and what the autodetection is actually doing.

Autodetection will fail in the case, that either the serial port cannot be opened or not a single Genesys device with an address between 00 and 31 is connected to the serial port.

If one or two devices are found the number of devices in the *General options* is updated and the device type and address in the corr. *Device configuration* are updated.

Note: If more than two Genesys devices are connected to the system, only the first two devices are recognized. The order is given by the device addresses.

Autodetect comport and devices

Autodetect comport and devices does the same as *Autodetect devices*, but additionally it also detects the number of the serial port and the baudrate of the Genesys devices.

After starting the autodetection a dialog box comes up and asks you what com port range you want to scan. In normal PCs you will find two serial ports, 1 and 2. So you have to scan from port 1 to port 2. If you have got more than two serial ports just increase the maximum number. *But note:* The smallest port number should always be 1.

If you don't know the baudrate the Genesys devices operate with, enable the field "*check all baudrates*", so the autodetection will probe all possible baudrates: 1200, 2400, 4800, 9600 and 19200 baud. *Note:* Probing the baudrates will take some time to finish the autodetection.

If you have chosen the comport range, click the OK-button. If you don't want to run the autodetection click the CANCEL-button.

After autodetection start a window will appear, that gives you information about the progress of autodetection and what the autodetection is actually doing.

GUI update interval

Here you find two parameters which are important for the behaviour of GenesysControl during a control session.

The first parameter ("Update device properties every") indicates how often GenesysControl will update the Genesys device state. The smaller this value the faster any state change will appear on the application but also the bigger the data traffic over the serial line. Therefore if you feel that GenesysControl reacts too slowly to your input, increase this value to decrease the traffic over the serial port and to speed up the reaction time of GenesysControl.

The second parameter is similar to the first one, but it indicates the state update cycle in case of a Genesys alarm.

Logging level

Select here what kind of messages should be logged by the GenesysControl logging function. Logging only errors or warnings and errors will decrease the amount of log messages displayed in the logging window.

3.2 Device configuration

The *Device configuration* cumulates all parameters to set up the Genesys devices you want to control.

General

Name

Enter here a name of your choice for the Genesys device, e.g. "Laserpower" if you use the Genesys device to supply a laser diode. This name will be displayed on the front panel.

Note: It is not necessary to enter a name, but improves the usability of GenesysControl a lot!

Address

Enter here the address of the Genesys device you want to control. A device address is a number between 0 and 31.

Note: If you have used the autodetection feature successfully, there's no need to change the device address.

Type

Here select the Genesys device type you want to control. Just click the control and a list of all supported Genesys devices will appear.

Note 1: Always select the correct device type. Otherwise GenesysControl might not work properly.

Note 2: If you have used the autodetection feature successfully, there's no need to change

the device type.

Current adjustment range

If *Current adjustment range* is enabled, any current value to set via the GenesysControl frontpanel is checked if it is in the given range. If not, the current will not be set and a warning will be logged.

Voltage adjustment range

If *Voltage adjustment range* is enabled, any voltage value to set via the GenesysControl frontpanel is checked if it is in the given range. If not, the voltage will not be set and a warning will be logged.

Execute commands at session start

Check this feature if you want to execute some or all of the commands listed below before a Genesys control session starts. This way you are able to initialize the Genesys device(s) to your special needs.

RCL

Enable *RCL* if you want the command <RCL> executed before a session starts. *RCL* recalls the last settings from the Genesys device.

CLS

Enable *CLS* if you want the command <CLS> executed before a session starts. *CLS* clears the Genesys device status and sets the FEVE and SEVE registers to zero.

AST

Enable *AST* if you want to enable or disable the autorestart feature of the Genesys device. To choose you preferred state (en- or disabled) click the check-button on the right hand.

FLD

Enable *FLD* if you want to arm or cancel the foldback protection. To choose you preferred state (arm = ON, cancel = OFF) click the check-button on the right hand.

OVP

Enable *OVP* if you want to set a new OVP level at session start. Enter the new value to set into the input field.

UVL

Enable *UVL* if you want to set a new UVL level at session start. Enter the new value to set into the input field.

CURRENT

Enable *CURRENT* if you want to set a new output current at session start. Enter the current value into the input field.

VOLTAGE

Enable *VOLTAGE* if you want to set a new output voltage at session start. Enter the voltage value into the input field.

OUT

Enable *OUT* if you want to dis- or enable the output of the Genesys device. Normally you would turn on the output of the Genesys device here.

Enable Locallockout mode

If you are running a control session with GenesysControl, normally the controlled Genesys devices are in remote-mode. This doesn't prevent someone to change values of the Genesys device at the real hardware.

If you don't want that anybody can change settings during a control session, enable this feature. This will ensure that if the session is going on and you don't call explicitly the local-mode on the frontpanel of GenesysControl nobody can do changes on the real Genesys device, which is completely locked until you stop the session, call the local mode or turn off the Genesys device.

Execute commands at session stop

Check this feature if you want to execute some or all of the commands listed below after a Genesys control session stops. This way you are able to release the Genesys device(s) in a known, safe state after a control session.

OUT

Enable *OUT* if you want to dis- or enable the output of the Genesys device. Normally you would turn off the output of the Genesys device here.

AST

Enable *AST* if you want to enable or disable the autorestart feature of the Genesys device. To choose your preferred state (en- or disabled) click the check-button on the right hand.

SAV

Enable *SAV* if you want the command <SAV> executed after a session stops. *SAV* saves the current settings, which can be recalled by *RCL*.

Disable Locallockout mode

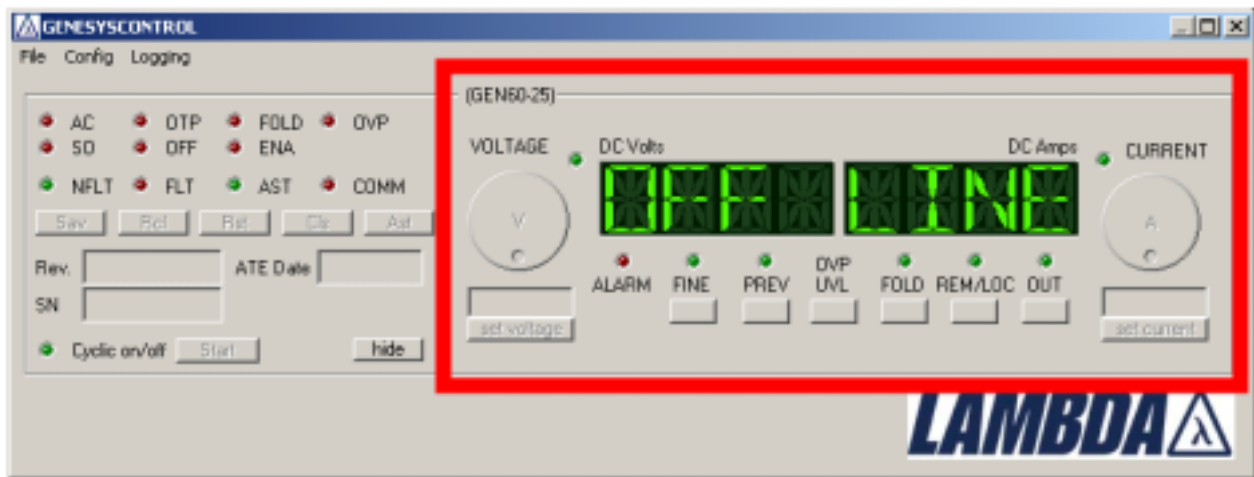
Here you can disable the locallockout mode, that you enabled in the start commands.

4.0 Running a GenesysControl session

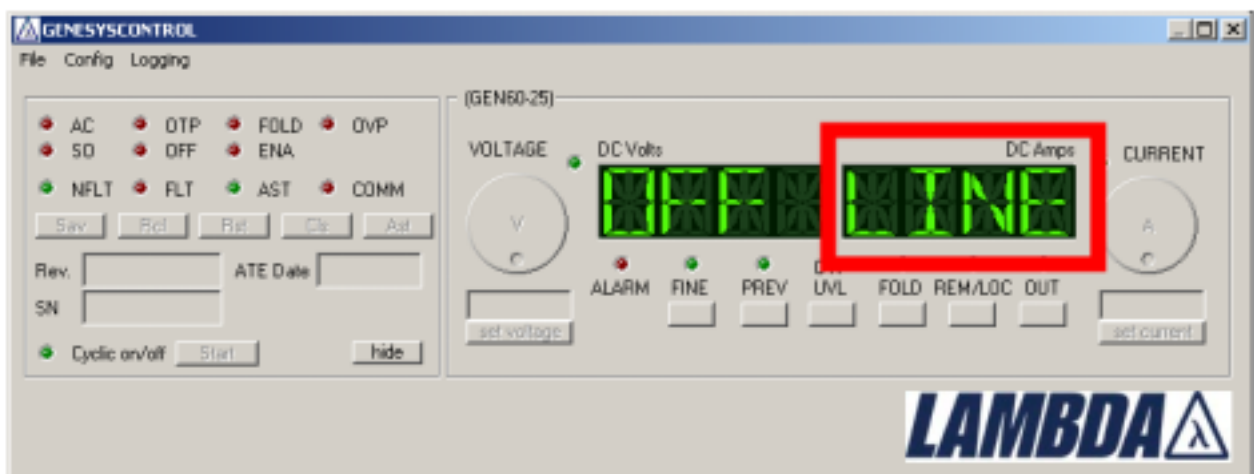
When you are finished with the general and the device configuration, select *Run* from the sub menu *File*. If no error happens and the session is started you see that the front panel will come to life. Now you can easily control the Genesys device(s) with GenesysControl. To understand what each button, control or display on the GUI does, see the following sections.

Note: You can't exit GenesysControl while a session is running! Please stop the running session first.

4.1 The front panel

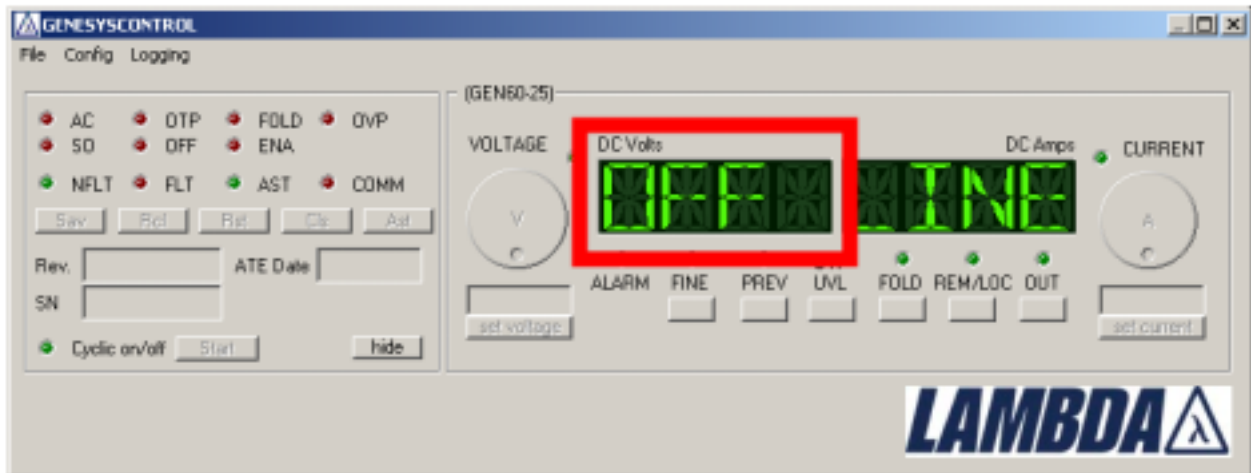


The current display



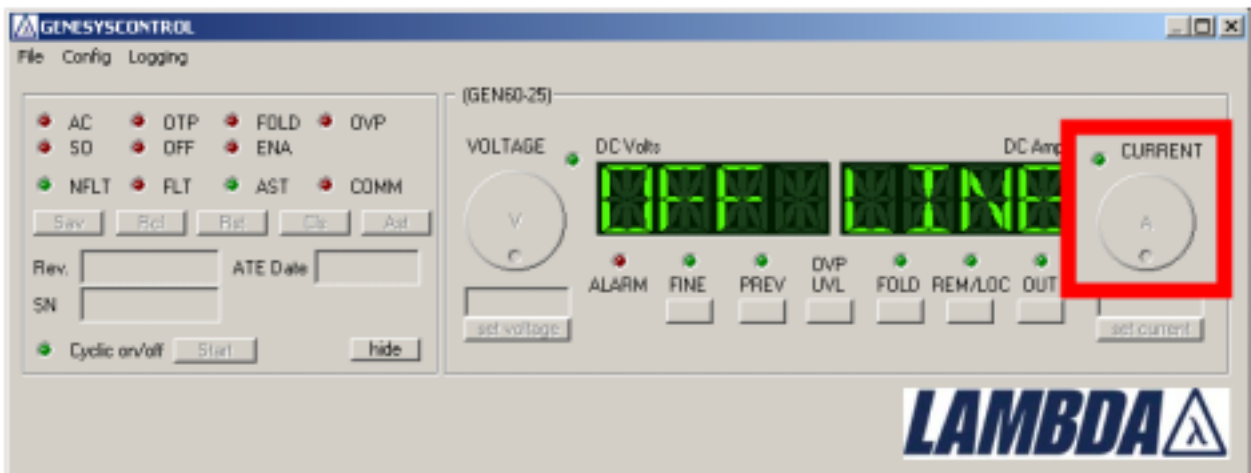
The current display shows the actual current of the Genesys output. Depending on the mode it will show also other information (see section "GenesysControl states" for more details).

The voltage display



The voltage display shows the actual voltage of the Genesys output. Depending on the mode it will show also other information (see section "GenesysControl states" for more details).

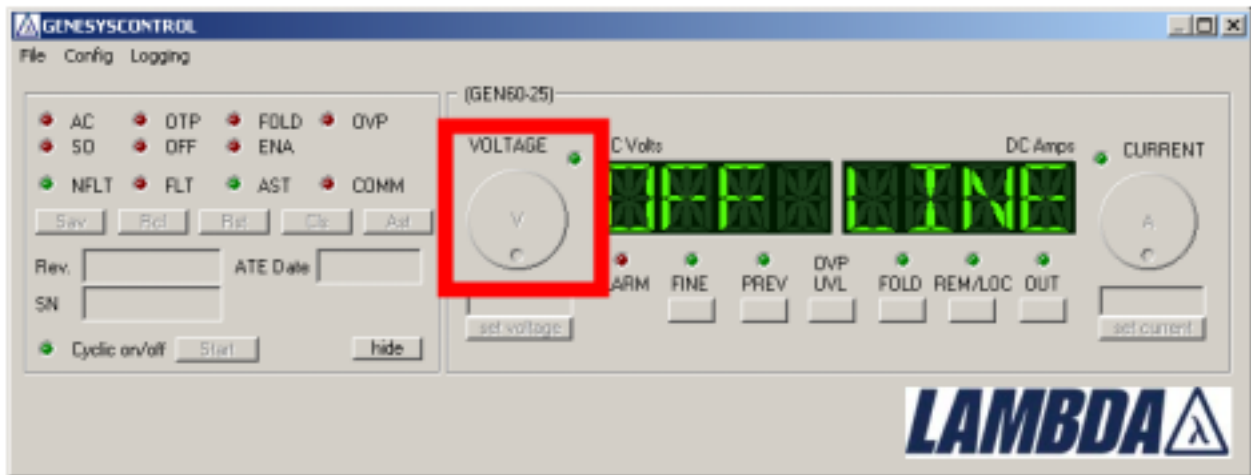
The current slider



Use the current slider to alter the current of the Genesys device. Depending on the mode it will alter also other values (see section "GenesysControl states" for more details).

Note: You can also use the direct input control below the slider. Simply enter the value into the input field and click the "set current" button or press <ENTER>.

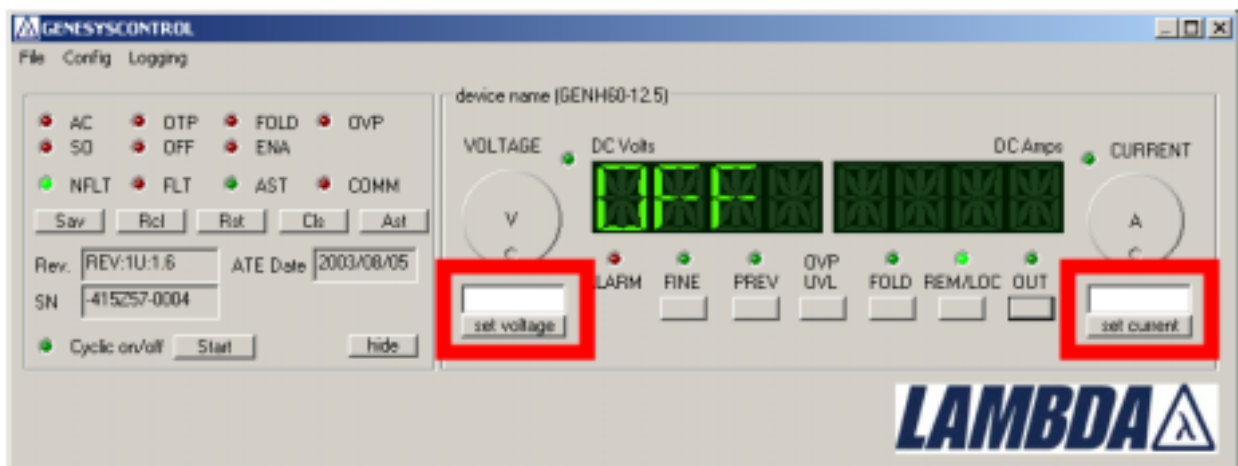
The voltage slider



Use the voltage slider to alter the voltage of the Genesys device. Depending on the mode it will alter also other values (see section "GenesysControl states" for more details).

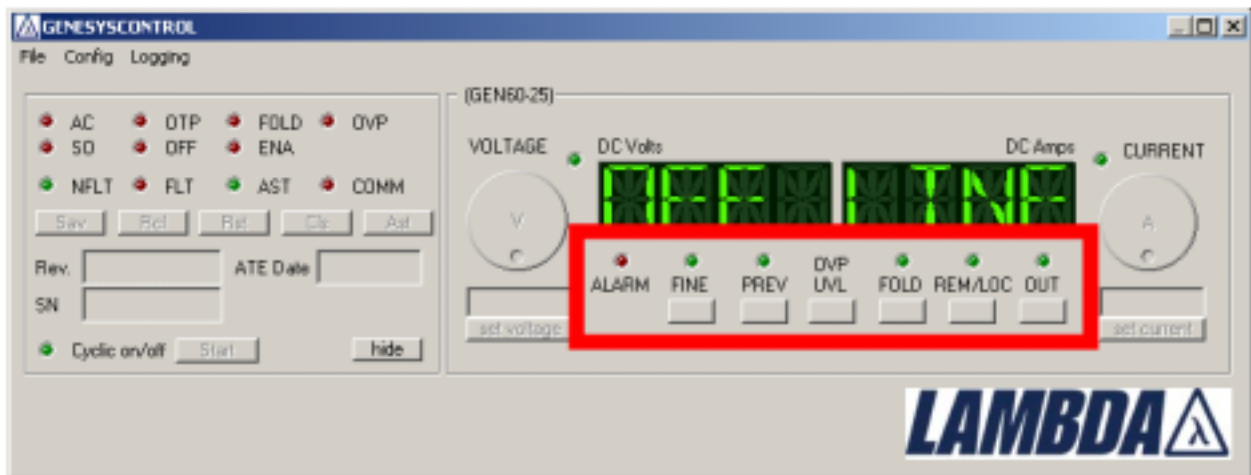
Note: You can also use the direct input control below the slider. Simply enter the value into the input field and click the "set voltage" button or press <ENTER>.

Current and voltage direct input



Below the both sliders to control the voltage and the current there are two input fields and two buttons to directly enter any voltage or current. Just enter the value and press the button "set current" or "set voltage" and the current/voltage will be set.

The functional buttons and LEDs



There are several buttons and LEDs on the frontpanel:

- **ALARM LED:** This LED will blink when an alarm in the Genesys register is detected. It will stop blinking if the alarm disappears.
- **FINE LED:** This LED is on when the application is in FINE mode (see "GenesysControl states" for more details).
- **PREV LED:** This LED is on when GenesysControl is in PREV mode (see "GenesysControl states" for more details).
- **FOLD LED:** This LED is on when the foldback protection of the Genesys device is armed and off when it is canceled.
- **REM/LOC LED:** This LED is on when the GenesysControl is in normal mode. If it is off, the application is in LOCAL mode, which means you cannot control the Genesys device (see "GenesysControl states" for more details).
- **OUT LED:** This LED is on when the output of the GenesysControl is on and off when the output is off. Use the OUT button to switch the output state.
- **FINE button:** Use this button to enable or disable the FINE option of the GenesysControl application. If the FINE option is enabled the FINE LED is on (see "GenesysControl states" for more details).
- **PREV button:** This button is for enabling or disabling the PREV mode (see "GenesysControl states" for more details). The PREV LED will indicate the PREV state.
Auxiliary function: Press and hold the button (at least 1.5 seconds) to toggle between "Locked front panel" and "Unlocked front panel". The display will cycle between "LFP" and "UFP". Releasing the PREV button while one of the modes is displayed, selects that mode.
- **OVP/UVL button:** Use this button to enter the OVP or UVL mode. Click once to enter the OVP mode and twice to enter the UVL mode (see "GenesysControl states" for more details).
- **FOLD button:** Use this button to arm or cancel the foldback protection.
- **REM/LOC button:** Use this button to go into local mode or return into remote mode (normal mode). If you have enabled the locallockout-feature in the startscript-options of

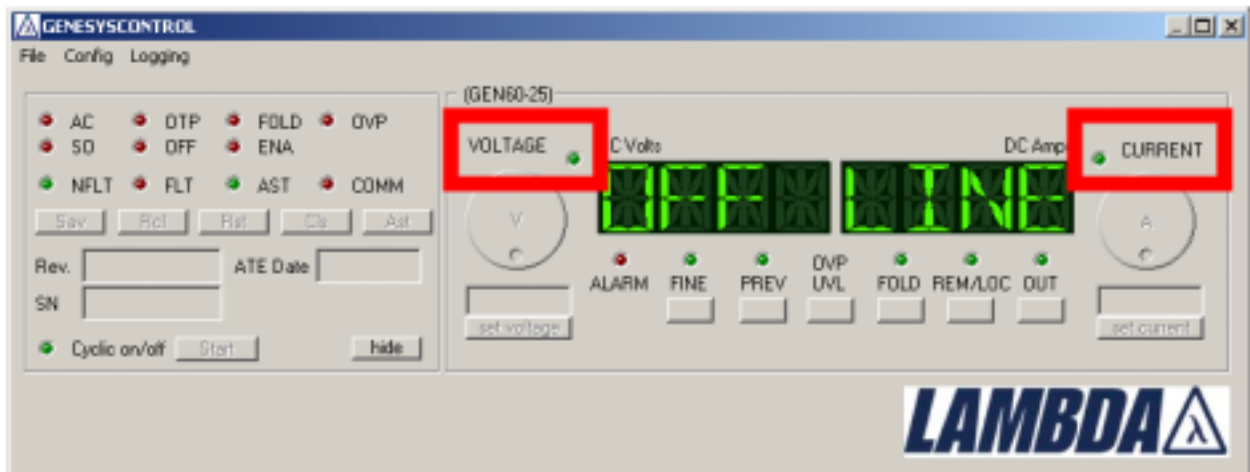
the device configuration the remote mode is automatically the local lockout mode.

- **OUT button:** Use this button to switch the output of the Genesys device on or off. The OUT LED above indicates its state.

Auxiliary function: Press and hold the button (at least 1.5 seconds) to toggle between "Safe start" and "Auto start". The display will cycle between "SAF" and "AUT".

Releasing the PREV button while one of the modes is displayed, selects that mode.

CC & CV LED



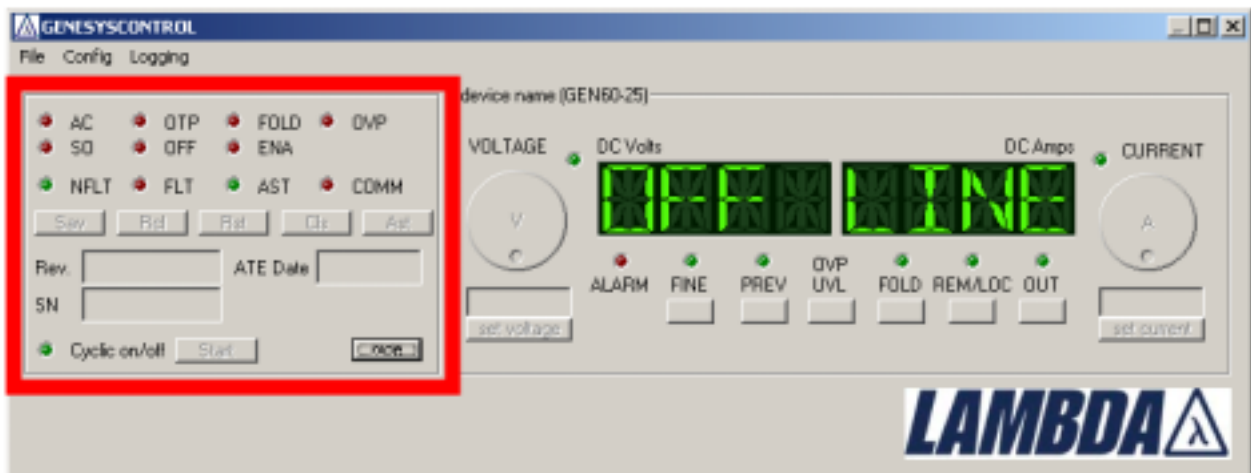
The two LEDs between the sliders and the displays show the output mode of the Genesys device. If the left LED near the voltage slider is on the device is in constant-voltage (cv) mode. If the other LED is on the device is in constant-current (cc) mode.

Device name and type



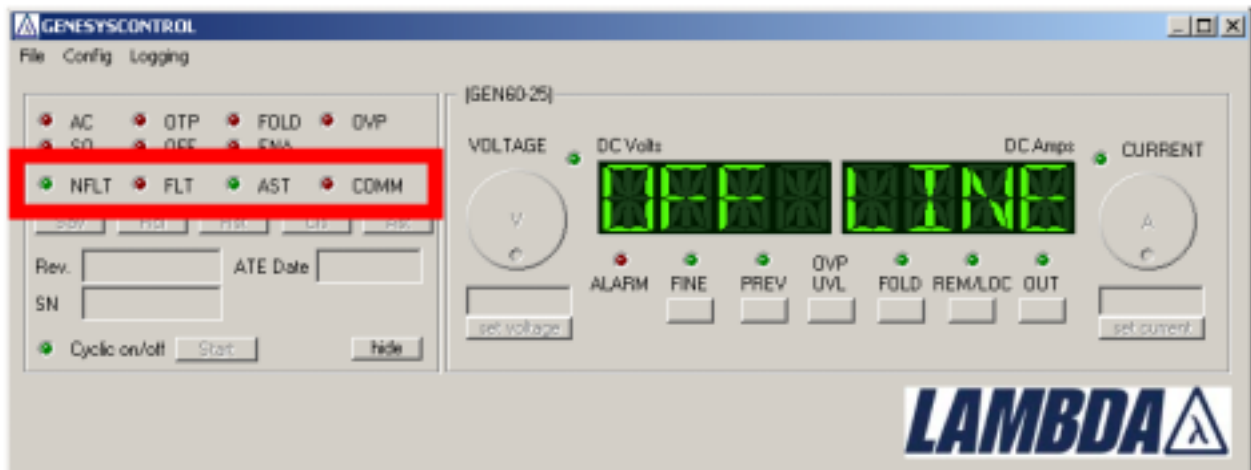
Above the frontpanel you can see the device name and the device type. The device type relies on the Genesys device and the device name can be changed by the user in the *Device configuration*.

4.2 The advanced settings



The *Advanced Settings* consist out of four parts: the state LEDs, the alarm LEDs, the command buttons and the info fields. Please see the following sections for more informations about these parts.

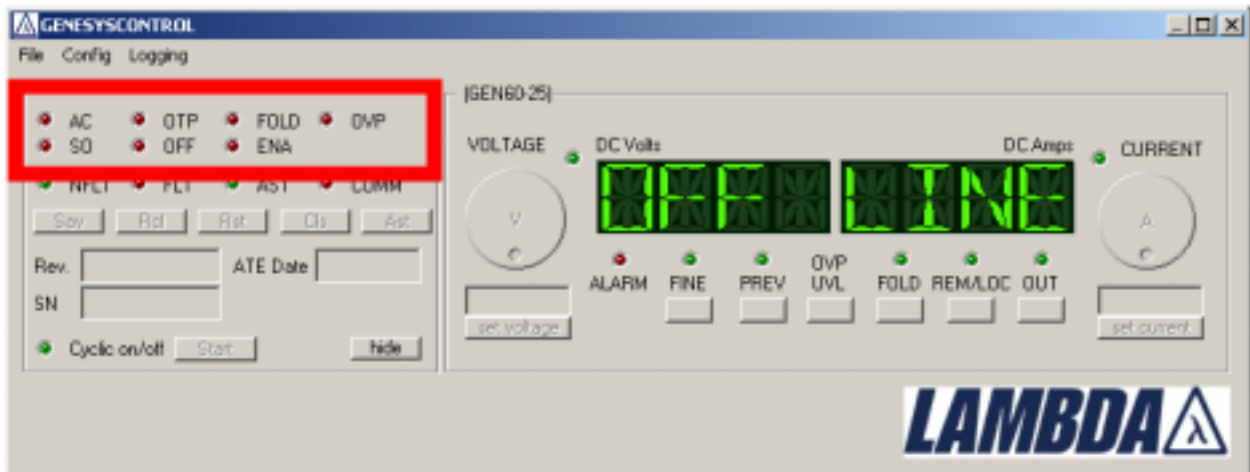
The state LEDs



The state LEDs give information about the current state of the Genesys device. There are the following LEDs:

- NFLT: This LED is on when the Genesys device indicates "no fault".
- FLT: This LED is on when an error has occurred. See one of the alarm LEDs for the specific cause of this error (For more details on this check the chapter "Alarms and Service Requests").
- AST: Indicates whether the autorestart feature is enabled (LED on) or disabled (LED off).
- COMM: This indicates a communication problem with one of the Genesys devices. The LED will be on after a communication error until one command sequence has succeeded and the communication has re-established.
For more information about the cause of this error, check the logging window.

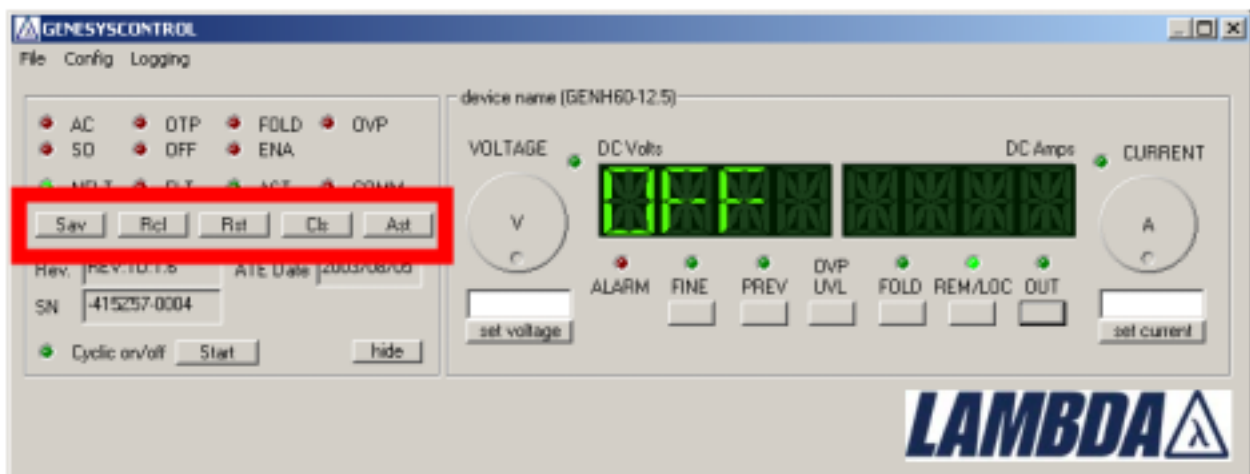
The alarm LEDs



The alarm LEDs display the specific cause for an alarm of the Genesys device. The following alarms can occur:

- AC: An AC failure has occurred.
- OTP: A shutdown due to an over temperature has occurred.
- FOLD: A foldback shutdown has occurred.
- OVP: An OVP shutdown has occurred.
- SO: Rear panel "Shut Off" has occurred.
- OFF: Front panel OUT button was pressed.
- ENA: Rear panel "Enable Terminal" has opened.

The command buttons



The command buttons offer direct access to a set of useful Genesys commands. There are:

- Sav: Calls the Genesys device command <SAV> to save the current settings. These settings can be recalled by the command <RCL>.

- Rcl: Recalls the last device settings, saved by <SAV>.
- Rst: Reset the complete Genesys device. See the "Genesys technical manual" for more details on this.
- Cls: Calls the command <CLS> to clear the FEVE and SEVE registers of the Genesys device.
- Ast: Toggles the autorestart feature of the Genesys device

The info fields



The information fields of the *Advanced settings* display some infos about the connected Genesys device. These informations were gathered during session start. They include the following:

- Revision: The revision of the Genesys device's software.
- ATE Date: The date the Genesys device was calibrated.
- Serialnumber (SN): The serialnumber of the Genesys device.

Cyclic ON/OFF



If you click the "Start" button, GenesysControl will display a dialog where you can enter an ON-time and an OFF-time. After pressing again the "Start" button, GenesysControl will switch ON and OFF the selected Genesys device until you stop this function.

Note: If you are controlling two Genesys devices, the second device is unavailable as long as the cycle function is running on the first device (and vice versa).

4.3 GenesysControl states

The GenesysControl can be in different operational states or modes. Most of these modes are changed by the user via the application, some of them are initiated by the Genesys device(s). The following modes are possible:

- **OFFLINE:** The application is in this mode, when no control session is running. All input and output controls are disabled and the displays shows "OFFLINE".
Note: You can change your configuration only in the OFFLINE mode.
- **OFF:** This mode is active when a control session is running and the displays show "OFF". The output of the Genesys device(s) are off, but you can fully control the device(s).
- **LOCAL:** You can enter the LOCAL mode if you click the REM/LOC-button on the frontpanel. The software now will give the full control to the Genesys device. During this mode only the state of the application is updated, but you cannot change any value until you have clicked the REM/LOC-button again.
- **OVP/UVL:** You can enter this mode by clicking the OVP/UVL-button once (OVP) or twice (UVL). During this modes the current display will show "OVP" or "UVL" and the voltage displays show the actual level in volts. Use the voltage slider or the voltage input field to change these levels.
This mode will disabled automatically after 10 seconds, if the levels weren't altered. If you don't want to wait 10 seconds, simply press the OVP/UVL-button once or twice until the previous mode is back.
- **PREV:** During this mode the current and voltage display won't show the actual values, but the programmed settings of the output. This mode will be automatically disabled after 5 seconds or by clicking again the PREV-button.
- **ALARM:** The alarm mode is initiated not by the user but by a Genesys device. When a Genesys device sends a so-called Service Requests and the Genesys registers indicate an alarm, the alarm-register will be read and the alarm-cause will be displayed on the current- and the voltage-display. Also the alarm LED on the frontpanel will start to blink. The alarm cause on the displays will disappear after 4 seconds, but the alarm LED on the frontpanel and the acc. LEDs of the *Advanced settings* will not go off until the error has disappeared. To check this the software reads all X milliseconds the device registers. The timeout X can be changed by the user in the *General configuration*.
- **FINE:** This isn't actually a real mode, but more an option. After clicking the FINE-button the voltage and the current slider will work more precise, which means more resolution for the sliders. To disable this option, simply click the FINE-button again.
The FINE-option is valid for all modes where you can change voltages and/or currents with the sliders (also in OVP and UVL mode).