

PWR-IRS SUPERVISOR

Users manual V3.1



PC Connection : Firmware update and IRS serial or USB control.....	3
Overview :	3
Hardware connection :	3
Installing the software :	3
Configuring the software :.....	3
Using the software :.....	4
Regulation mode :.....	5
Suppressing R Measurement :.....	5
Detection setting for broken lamps :.....	6
Warm-up settings :	6
Firmware update :.....	6
Calibration :.....	7
To ensure a good process quality the IRS calibration have to be check:.....	7
Voltage calibration :.....	7
Current calibration :.....	8
Last Sector Default :.....	9
Datalog Module :.....	10
Setting up SD-card :.....	10
How to set Real Time Clock (RTC) :.....	12
Viewing log file :.....	13
Examples of various Events :.....	14
Appendix :.....	15
USB cable with filters :.....	15

PC Connection : Firmware update and IRS serial or USB control

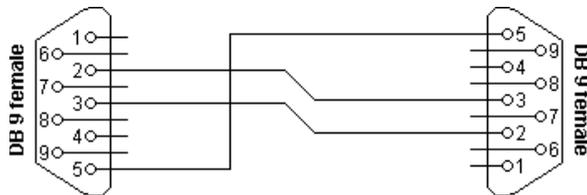
Overview :

The SUPERVISOR program is used for maintenance purpose.
The latest version of the SUPERVISOR program can be downloaded from our WebSite.

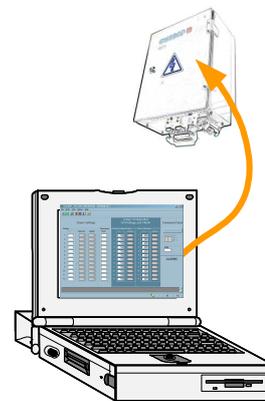
When connected it will be possible to:

- control the regulation for test purpose
- upload/download the firmware
- set the IRS main parameters

Hardware connection:



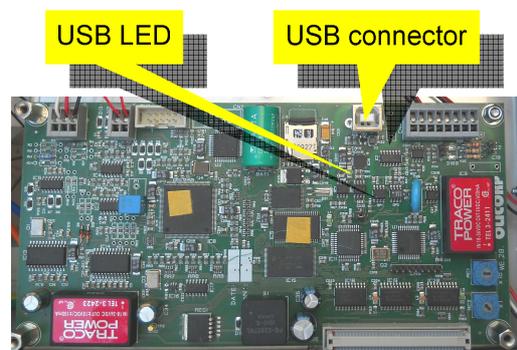
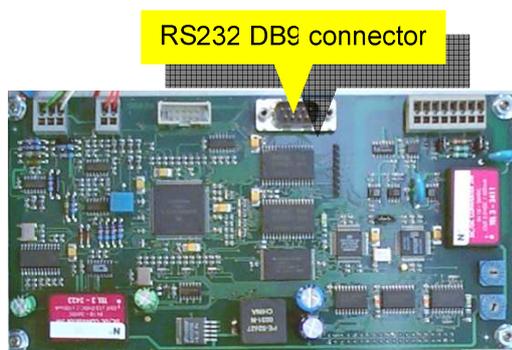
Connector 1	Connector 2	Function
2	3	Rx ← Tx
3	2	Tx → Rx
5	5	Signal ground



To use the RS232 connection, **one needs a null-modem cable** with a DB9 female connector to link the PC to the IRS.

On the newest version of IRS system, the Rs232 connection is completed with an USB interface. In this case it is possible to use any adequate USB cable.

For USB connection the USB cable with special filters is recommended (see appendix). If connection is successfully established the USB LED will light on steadily.



When connecting the computer to the IRS module through the serial link, you have to pay attention to have both devices wired to the same ground to avoid any electrical discharge that can damage both devices.

Installing the software:

The SUPERVISOR is available from our Website.

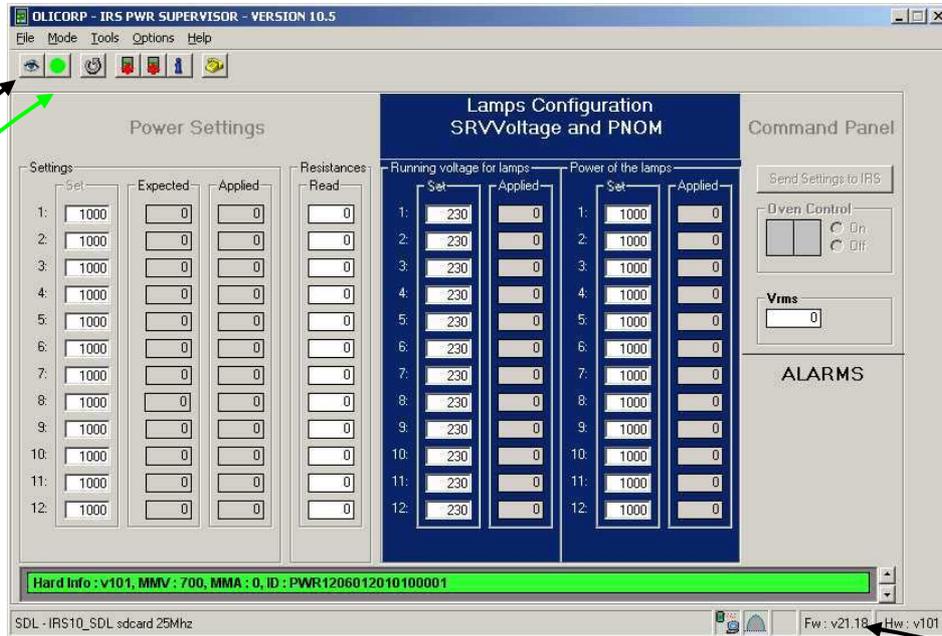
Once unzipped, run the setup.exe program to install it onto your Windows system. Before using USB connection the USB port driver must be installed. USB port driver is provided along with the SUPERVISOR distributive.

Configuring the software:

There is only one thing to configure. You have to choose in the option → Com Port menu the COM Port which connects the PC to the IRS. For USB connection you must select virtual Com Port COM3.

Using the software:

The SUPERVISOR interface looks like the picture below:



The connection status is summarized on the lower right part of the window. Once started the program tries to connect to the IRS... It takes a few seconds to connect.

The program has two modes (mode menu):

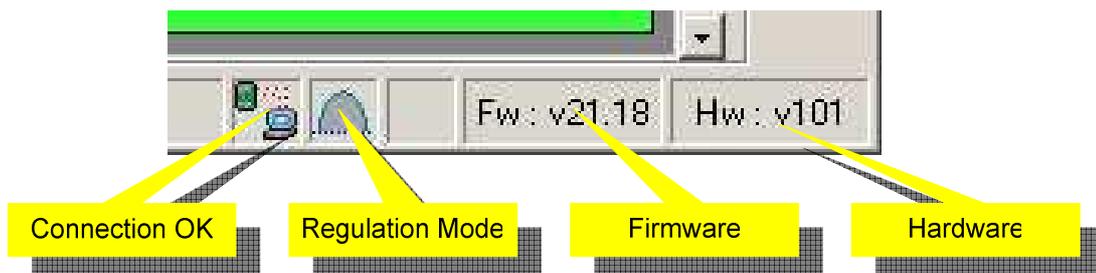
- The monitor mode
- The control mode

The monitor mode is used to monitor the settings of the IRS. This function can be used once or repeatedly (pooling)...

In this mode, the program returns the power applied to each lamp (PWE), the resistance measured for each lamp (RM), the service voltage set for each lamp (SRVV), the nominal power set for each lamp (MAXP), the status of the oven (On/off), the measured supply voltage (SV).

The control mode allows to control the regulation by sending the different settings to the IRS (SRVV, MAXP, PW, run on/off).

Information sent with the Supervisor:



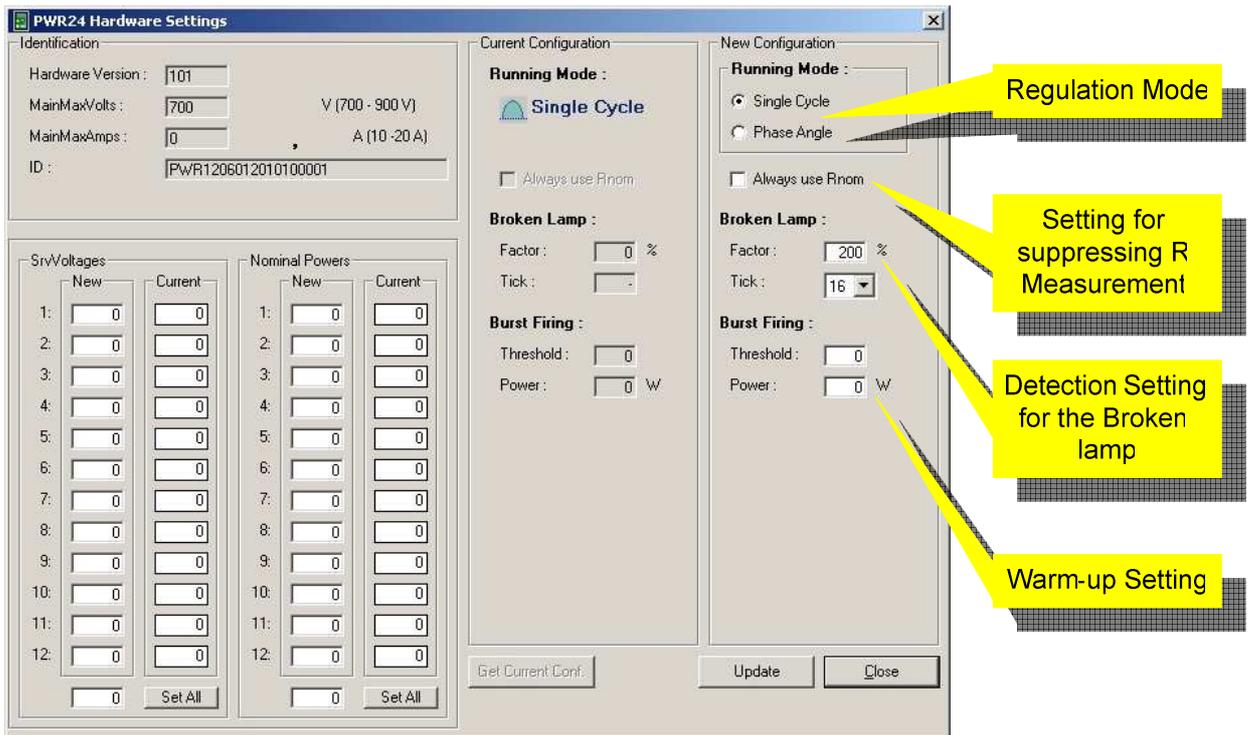
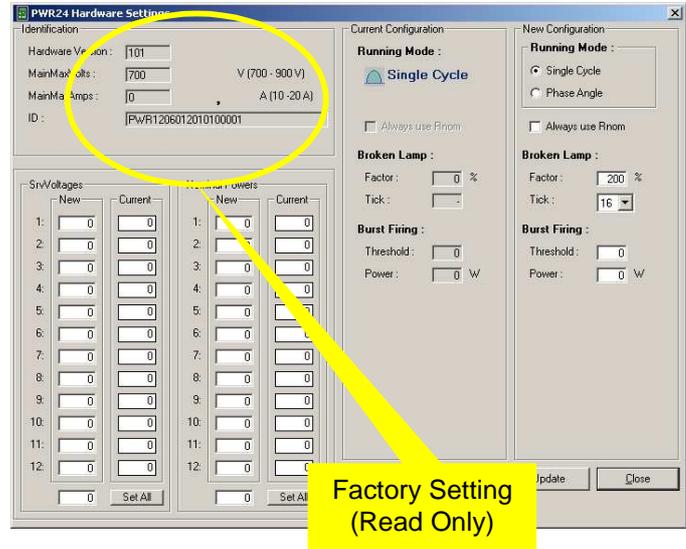
Beside standard functions, the program is also used to configure the IRS or to get factory information (menu tools→ hardware information):

Read only:

- Hardware version
- MainMaxVolts and MainMaxamps are constants used to tune the IRS
- ID : Serial number

Read/Write:

- Current configuration for the regulation mode and of the lamps pre-warming (ramps).



Regulation mode:

Phase angle or Single Cycle can be chosen.

Suppressing R Measurement

When selected, the Resistance of individual lamps are not measured anymore. The Resistance used in the regulation algorithm is then $R = P_{nom} / V_{nom2}$.

POWER REGULATION IS REPLACED BY SQUARE VOLTAGE REGULATION

Detection setting for broken lamps.

These settings are used only for special applications.
These settings should be kept at 200 for factor and 16 for Tick.

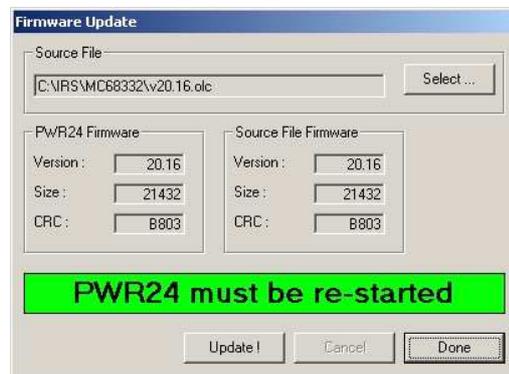
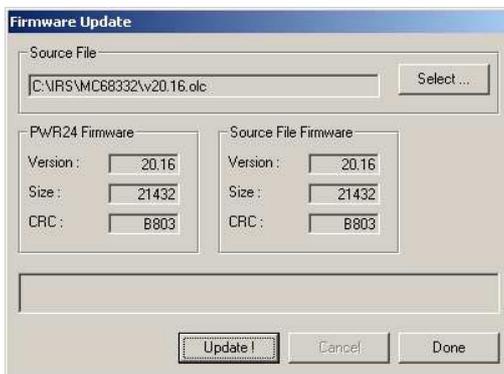
Warm-up settings.

Threshold: Duration of the warm-up period for each lamp in 10ms units.
Power: Power applied during warm up in watts.

OPTIMAL SETTINGS: 200 x 10 ms, NomPower of lamps (for instance 2000 W)

Firmware update:

The latest versions of the firmware are available on our web site in the download section.
From the update window you can select the desired firmware (*.olc file) and transfer it to the IRS. It takes about 10 sec to transfer the *.olc file to the IRS. The IRS must be rebooted once the installation is finished.



Calibration:

To ensure a good process quality the IRS calibration has to be checked.

Voltage calibration:

Use a calibrate [Vrms](#) Voltmeter.

Measure the voltage between the two phases inside the IRS.

Enter the value and tick "Calibrate voltage".

Vrms read and Vrms expected must be equal.

Enter the value
here.

Calibration Interface

Vrms read by IRS / PWR

Vrms Expected :

Procedure : Turn main power on. Use the Calibrate Voltage button to calibrate the voltage according to the supplied voltage (Vrms expected).
CrMMV : 700

I Offset : mA Expected mA

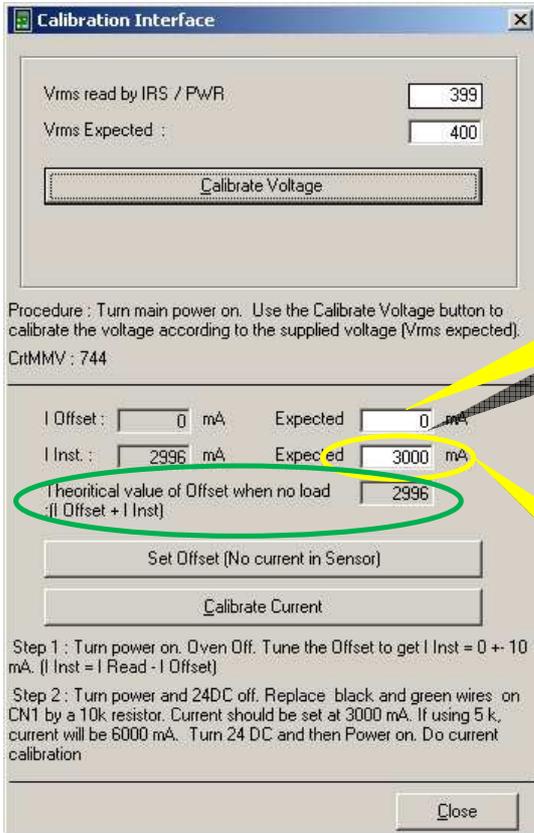
I Inst : mA Expected mA

Theoretical value of Offset when no load : (I Offset + I Inst)

Step 1 : Turn power on. Oven Off. Tune the Offset to get I Inst = 0 +/- 10 mA. (I Inst = I Read - I Offset)

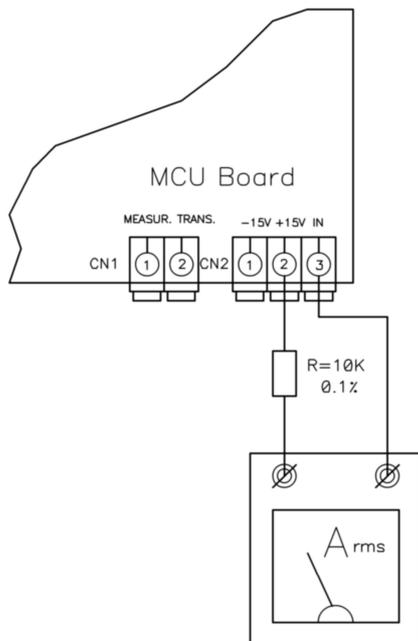
Step 2 : Turn power and 24DC off. Replace black and green wires on CN1 by a 10k resistor. Current should be set at 3000 mA. If using 5 k, current will be 6000 mA. Turn 24 DC and then Power on. Do current calibration

Current calibration:



1st AC power ON set the I Offset Expected the way is to obtain I inst = 0

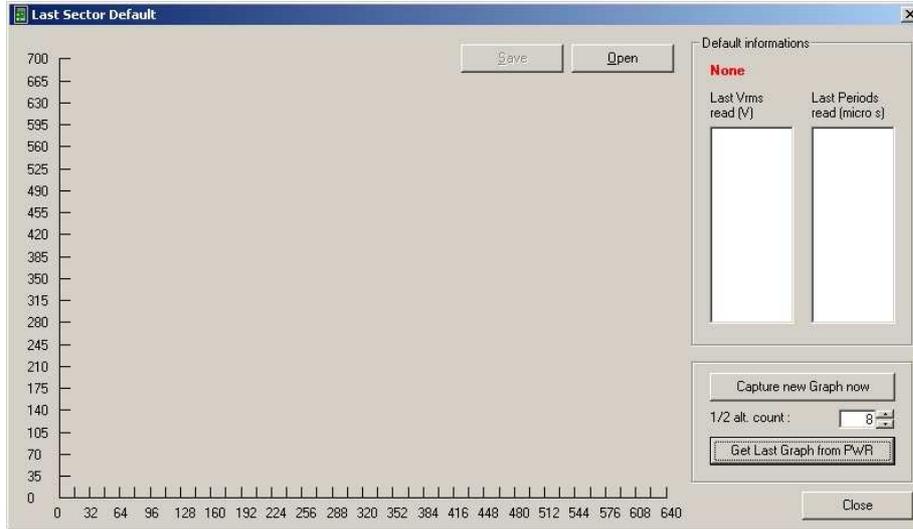
2nd Plug the Current calibrator and enter the value 3000 in I Inst expected then set Calibrate Current With the current calibrator WO12 1 you have 1% precision



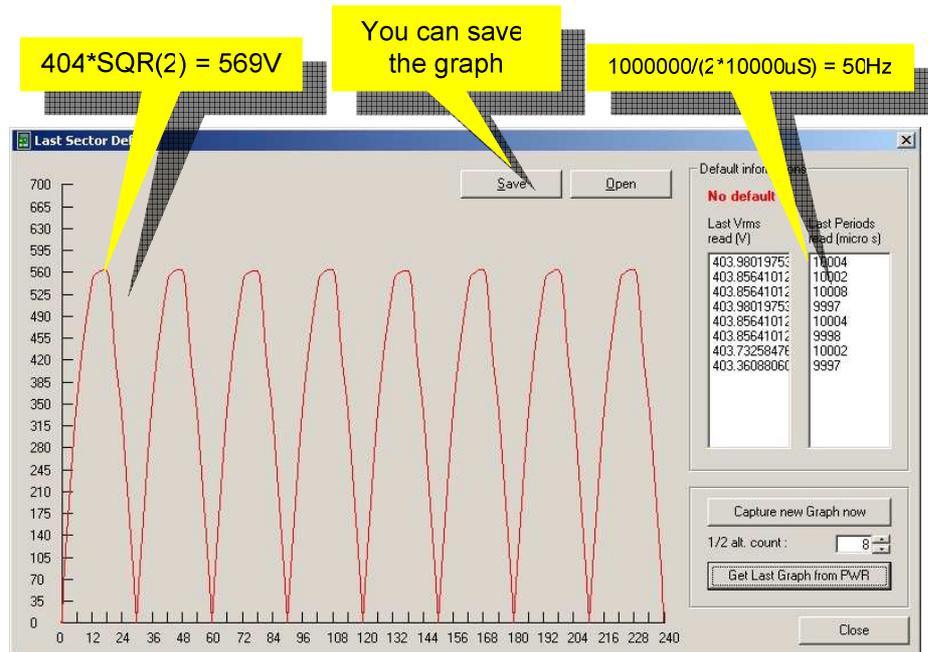
Instead of using the current calibrator you can use a calibrate Arms amperemeter and measure the current through the resistance.

Last Sector (Power supply) Default

Just click "Get Last Graph from PWR" to see the AC power default. The wave is shown positive to simplify visualisation.



Example:



DATALOG Module

The new high end IRS systems available since January 2010 are equipped with a Datalog module that can be used to record all the events occurring in the IRS and power supply.

This system gives access to better maintenance capabilities.

Setting up SD-card:

Following SD cards are approved for Datalog: **Transcend**, **Kingston** with memory volume up to 2GB. SD cards from other manufacturers were not tested, and reliability can not be guaranteed.

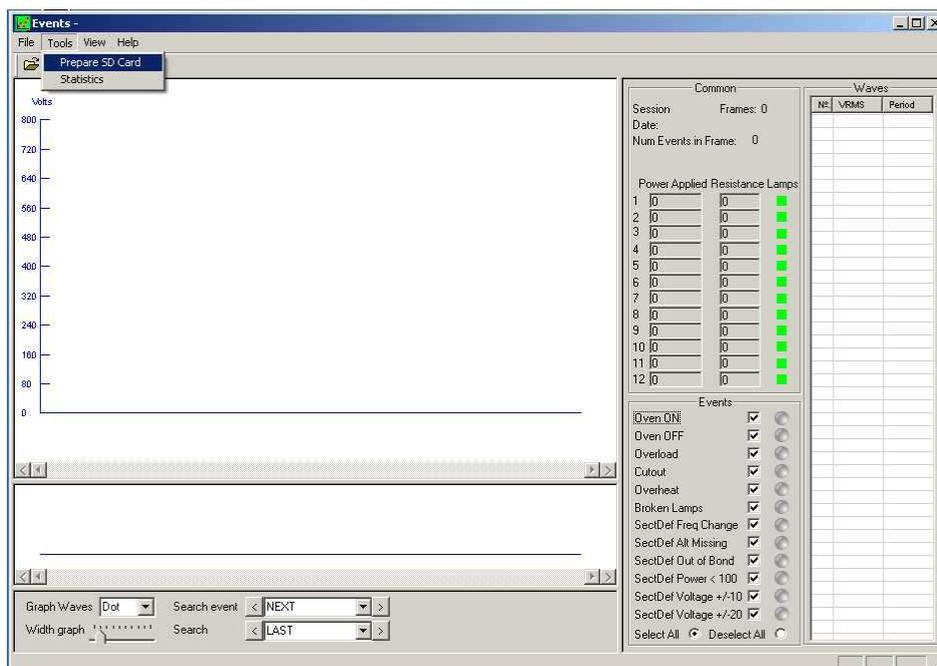
SD Card INSERTION.

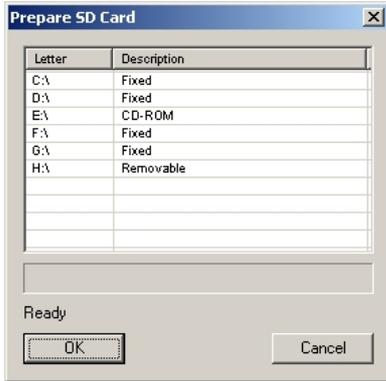
1. Insert MicroSD card into adaptor, then insert the adaptor into the PC or NoteBook card reader.



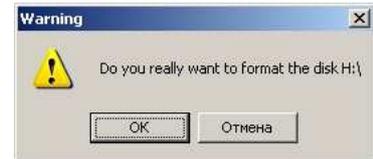
Start the **SUPERVISOR** program on your PC. Select **Tools -> Log** in menu toolbar.

Before use the SD card must be prepared. To do so, choose in the tool bar **Tools -> Prepare SD Card**:



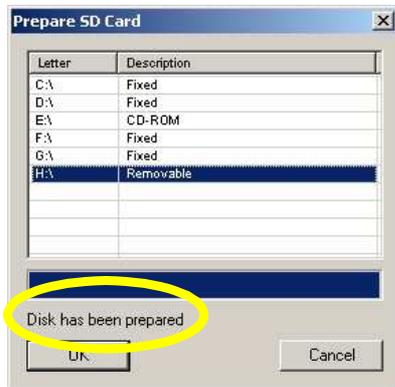


In the popup window select the line "Removable" and press OK. In reply to the question you must confirm "Do you really want to format the disk *:\\" Press OK.

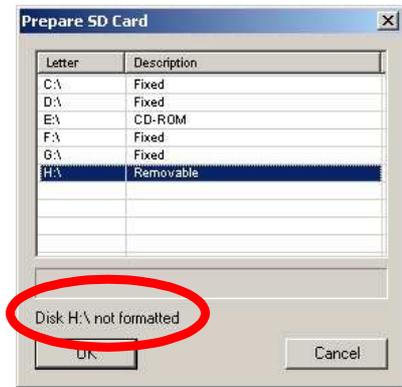


SD card preparation process may take up to 2 minutes (depending on the memory size) and may end:

Successfully



Not successfully



If the preparation was not successful, please replace the card and start again with another SD card.

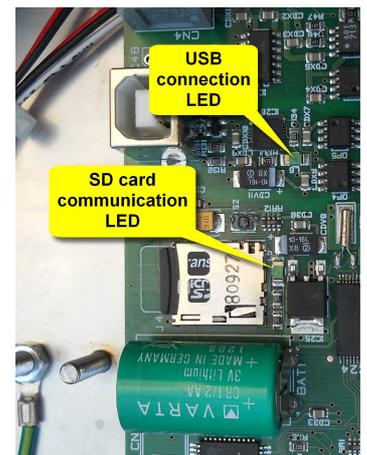
You need to test SD card after preparation on MCU board Datalog.

To do so you need to insert SD card in card holder, located on MCU board.

- SD Card can be inserted and removed without disconnecting the 24V supply.
- SD card can be inserted or removed ONLY when the "SD Card communication LED" is flashing.

If the SD card is successfully inserted the "SD Card communication LED" must light on without flashing.

If the LED is flashing instead, then the SD card is damaged and must be replaced.



When inserting the SD Card in the card holder located on MCU board, you have to pay attention to have both devices wired to the same ground to avoid any electrical discharge that can damage both devices.

Safety :



The installation, configuration, commissioning and maintenance of the IRS products must only be carried out by personnel qualified and trained to work with low voltage electrical equipment in an industrial environment.



The front door should not be opened except by competent technicians when connecting or disconnecting the device. Electrical isolation must be ensured between the equipment and the power supply.



In both off and on modes, the IRS regulator doesn't ensure isolation from the power supply. One should pay attention to the fact that electrical shock may occur when touching the lamps or the cables coming from the IRS.

It is thus recommended to turn off the power supply (400 V) within 2 sec following the end of regulation.

How to set Real Time Clock (RTC):



To set up the Real Time Clock (RTC) it is necessary to set up USB connection. You need a USB cable with connector on the IRS side and the SUPERVISOR program. We advise to use USB cable with special filters. If the USB connection is established successfully, the USB LED will light on steadily.

Next you need to select SetTime from the menu. At his moment your PC time will be set for the RTC Datalog, and the window with the current RTC value will open (see pic. below)



Viewing log file:

Before viewing the LOG file insert SD card in the adaptor and then in the card PC reader or Notebook. In the menu open **File -> Open**. In the opened window select file **Events** and push button **Open**. The **Events** window is used to view LOG file:

The screenshot shows the 'Events' window with the following callouts:

- Selected Wave (on View Parameters)**: Points to the 'Waves' table on the right.
- Type of Event**: Points to the 'Events' list on the right.
- Wave Form**: Points to the main waveform plot.
- View Parameters of Frame**: Points to the 'View Parameters of Frame' button.
- View selected Frame**: Points to the 'View selected Frame' button.
- View Parameters of Frame**: Points to the 'View Parameters of Frame' button.
- Frame stop time**: Points to the time axis of the waveform.
- Event's time**: Points to the time axis of the waveform.
- Frame start time**: Points to the time axis of the waveform.
- Selected Frame**: Points to the 'View all Events' button.
- Type of Events**: Points to the 'View all Events' button.
- Time of Events**: Points to the 'View all Events' button.
- Line and Width of Wave Form**: Points to the waveform plot.
- Last and Next Event Last and Next Session**: Points to the navigation buttons at the bottom.
- Search Events tool**: Points to the 'View all Events' button.
- Zoom**: Points to the 'Zoom' button.

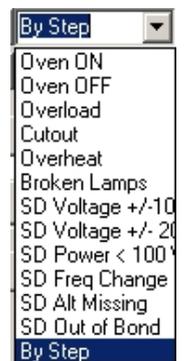
“**View all Events**” window is used to search for specific events. By pushing Last and Next Events you will move following or previous event consequently.

Global search within the LOG file is done by pushing the buttons Last or Next Session.

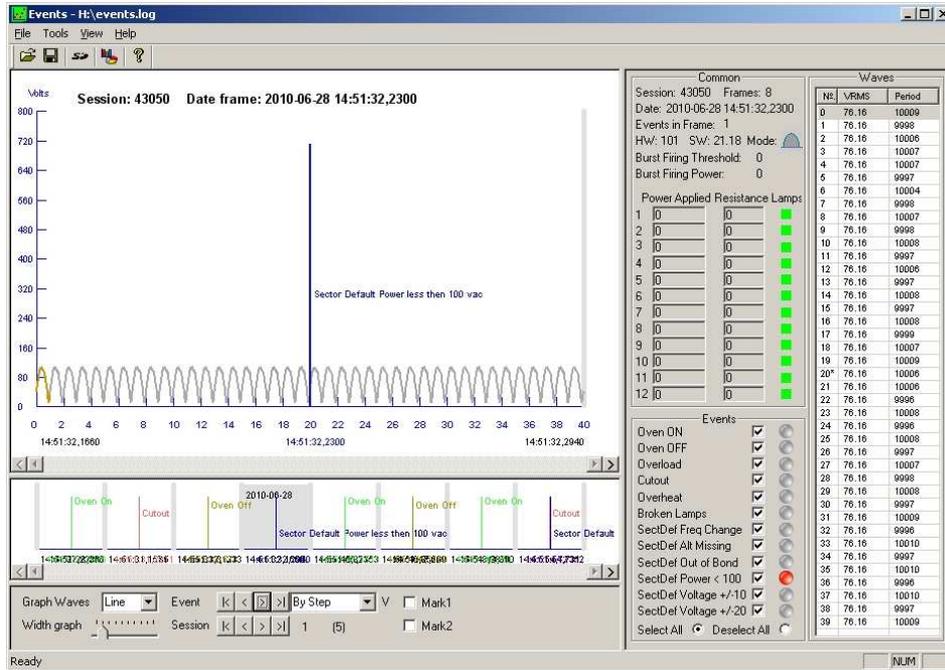
Search by the type of the event is available through choosing specific type of the event in the Search Events tool window. Once event type selected, buttons next and last will move you forward or back within the selected type of the event.

To set the limitations on the search, one may set up markers (**Mark1** and **Mark2** consequently) for the boundaries of the search area. This option also allows setting up time interval for the search.

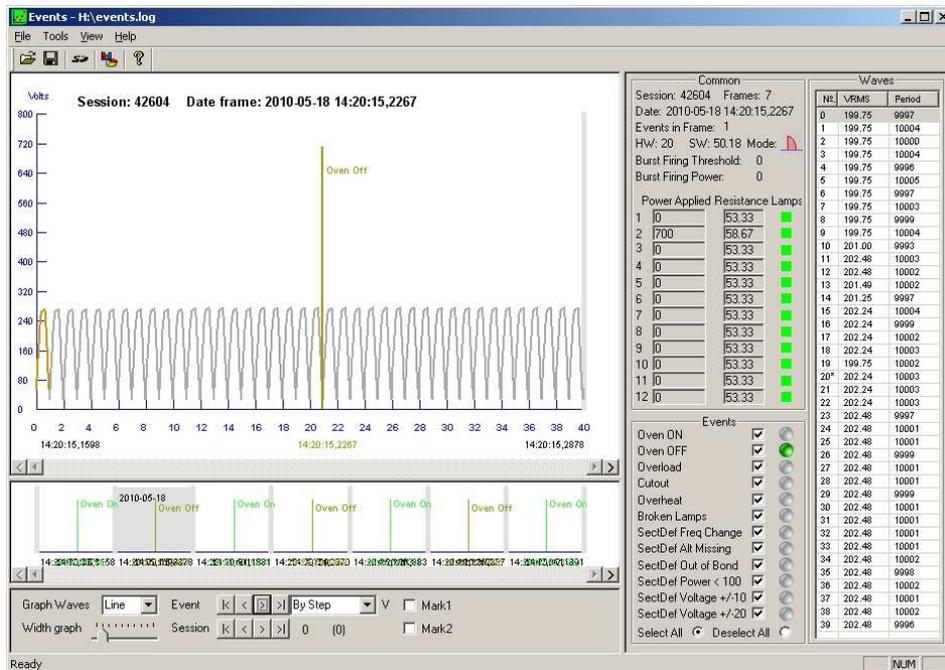
To view selected **Frame** in details use “**View Selected Frame**”. To increase/ decrease the number of sectors depicted in the window, one must use **Zoom** button. One can also select specific Wave and view its parameters in the window: “**View Parameters of Frame**”.



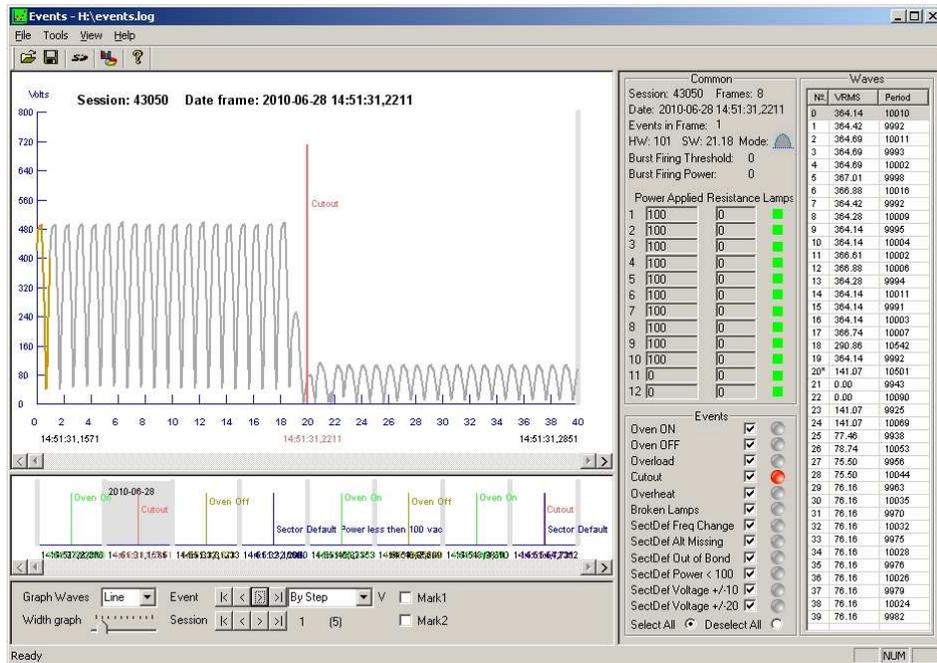
Examples of various Events:



Sector Default Power less then 100VAC



Oven Off



Cutout

Appendix:

USB cable with filters:

