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1. Notice

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2. General Description

The device LES-RACK[®]M has its own IP address and can send information about its status, status of auxiliary Slave units and can be remotely monitored by means of a data network. As a standard, the device is equipped with Ethernet communication interface. Communication over data network uses one serial channel in the system, therefore only one kind of the above-mentioned communication interfaces can work at a time. An independent service data channel RS232 on the rear panel is available for service settings and event log retrieval on site. All execution codes and data are stored in the memory, which is maintenance-free and operates reliably for minimum 10 years. Data stored in the memory are checked automatically in intervals not exceeding one hour. A control device reports a system fault in case it detects memory contents loss.

3. Service CD Contents

- LES-RACK[®] installation and operation manual (PDF)
- LES-RACK[®] service software user manual (PDF)
- Ethernet module configuration software “**LesRackIP**”
- Service software “**LesRack**”

4. LES-RACK – main electronic parts:

- Main board – controls all mechanical parts and stores the device statuses and events in the memory
- Ethernet module – part for communication in the Ethernet network
- Terminal board – part for connection of external devices

5. Setting the LES-RACK Ethernet Module

Requirements for PC: Windows XP with serial interface RS-232; if the PC is not equipped with this interface, it can be replaced by the USB/RS-232 converter.

Cable type: DB 9-2 female, female (cross-wired) max. 10 m

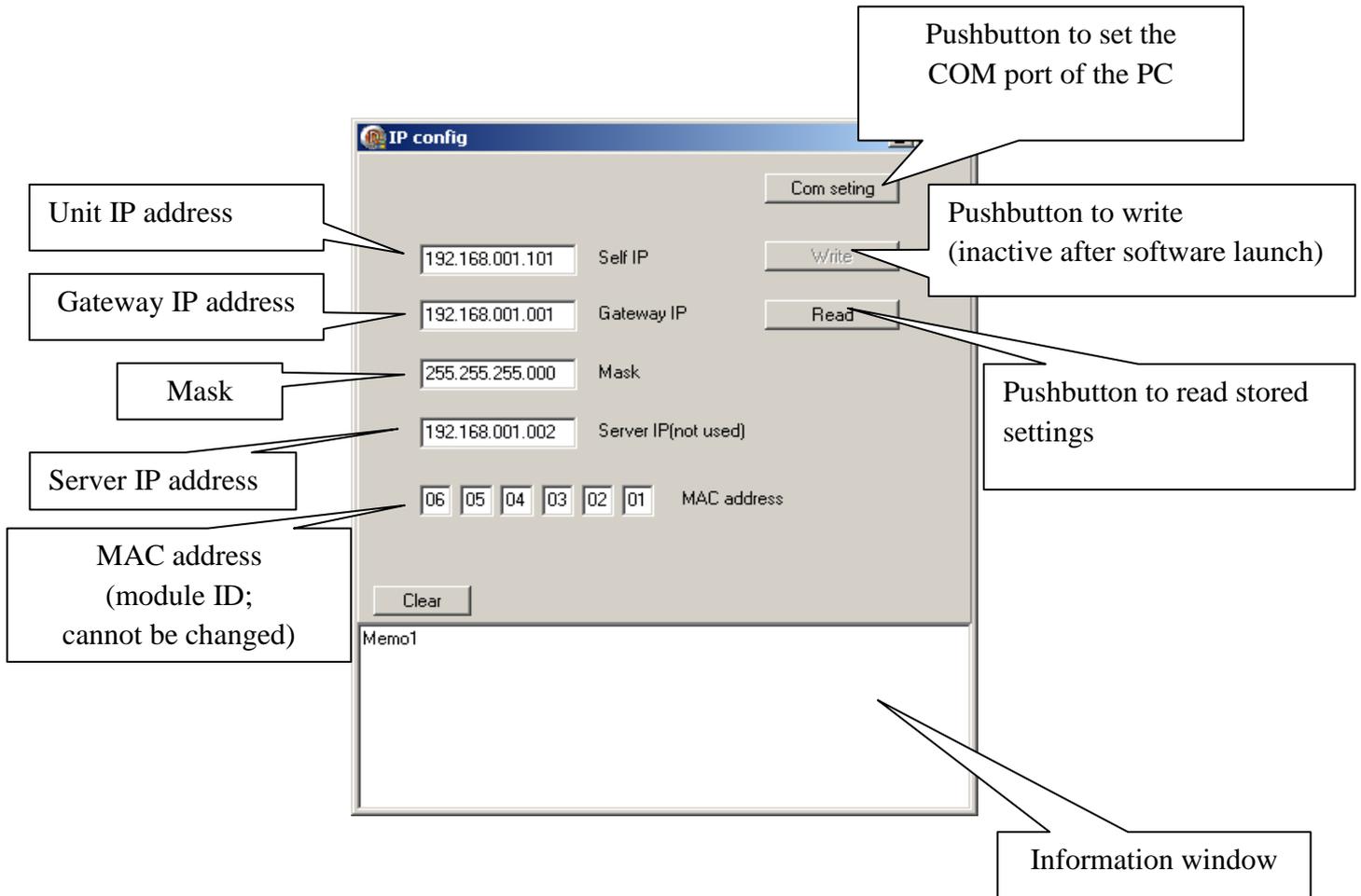
Setting is carried out by means of the LesRackIP.exe software.

Connect the PC using the 9-pin cross-wired serial cable to the connector RS232 located in the rear panel of LES-RACK.

After the LesRackIP.exe software is launched, the following window titled IP config opens.

This software is located in folder [\\SW\Ethernet module\](#)

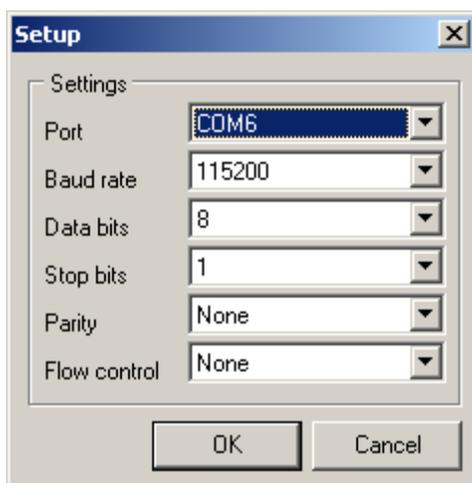
We recommend to copy the folder on your computer hard drive / server and run the copied program.



Serial port settings

Access the setting options by pressing the “**Com setting**” pushbutton; window **Setup** opens.

Here, select the COM port number used for data transmission. Port number used in the PC may be found in the Device Manager – Ports (COM and LPT) after connecting the cable.



Port – enter the port number in the PC connected to the device. Leave other settings as predefined by the system unchanged. Settings are shown in the screenshot.

Press **OK**.

Pressing **OK** returns us back to the main menu. Information window shows “Memo1”.

Message “Memo1” indicates that the data in fields correspond to the latest module setting. Now we need to retrieve current settings.

Click on the “**Read**” pushbutton to retrieve the data set in the LES-RACK Ethernet module. Message in the information window changes from “Memo1” to “Read OK”, which indicates that the module is connected and ready for setting the required data. Pushbutton “**Write**” becomes active (visible).

The following parameters can be set:

Self IP – is the IP address of given LES-RACK device. User can change this address as necessary.

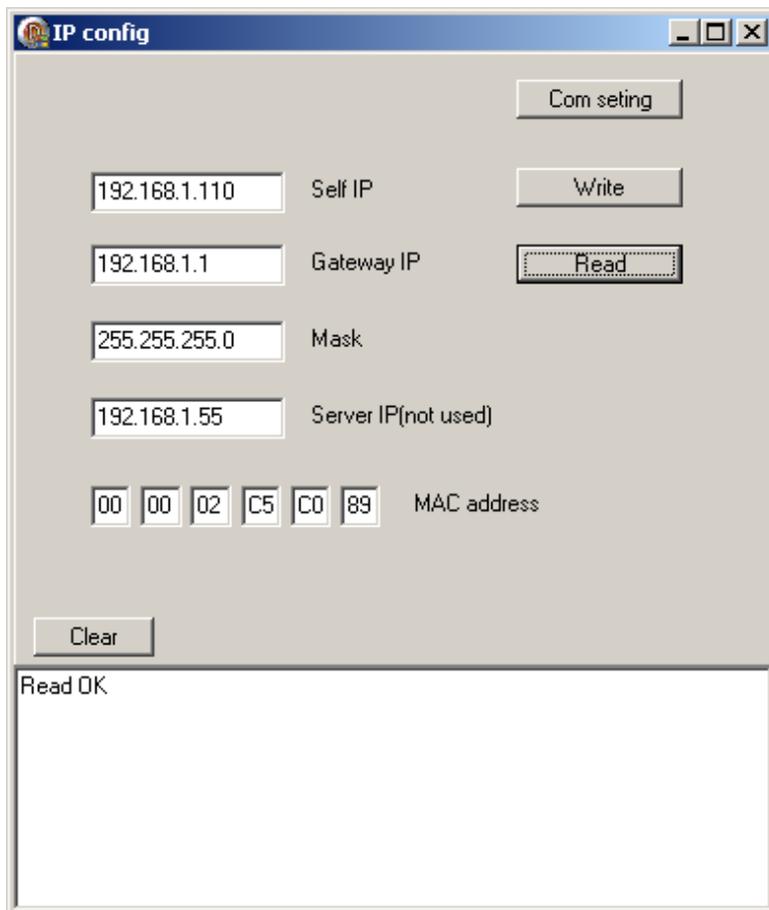
Gateway IP – optional.

Mask – set as required.

Server IP – here we set the server IP address or the IP address of the computer in the network used to monitor the LES-RACK device.

MAC address – identification code of given module. It is fixed and cannot be changed.

When finished with entering required data, we need to write them by pressing the pushbutton “**Write**”.



The device is set for communication “**Read OK**”.

6. Using the LES-RACK Service Software

Service software LesRack.exe is designed to monitor running statuses in the LES-RACK device.

This software is located in folder: [\\SW\LesRack\](#)

We recommend to copy the folder on your computer hard drive / server and run the copied program.

Prior launching this software the LES-RACK must be connected to the PC by cable. There are two ways how to connect it:

1. Using the serial cable connected to the connector on the rear panel of the device.
2. Using the Ethernet cable connected to the RJ45 connector on the front panel.

When connecting the LES-RACK with PC directly, use straight (uncrossed) cable.
When connecting via router or switch, use cross-wired cable.

6.1 Tab “Master”

After the software LesRack.exe is launched, the main tab “**Master**” opens.

It shows all data of current statuses.

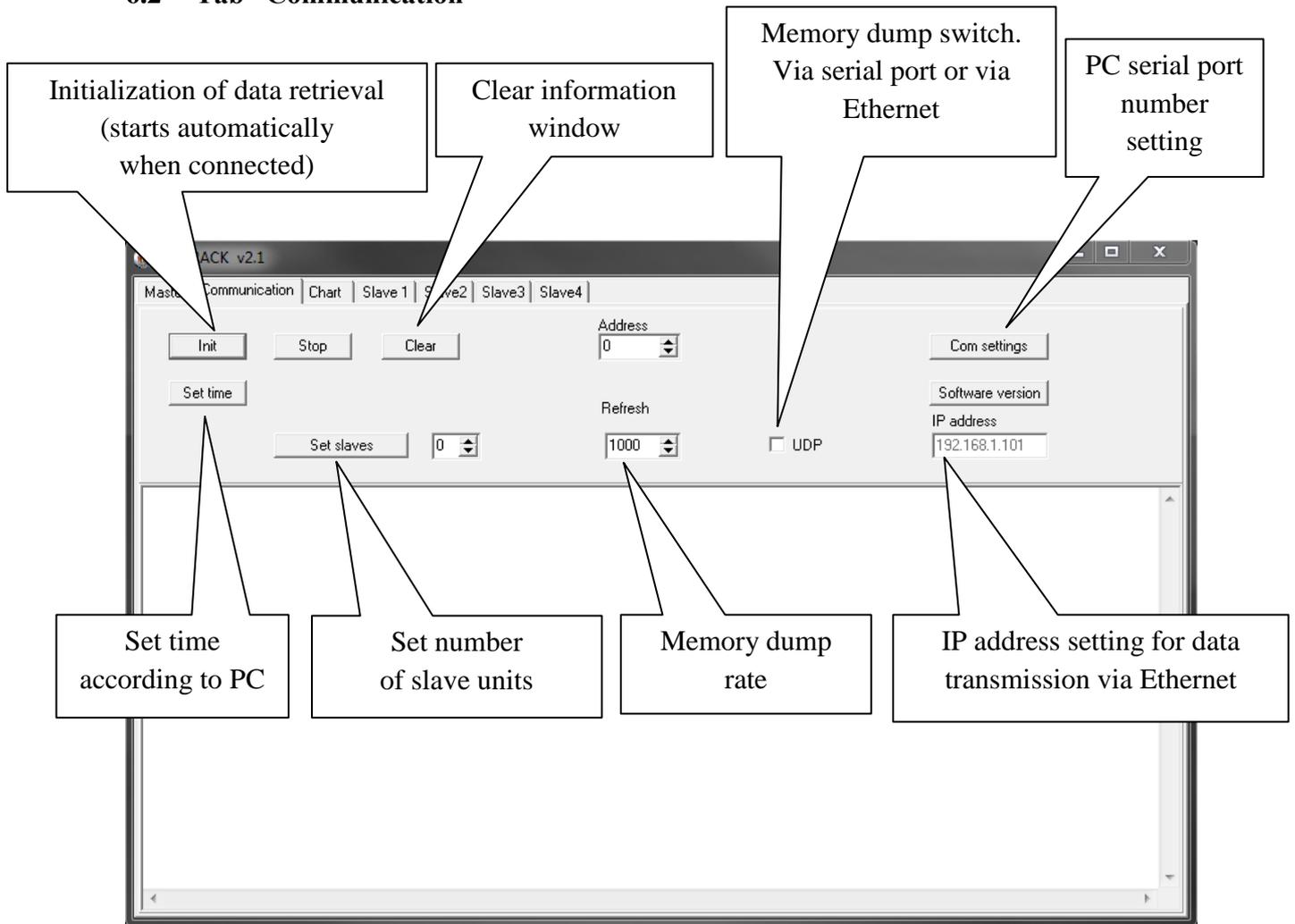
The screenshot displays the LES-RACK software interface with the 'Master' tab selected. The interface is divided into several sections:

- System state:** Includes radio buttons for Ready, Prealarm A, Reset A, Prealarm B, Reset B, Delayed Ex., Exting. Time, Extinguished, Reset A+B, and Reset.
- Line A [0] status:** Radio buttons for Silent, Test disc., Disconn., Test short, Short, Test Al., Alarm, Test fail, Failure, and Off.
- Line B [1] status:** Radio buttons for Silent, Test disc., Disconn., Test short, Short, Test Al., Alarm, Test fail, Failure, and Off.
- Buttons [2] status:** Radio buttons for Silent, Test disc., Disconn., Test short, Short, Test Al., Alarm, Test fail, Failure, and Off.
- Temperature and Pressure:** Fields for Int. temp (0,0 C), Ext. temp (0,0 C), Batt. temp (0,0 C), and Pressure (0,00 Bar).
- Relay state:** Checkboxes for Cooling, Technologic, Alarm, Pre alarm, Failure, Test, Acoustic, Valvel 1, and Valvel 2.
- Valve 1 state:** Radio buttons for OK, Raised resistance, Disconnected, and Short.
- Acoustic state:** Radio buttons for OK, Disconnected, and Short.
- Battery state:** Radio buttons for OK, Failure, Charging, and Discharged.
- Operation state:** Radio buttons for Ready, Preparation, Test, and Stop.
- Time:** A field showing 0,0 s.
- Lines voltage:** Fields for A (00,000 V), B (00,000 V), C (00,000 V), and Lines voltage (00,00 V).
- Battery, Mains, Acoustic:** Fields for Battery (00,00 mA), Mains (00,00 V), and Acoustic (00,000).
- Event Memory:** Fields for ID, Start, End, and Max.
- Fault Indicators:** A grid of status indicators including Sys. ready, Test, Stop extinguish., Prealarm A+B, Alarm, Failure, Memory fault, Fault processor, Fault loop A+B, Fault loop C, Fault pressure, Fault mains, Fault battery, Fault acoustic, Fault valve, Fault slave1, Fault slave2, Fault slave2, Fault slave4, Fault mains, Fault battery, Fault acoustic, and Door contact.

Annotations and callouts highlight specific features:

- Line A status left detector** points to the Line A [0] status section.
- Line B status right detector** points to the Line B [1] status section.
- Emergency pushbutton status** points to the Buttons [2] status section.
- Left detector voltage and current** points to the A voltage and current fields.
- Unit ID (fixed)** points to the ID field.
- Right detector voltage and current** points to the B voltage and current fields.
- Emergency pushbutton voltage and current** points to the C voltage and current fields.
- Number of events in memory** points to the Start, End, and Max fields.

6.2 Tab “Communication”



Pushbuttons description:

Init – Memory dump start (starts automatically when the software is launched). If the memory dump fails, check COM port setting or IP address.

Stop – Memory dump stop. To restart press pushbutton Init.

Clear – Clears the information window.

Address – Not used.

Com setting – Selection of the PC COM port for serial communication.

Verse Softu – Shows firmware version in the information window.

SetTime – Sets time of the unit according to the PC.

SetSlave – Sets number of Slave units connected to the Master unit.

Refresh – Memory dump rate (lower number means faster dumping).

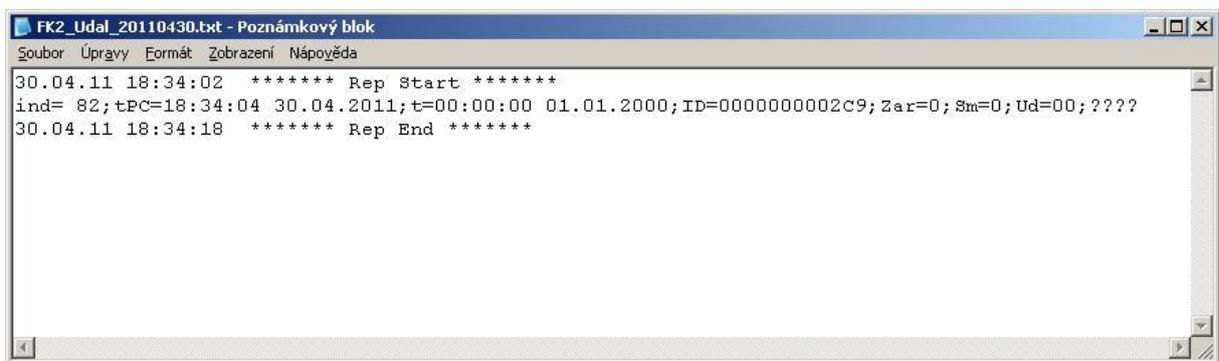
UDP – Switch between serial and Ethernet output. If the box is checked, data are transmitted via Ethernet; if blank, data are transmitted via serial port. To enable the IP address retrieval, UDP box must not be checked – serial port must be used.

IP – Retrieval of required IP address of controlled unit.

Data shown in the information window are stored as text in the Log located in the same folder. This Log is titled “ReportUdal”. After opening, the text file with the following name is stored:

First log – FK2_Udal_20110430.txt. FK2_Udal is the file name, attached is the date in “YYYYMMDD” format indicating when the log was retrieved from the unit.

It can be opened by any text editor.



```
FK2_Udal_20110430.txt - Poznámkový blok
Soubor Úpravy Formát Zobrazení Nápořádá
30.04.11 18:34:02 ***** Rep Start *****
ind= 82;tPC=18:34:04 30.04.2011;t=00:00:00 01.01.2000;ID=0000000002C9;Zar=0;Sm=0;Ud=00;???'
30.04.11 18:34:18 ***** Rep End *****
```

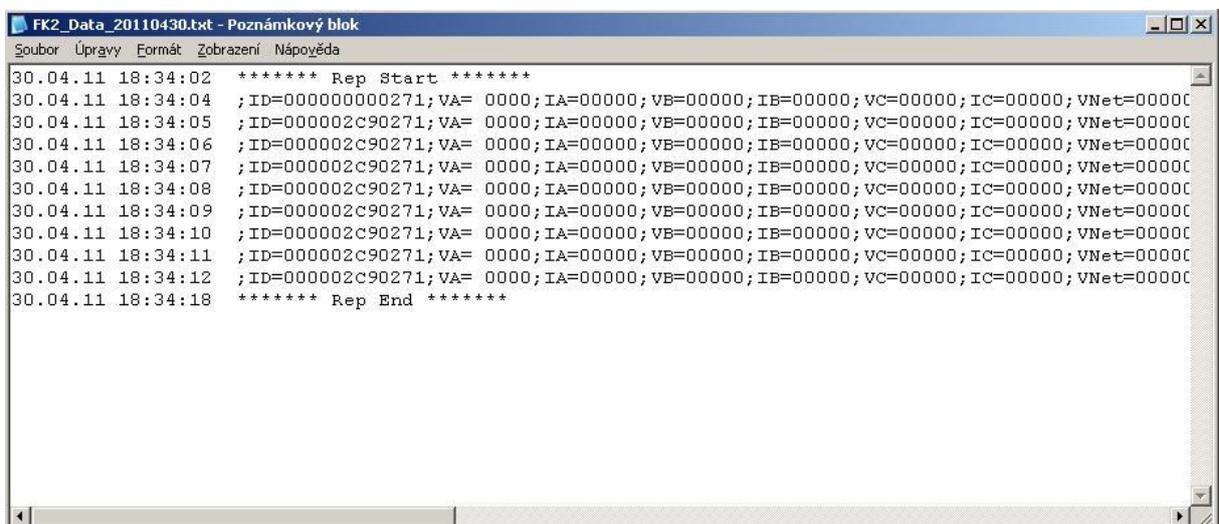
1st line – retrieval start date and time

2nd line – event sequence number, PC time and date, unit time and date, unit ID, device number, loop, event number, event description.

3rd line – retrieval stop date and time.

Second log – ReportData

FK2_Data_20110430.txt

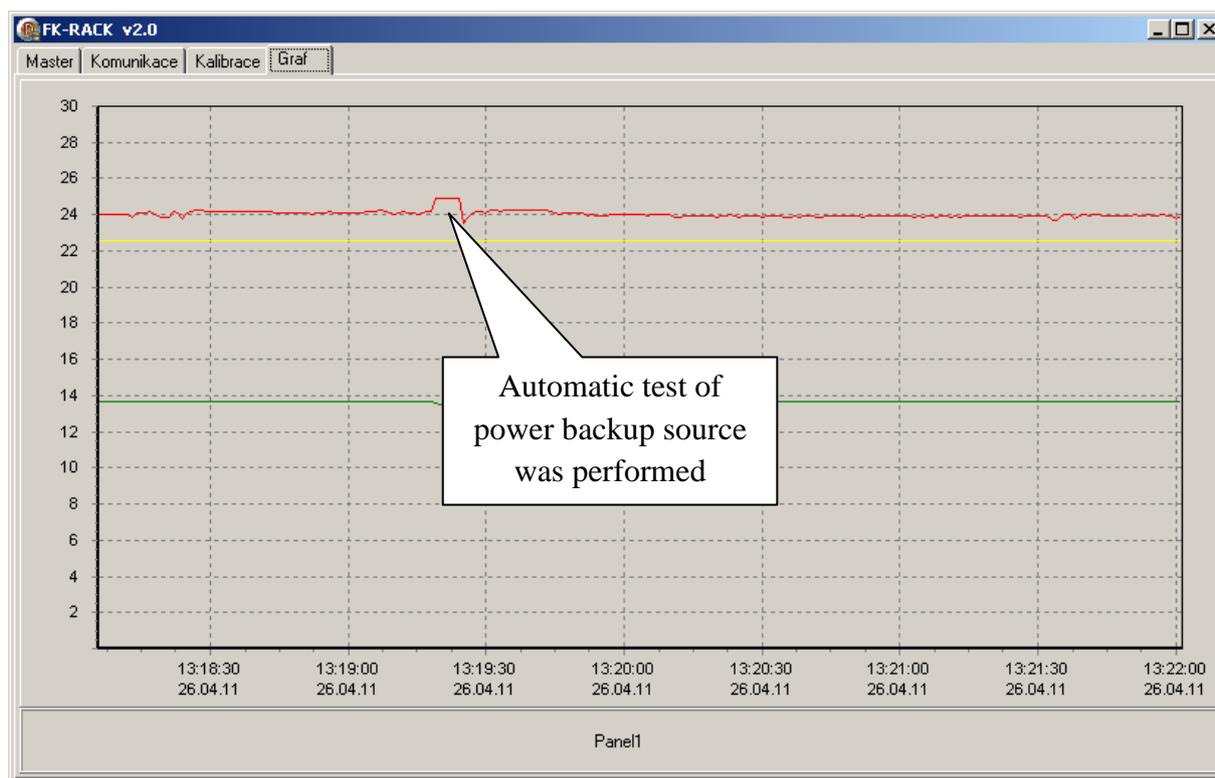


```
FK2_Data_20110430.txt - Poznámkový blok
Soubor Úpravy Formát Zobrazení Nápořádá
30.04.11 18:34:02 ***** Rep Start *****
30.04.11 18:34:04 ;ID=000000000271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:05 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:06 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:07 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:08 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:09 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:10 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:11 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:12 ;ID=000002C90271;VA= 0000;IA=00000;VB=00000;IB=00000;VC=00000;IC=00000;VNet=00000
30.04.11 18:34:18 ***** Rep End *****
```

It contains detailed information about the devices, all voltages and currents, times, pressures, temperatures detected in one-second interval. When the memory is full, data move upwards. This means that the oldest data are erased and replaced by new data.

Tab “Calibration” – not used.

6.3 Tab “Chart”



The chart shows graphically the status of power supply (mains) and power backup sources, including performed tests.

To compensate for possible mains power supply failure the system is equipped with backup battery. In order to ensure that the power backup source functions flawlessly, the system tests the power backup source each 6 minutes as follows: it disconnects mains power supply, loads the battery with approx. 1 A and measures the voltage drop. This voltage drop can be seen in the chart. If this drop exceeds permissible limit, the system reports fault both acoustically and visually.

The chart includes the following data:

red line – power backup source voltage

yellow line – voltage on loops

green line – battery voltage