PCE-IMS 1 User Manual

IP Monitoring systems
IP Switchable Metered PDU's

- System installation
- System setting
- Accessories
- Monitoring master unit
- Extension units
- Sensors
- SNMP server
- List of USB-cameras

Contents

Contents

User Manual

Contents

Contents

System installation

Attention! Only the person with high-level technical skills should install and setup the monitoring system.

1.1 Turning on the Monitoring System

Connection of master unit is made in the following order:
1.   Install any master unit.
2.   Connect the power supply to a power source. For this purpose it is necessary (in 5500.824 unit) to plug the power cord into the outlet 230V, and to connect the other end of 12V pin to the connector on the back panel of unit. For the units 5510.xxx you need to connect the power cord to the module and outlet 230V.
3.   Connect master unit to local network by means of UTP or FTP cable. One end of cable is connected to connector 100 Mbit on the front panel of the master unit, the other end to port of the network switch.
4.   Wait until the indicator 'PWR' lights up on the front panel of the unit, and indicator 'ACT' starts to blink (approximately in 30 seconds after submission of power).

If indicator **PWR** on the front panel of master unit is on, and indicator **ACT** blinks with frequency of 1 time per second, unit is connected correctly.

1.2 Configuration of system network parameters

Network parameters of monitoring system have to be configured to have an opportunity of a further system configuration, for adjustment of system logic. Configuration of network parameters of system can be made in three ways.

Use of factory-specific settings

To establish network parameters of monitoring system, it is possible to use the system's web-interface, by opening it and using initial factory settings.
Factory network settings of monitoring system:
1.   IP-address: 192.168.0.193;
2.   Netmask: 255.255.255.0;
3.   Other parameters not set.

To get access to web-interface of monitoring system, using factory-specific network settings, is possible if previous network parameters of the master unit have not been altered. Follow:
1.   Make sure the master unit is connected to a power source and operates (indicator **PWR** on the front panel lights up).

Attention! If you don't have Adobe flash player installed on your computer, web interface of monitoring system will prompt you to install one. Follow the link ((http://www.adobe.com/go/getflash/, Internet connection is required). On the requested page press the button "Install now" and follow further instructions.

User Manual

2.   Make sure that master unit is connected to a local network by means of UTP or FTP cable. Ensure that your PC is in 192.168.0.* subnet.

3.   Open Internet-browser on administrator's PC (Firefox or any other that supports Adobe Flash 8), type in the address bar the IP-address "**http://192.168.0.193**". The web-Interface of monitoring system will open. If the web interface does not open, check that your test computer is in the subnet 192.168.0 .*. Make sure you did not connect the network cable to the RS-485 port. If the problem persists, open interface over an encrypted protocol using IP-address "**https://192.168.0.193**". Ignore the warning!

4.   Answer on the question: **Synchronize system time with computers time now?** ..OK

System time is incorrect. Synchronize system time with computer's time now? Only administartor could do it. Synchronize system time.

OK
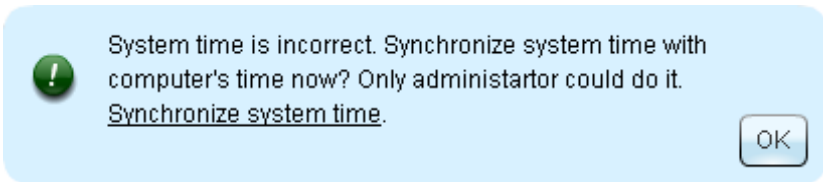
Pic. 1.1: Time synchronization from the web-interface

5.   In the opened interface select tab "**Settings**". If required, change the interface language in the field "**Language**». Refresh your browser. **Attention!** Interface language changes only after you refresh the browser.

6.   In the opened interface select tab «**Network**»

7.   In the fields "**IP address**" and "**Netmask**" enter required values (Pic. 1.2), press the button "**Save and close**". Configuration of network parameters of the master unit is finished.
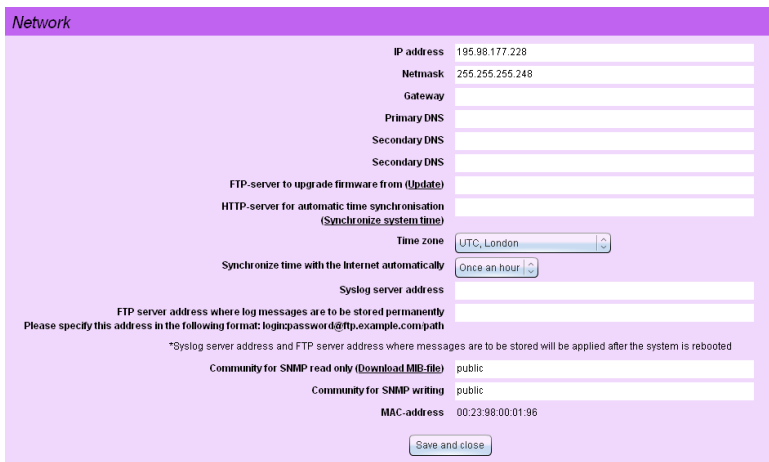
*Pic. 1.2: Tab "**Network**" is opened in system interface*

To make sure, that network parameters of the system unit are configured, open the web-interface of the system.

After successful configuration of network parameters of the master unit, it is possible to proceed to configuration of other parameters of system, connection of extension units, running the system. All other system settings are carried out through web-interface of the master unit.

Backup and restore system settings

The monitoring system has the ability to save the settings in the backup file and later restore them. To save file with the system settings, follow these steps:

1. Open tab "**Modules**" in the system interface. Go to "**System Menu**".
2. Select menu item "**Download backup file with settings**". A warning will appear with the description of backup file and you will be asked to save it. (See Pic. 1.3)

You are downloading backup file. Write this file to usb flash disk and connect it to usb to restore settings.

OK
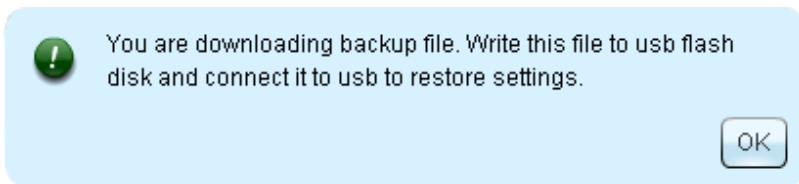
Pic. 1.3: Saving backup file with system settings

3. Save the file to Flash and do not change the file name.

To restore system settings the following steps are required:
1. Copy the saved file to the USB memory stick. Do not change file name.
2. Plug the USB memory stick into the USB slot of the monitoring system.
3. Wait until system's PRG led lights up and then goes out.
4. Remove your USB memory stick from the monitoring system.
5. Reboot the monitoring system: disconnect power cable and connect it again.

System settings will be changed after the system is booted.

Updating monitoring system software using USB memory sick

Attention! When your monitoring system is updated using USB memory stick, all your settings are restored to default. All your internal settings, setup logs, passwords, names are lost! All network settings are restored to default. Default settings are as follows: IP address 192.168.0.193, netmask 225.225.225.0. If you want to update the driver and keep the settings, update your system only through FTP!

To set the network settings for the master unit using this method you will need a USB flash drive. Perform the following steps.

User Manual

1. Copy the file "**sky-control-firmware.sky**" to the root file system of USB memory stick. Do not change file name. Do not copy more than one file with extension *.sky to the USB stick. Otherwise firmware update might not be done correctly.

2. Make sure that master unit which you are setting up, is connected to a power source, (indicator **PWR** is on).
3. Unplug Ethernet cable.
4. Plug the USB memory stick into the USB slot of the monitoring system.
5. Wait until upgrade process is done. This process usually lasts for 2 minutes. Please do not unplug the memory stick while upgrade is in process. The **Prg** LED on the front panel of the master unit will light up and then go out.
6. Wait until all of the LEDs: Pwr, Alrm, Prg, Act will go out.
7. Remove your USB memory stick from the monitoring system.

8. Reboot the monitoring system: disconnect power cable and connect it again.
9. Wait until the monitoring system is booted. PWR led should be on, ACT led should be flashing.
10. Check that your system works correctly. Before opening web-interface, clear web browser's cache. IP-address of the master unit has been changed to the default IP-address 192.168.0.193.

If any problem has occurred after upgrading or upgrade has not been done properly, repeat steps 2 - 8.

Updating monitoring system software through FTP

The monitoring system has the ability to update the software remotely using FTP server. To update your system with FTP, you need to know FTP server address that hosts the software file. If you are not using another FTP server, use FTP server, ftp://ftp.unilan.ru. To update new software versions through FTP perform the following steps.

1. Make sure that master unit which you are setting up, is connected to a power source, (indicator **PWR** is on).
2. Open monitoring system interface in your browser.
3. Open tab "**Network**". In the field "**FTP server to upgrade firmware from**", enter the address of update file like: ftp://pce-instruments.com/pub/fw-.....sky.
4. Click the link "**Update**".

User Manual

5. Over the next few minutes, monitoring system will automatically download the download the software file, unzip it and apply the update.

After successful software update the monitoring system must be restarted. This can be done manually by disconnecting power supply, or remotely by selecting "**Reboot system**" in "**System menu**" of the interface. All the system settings, including IP-address will remain the same.

Recovering lost IP-address of master unit

Sometimes, as a result of forgetfulness or with a change in administrator, the current value of IP is lost. If you need to find out the IP-address, connect the USB-drive to a master unit, the system will automatically copy file "**dump log**" to the USB flash drive, as well as all accumulated data from connected sensors and other settings (IP-address). Wait for the indicator **PRG** on the front panel to light up and then go out, remove the flash drive, connect it to your computer and open the newly created file in Notepad or any other text editor. The file should be named «**dumplog**-<today's date>.txt». Monitoring system saves current IP-address in the first lines of this file. Knowing it you can now install required network settings.

1.3 System time synchronization

PCE-MS 1 system a has built-in opportunity of time synchronization through Internet or a local network. When master unit is switched on, time is synchronized with the remote HTTP-server, however, this is only possible when master unit has Internet access. Correctly adjust network settings (see above System installation) and Time zone (see below Network)..

In order to adjust synchronization server, the following actions are required:
1. Open web-interface of system in the Internet browser
2. Go to tab "**Network**" in the web-interface.
3. In the field "**HTTP-server for automatic time synchronization**" the factory address of synchronization HTTP-server is www.google.com. The server can be changed to any other that is required. Set up system time zone. To do this, select your current time zone (e.g., UTC +5, Karachi)

Pic. 1.4: Time zone

4. Press the button «**Save and close**».

In addition, the administrator has an opportunity to synchronize time of the master unit with administrator's computer time. If time of the computer and time of the master unit are not the same, at opening system's web-interface notification will appear, which will ask you to synchronize time (See pic. 1.1). Press "**OK**" to synchronize it. Time can also

be synchronized by pressing button "**Synchronize system time**" in "**System menu**" in tab "**Modules**".

The default time of monitoring system unit is GMT time zone. In order to convert time of the master unit into current time zone, select the corresponding time zone in field "**Time zone**" in tab "**Network**" of web-interface and press the button "**Save and close**".

1.4 Connection and removal of extension units and sensors

Connecting and removal of extension units and sensors is a simple procedure.

Connection and removal of the extension units

To connect extension unit, follow:

1. Connect UTP patch cable supplied to one of two inputs on the extension unit.

Attention! If strong electromagnetic interference is present, we recommend to use FTP patch cable!

2. Plug the other end of the cable into RS-485 input of master unit or into any other extension unit. Determining the type of unit and connection will be automatic. It is possible to connect up to 30 extension units.
3. To remove a unit disconnect it from the line of extension units.

Connection of analog sensor

In order to connect an analog sensor follow:

1. Connect supplied RJ11 (6P4C) cable to input of analog sensor.
2. Connect the other end of the cable to 6P4C input (I/O «**Analog sensors**») of any system unit. Sensor type is determined automatically.
3. Make sure that the sensor is found by the monitoring system. Go to tab «**Modules**» in system web-interface. Find the newly connected sensor. Change sensor settings (see below) if necessary.
4. Repeat procedures 1-3 for the remaining analog sensors, connecting each sensor to separate analog port.
5. In tab "**Modules**" press «**Save**», in order to save data about the connected units and their parameters.

Several analog sensors, such as contact sensor and smoke sensor (see above Sensors) have an additional RJ11 output and can be connected consistently into a circuit. However, the monitoring system distinguishes it and shows them as one sensor!

Attention! In the presence of strong electromagnetic interference, we recommend to use 2-pair FTP cable for connection of any sensors!

Connection of digital sensor

In order to connect digital sensor follow:

1. Connect supplied RJ11 (6P4C) cable to input of digital sensor.
2. Connect the other end of the cable to digital input 6P4C (Connectors «**DI-1, DI-2**») of any system unit or into a free connector of another digital sensor already connected to the system. Sensor type is determined automatically.
3. Make sure that the sensor is found by the monitoring system. Go to tab «**Modules**» in system web-interface. Find the newly connected sensor. Change sensor settings (see below) if necessary.
4. Repeat procedures 1-3 for the remaining digital sensors, connecting each sensor to a separate digital port or any other free port of another digital sensor connected to the system.

Attention! You can connect up to 10 digital sensors consequently to one digital port.

5. In tab "**Modules**" in "**System menu**" press «**Save**», in order to save data about the connected units and their parameters.

Removal of analog and digital sensors

For removal of sensor disconnect it from the unit. Sensor will not disappear from the system and will be shown as "**Not connected**". At successive connection of the sensor it is not required to repeat procedure again, all the parameters will be stored in flash memory. For a complete removal of the sensor, press "**Save**" in "**System menu**" of system web-interface; sensor will be completely removed.

1.5 Connection of devices to relay outputs

For connection of devices to relay it is required:
1. Connect commutative power to connector of relay output.
2. Connect electric load to connector of relay output.
3. Plug the connector into corresponding jack of relay output.

Attention! Devices must only be connected to relay outputs without electric load!

Since the relay is a part of unit, it is connected automatically and does not require any actions from the administrator.

Keep in mind that when using monitoring system PCE-MS1 has an access control system, readers are logically related to the first and the second relay outputs.

1. 6 Connection of reader

Pic. 1.5: No reader   *Pic. 1.6: Reader connected*

The readers can be connected to any digital input («**DI-1, DI-2**») of any monitoring system module. The reader is automatically detected. The system program will associate certain embedded relay to each reader. Bus DI-1 is associated with the relay RLY 1, bus DI-2 with relay RLY 2. And relay to which the reader is connected changes its own algorithm as follows: at connection of a key or card to reader, the relay switches contacts. The icon of the relay in tab «**Modules**» will change as follows:

Connection of I-Touch Button reader

Readers **I-BUTTON** have two wires.

- ground
- data wire

GND of reader I-BUTTON is connected to the GND pin on the connector RJ11.
Data wire of reader I-BUTTON is connected to the BUS contact on the connector RJ11.
In order for the monitoring system to detect the connection of a reader, NC contact on the connector RJ11 should be connected using resistor 27K to the GND. Readers can only be connected to the digital outputs in modules 5500824, 5510824, 5505814, 5505816.

Connection of Proximity reader

Usually **Proximity** Readers have inputs for

- power supply
- ground
- data wire

Proximity reader's GND is connected to the GND pin on the connector RJ11. Proximity reader's data wire is connected to the contact BUS on the connector RJ11. Proximity reader's power connects to the +12V pin on the connector RJ11.
In order for the monitoring system to detect the connection of **Proximity** reader,
NC contact on the connector RJ11 should be connected to the GND using resistor 27K.
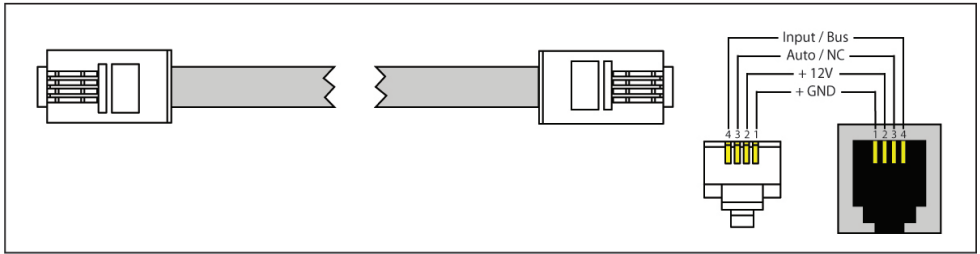
Pic. 1.7: RJ-11 pinouts

All **I-Button** keys have a unique identifier, in the same way as **Proximity** cards.

It is possible to use input readers and keys iButton and Proximity simultaneously in one access system provided there is a sufficient quantity of digital inputs on units. System allows to easily add new keys or cards to database of authorized persons by a simple touch to the input reader. System stores data about entries in the system log, which has several filters (by name or time), and which allows to quickly find data of a certain user.

Adding key to user database

The monitoring system allows you to control certain user access to certain premises. To configure the monitoring system to control access you need a module having connectors «**DI-1, DI-2**» and relay outputs, a reader and a few keys or cards.

To configure user database, follow:

1. Make sure that the master unit is connected to a power source and operates (Pwr LED on the front panel is on).
2. Plug the reader into one of the free connectors «**DI-1, DI-2**».
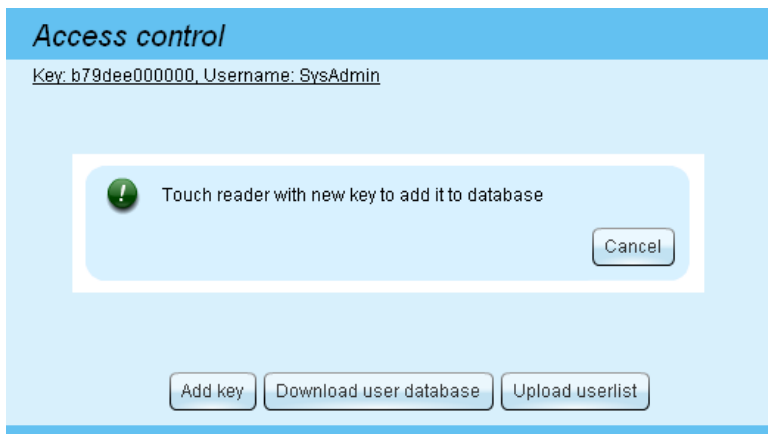
*Pic. 1.8: Tab «**User database**»*

User Manual

3.   Make sure that the reader is detected by the system. To do this, open the system interface, go to tab «**Modules**» and locate the relay whose icon shows the key.

4.   Go to the «**User database**» tab. Click "**Add Key**" button. A dialog window will appear for entering keys.

5.   Touch the reader with the new key or with card. The dialog window will disappear, and a new key will appear in the list of keys in tab "**User database**".

6.   The relay which corresponds to the connector to which the reader is connected will turn on for a few seconds (the length of the inclusion is adjustable in parameters of the relay).

7.   Click on the new key in the list. You will be asked to enter user name. Enter name and click "**OK**". Now a new key or card will be matched with the user.

8.   Repeat procedures 5-7 for the other keys or cards.

9.   Connect the door lock to the relay, take the reader outside the door.

10.   When the user key will touch the reader the relay will include contacts for a few seconds, the name of the user who passed through the door will appear in tab «**System log**».

11.   If you do not save the key database, at any resetting of power the database with all the keys will be lost. Make sure to save the user database in system flash memory. For this purpose, please:

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface.

12.   In order not to lose the user database after an accidental loss of monitoring system or system failure, save it into a file. To do this, click «**Download user database**» in tab "**User database**". You will be asked to save file. Select a folder and file name, click «**Save**», remember the path and file name.

13.   To restore or to duplicate a database of keys, click «**Upload userlist**» in the window "**User database**" to upload the database into the monitoring system. Click on «**Save**» in "**System menu**" in order to save the keys in system flash memory.

1.7 Saving system configuration settings

 The system allows you to save configuration settings into a file for the consequent use. This option can be useful when you need to set, replicate or restore the system settings. To save the settings, follow:

1.   Open tab "**Modules**" in the system interface. Go to "**System Menu**".

2.   Click on "**Download system settings**". A dialog box will appear. Save the backup file on the hard drive of your PC.

User Manual

To set or restore the system settings, using the previously downloaded backup file, follow these steps:

1. Put USB flash drive into USB-port on computer.
2. Copy backup file to the flash drive system root.

Attention! Do not change file name.

3. Take out flash drive from the port of your computer and connect it to the USB port on master unit.
4. Make sure that master unit is connected to a power source and operates (indicator **PWR** is on).
5. Prg LED will blink in a few seconds and then will go out.
6. Remove Flash drive. Settings are established.

System setting

Setting of monitoring system includes several separate procedures:

1. setting system log;
2. setting system interface;
3. setting parameters of sensors;
4. setting notifications, timers and web-cameras;
5. adding keys to the user database;
6. changing system logic;
7. creating logic groups.

2.1 Setting system log

Viewing system log

All changes in sensor states, notifications on carrying out actions of logic circuitry, other important events are displayed in the system log of monitoring system. To view the log, go to tab "**System log**" in the web-interface of system.

In order to save the system log on PC hard disk, press button "**Save**". Dialog window will appear, select file name and save the system log. Type of file saved - RSS 2.0 (http://en.wikipedia.org/wiki/RSS).

Storing log messages of FTP server/Syslog server

PCE-MS1 system allows you to store log messages on your local server or in Internet.

The system supports FTP and Syslog protocols and can send messages to this remote server for both protocols. In order to setup this follow:

1. Open tab "**Modules**" in the system interface. Go to "**Network**".

2. Type in the address of the remote server on which you want the messages to be stored in the corresponding fields:

a) In order to store messages on Syslog server type in the IP-address or the name of the remote server in field "**Syslog server address**".

Syslog server address	unilan.ru
FTP server address where log messages are to be stored permanently Please specify this address in the following format: login:password@ftp.example.com/path	
Community for SNMP read only (Download MIB-file)	public
Community for SNMP writing	public
MAC-address	00:23:98:00:01:96

Save and close

Network settings

User Manual

b)   In order to store messages on remote FTP server, type in the name of the server, including the username and password in the field "**FTP server address where log messages are to be stored permanently...**". FTP server may require authorization, in this case make sure you fill in the field correctly in the form: ftp://login:password@hostname:port/path

Where:

login and **password** - the name of the user and password to access FTP server, this user must have the rights to save files in server.
hostname and **port** - IP-address or the domain name and the port of the remote server respectively.   If port is not typed in, FTP port (21) is used by default.
path - the path to the folder in which the system will store the log messages.

 When storing the system log on remote FTP server, the monitoring system uses passive mode, i.e. only the server opens up ports for incoming traffic.

 When storing the system log on remote FTP server, the system does not instantly save the data in the remote server, firstly it buffers the information to reduce frequency of saving data to the server. Log entries are recorded at intervals of 5 minutes.

 The format of the file used to save the log to FTP server contains the name of the system log (PCE-MS1), IP-address of the system from which the log must be stored, and the date when the log was created. Each time the day changes (at 00:00) the monitoring system creates new file in the remote sever. The name of the file is as follows: Sky-control-192.168.1.193-2010-03-28.log.

3) Press "**Save and close**".
4) Reboot the system to apply changes.

Attention! The changes made to the Syslog and FTP server parameters will take effect only after rebooting the system of monitoring.

2.2 Variable interface settings

Tab «**Settings**» of the web-interface allows to set the following:

1.   Interface language. To change interface language, select the language you need and refresh your browser.
2.   Ability to play sound when there is a new event or there is an unread log entry. If you enable this option, the sound will play through speakers.
3.   Icon size. Simply move the mouse over and sensor icon size will change.
4.   Reload timeout. Speed with which information is updated in the interface. To reduce the use of network, increase this value
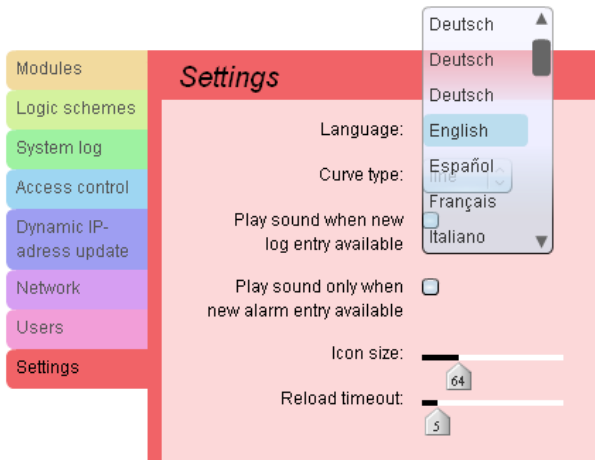
Pic. 2.1: Settings window

2.3 Setting parameters of sensors, sensor threshold levels

Go to tab "**Modules**" in the interface of monitoring system, select element whose parameters need to be altered. (Sensor must be connected).

Setting temperature, humidity, voltage sensors

Pic. 2.2 shows the window for changing parameters of this type of sensor. Each sensor has 4 logic conditions:

- Low level(Low) – if value of indications of the sensor is not above Low Level:
    $$T \leq T_{\text{low level}}$$

- Norm (Normal) – if value of indications of the sensor is between Low Level and Warning Level:
    $$T_{\text{low level}} < T < T_{\text{warning level}}$$

- High level (Warning) – if value of indications of the sensor is between Warning Level and Alarm Level:
    $$T_{\text{warning level}} < T < T_{\text{alarm level}}$$

- Alarm (Alarm) – if value of indications of the sensor is not below Alarm Level:
    $$T \geq T_{\text{alarm level}}$$
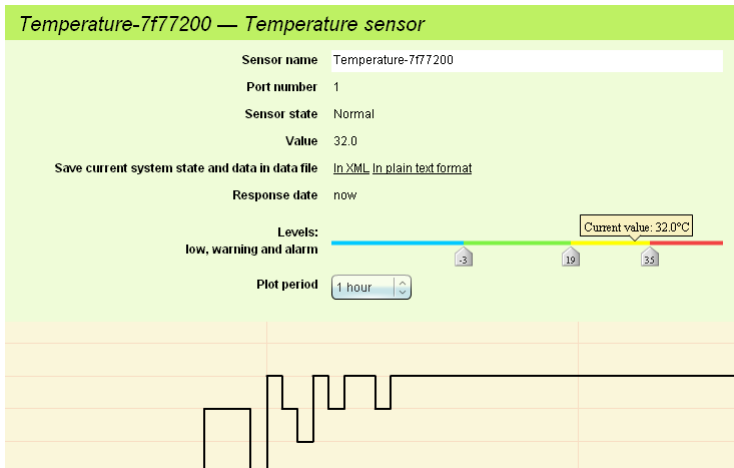
Pic. 2.2: Adjusting sensor threshold levels

The administrator has the opportunity to set the following sensor parameters:

- **Sensor Name** - the name of the sensor, which will be displayed in the interface, in system log, etc.
- **Levels** of alarm.

  ○ Low level. If value of indications of the sensor is not above the given threshold, the sensor switches to logic condition "**Low level**".
  ○ Warning level. If value of indications of the sensor is above the given threshold, the sensor switches to logic condition «**High level**».
  ○ Alarm level. If value of indications of the sensor is above the given threshold , the sensor switches to logic condition «**Alarm**».

In order to set the threshold levels move them with mouse. Press "**Apply**" for changes in threshold levels to come into effect. However, threshold levels will not be saved in flash memory of system! If power supply is lost, threshold levels will be lost.

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

The administrator has an opportunity to control the condition of the sensor from web-interface:

- If you click on sensor icon, window will open.
- "**Sensor name**" allows you to write the name of sensor.
- Logic condition of sensor is shown in the field "**Sensor state**".

User Manual

- Sensor data is shown in the field "**Value**". If the field shows «**Not connected**», the sensor is disconnected from the connector or is defective.
- The two links in field "**Save current system state and data in data file**" allow to export gathered sensor data in the format of CSV and XML for a period of time up to 3 months. This exported data can be easily opened in a program that supports tables, for example «**Open Office Math**» or «**Microsoft Excel**», and then can be used to perform required calculations or to be saved in the database (Pic 2.3).
- Field «**Response date**» displays time of last reading of sensor level by the interface in monitoring system.
- Field «**Levels**» evidently displays the established logic levels of the sensor, as well as its current data.
- You may also set the "**Plot period**". The longer the period the less readings are taken and the less memory is required to store data.
- To save all the settings, name, thresholds and periods in system memory, click "**Apply**" and click "**Save**" button in "**System Menu**" in tab "**Modules**"!
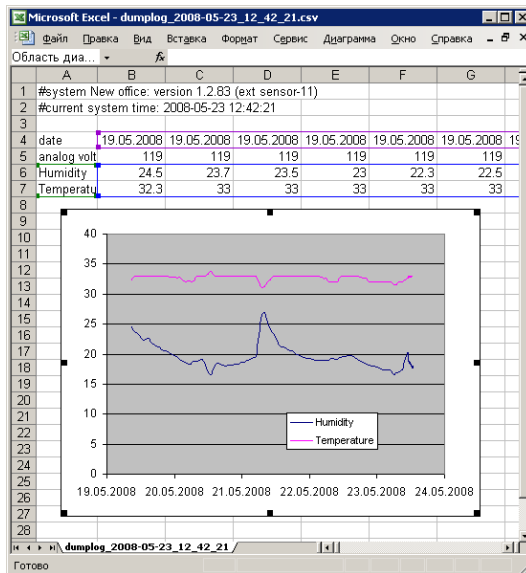
Pic. 2.3: Performing calculations in Excel

- **Plot** displays dynamics of changes of sensor's indications in the last hour, last 3 days or last three months. In order to alter the graph's time period select the required period in menu "**Plot period**" (Pic. 2.4).
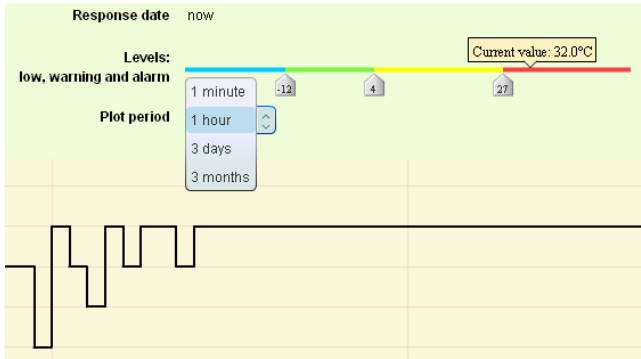
Pic. 2.4: Selecting plot period

 Plot may not be displayed, if the monitoring system has no indications of the sensor, or if their duration is less than 1 minute. Such situation can arise, if less than 1 minute has passed from the moment the sensor or the unit was connected, or after synchronization of time.
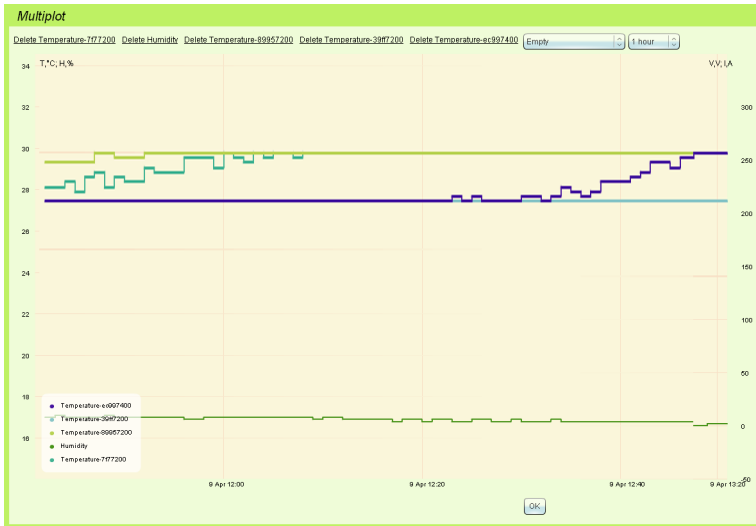
Pic. 2.5: Multiple plot

 The administrator has opportunity to view dynamic changes of several sensors. To do that press "**Multiplot**" and select the required sensors from the list. The list of available sensors contains only temperature, humidity and voltage sensors. The time period of display can also be changed.

User Manual

The multiple plot has two Y-axis (Pic. 2.5). The left Y-axis shows joint temperature (in ºC) and humidity (in %), the right Y-axis shows voltage (V).

Setting other sensors

Other sensors that are not described in the previous section, have two conditions:

- **Normal** - if the sensor operates in the normal mode, the given level corresponds to the open contact (the button is not pressed, the smoke is absent, the door is closed etc.). If the sensor operates in the reversed mode - the given level corresponds to the closed contact.
- **Alarm** - if the sensor operates in the normal mode, the given level corresponds to the closed contact (the button is pressed, the smoke is present, the door is closed etc.). If the sensor operates in the reversed mode - the given level corresponds to the open contact.
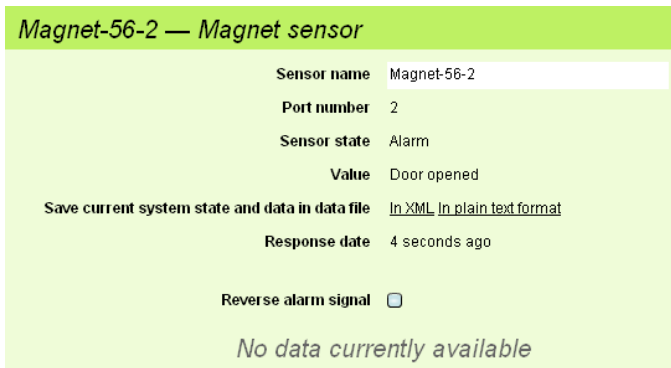
Pic. 2.6: Window opened for contact sensor

The administrator has opportunity to set the following parameters for the given type of sensor (Pic. 2.6):

- **Sensor name** - the name of the sensor under which it will be displayed in the interface, in system log, etc
- **Reverse alarm signal** - use of reverse operating mode. In reverse mode the sensor switches to **"Alarm"** level if contact is opened (the button is not pressed, the smoke is absent).

Press **"Apply"** for changes to come into effect. However, the changes will not be saved in flash memory of system! If power supply is lost, threshold levels will be lost.

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

User Manual

The administrator has opportunity to control sensor's state from web-interface:
- Field «**Sensor state**» corresponds to current logic level of element.
- «**Value**» displays sensor state. If the field shows «**Not connected**», the sensor is disconnected from the connector or is defective.
- Field «**Response date**» displays time of last reading of sensor level by the interface in monitoring system

Setting relay
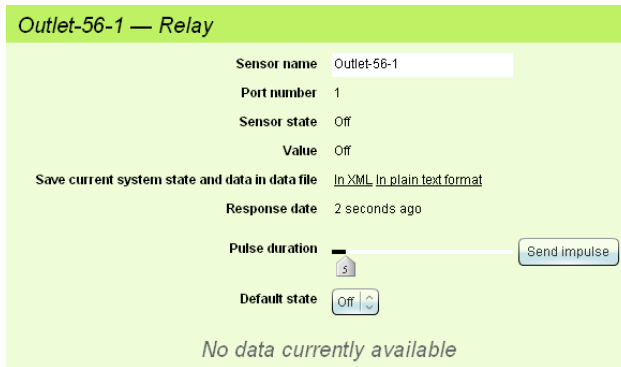
Pic. 2.5: Multiple plot

Each relay has two states:
- **On**;
- **Off**.

Depending on status of relay, certain pair of contacts of the corresponding relay is closed on the system panel.

The administrator can set the following parameters of the relay (Pic. 2.7):

- **Sensor name** - the name of the sensor under which relay will be displayed in the interface, in system log, etc
- **Pulse duration** - duration of the relay being in condition "**switched on**" at submission of impulse on the relay.
- **Default state** - the condition to which the relay switches at connection of unit and when the operating logic circuitry that switches the relay is absent.

Press "**Apply**" for changes to come into effect. However, the changes will not be saved in flash memory of system! If power supply is lost, threshold levels will be lost.

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

User Manual

2.4 Setting notifications

Monitoring system allows to notify the administrator about the occurred events in four different ways:

1. Notification via e-mail (e-mail alerts);
2. Notification via SMS;
3. Notification through UDP (SNMP Trap);
4. Notification via ICQ/AIM.

Notification via e-mail (E-mail alerts)

The element "**E-mail alert** " is used to notify the administrator about the events occurring in system by sending an e-mail.

Using logic circuitry (see below) monitoring system allows to describe any set of states of sensors present in system, of which it is necessary to inform the administrator using given e-mail address. By means of elements "**E-mail alert**" recipients of messages are configured, as well as parameters of server's mail from which messages will be sent by this element.

In order to create such alert:

1. Go to tab "**Modules**" in the web interface of monitoring system.
2. Select menu item "**Add mailer**" in "**System menu**". A form will appear for filling in (Pic. 2.8).
3. In the field «**Notification type**» select «**E-mailer**».
4. Fill in the fields of the form. All the fields are obligatory for filling in.
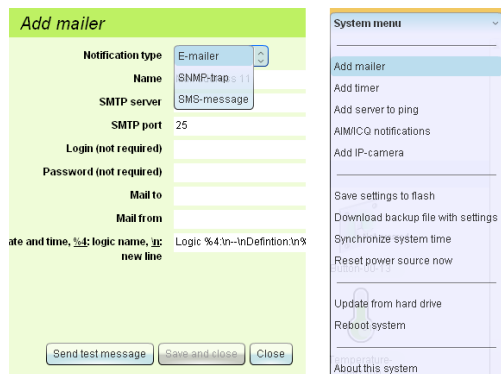
○ **Name** - name of the element under which it will be displayed in the interface, in system log, etc

○ **SMTP server** - mail client. Correctly adjust network parameters of master unit in order for server to be accessible.

○ **SMTP port** - SMTP-port on server, normally 25.

○ **Login** - name of the user for authorization on server.

○ P**assword** – password for authorization on server.

○ **Mail to** - administrator's e-mail to which the notification will be sent.

○ **Mail from** - e-mail which will be shown in the field **"From"** in the message received by the administrator.

○ **Message format** - he format of the e-mail message can be specified by the administrator. Format of the message is as follows: « **Logic circuit %1 has worked. Conditions of sensors: %2, current time %3** ». The message can contain the following fields:

%1 – description of the logic scheme that came into action (see below);
%2 – sensor data, included in the logic scheme;
%3 – time of response of the logic scheme ;
%4 – name of logic scheme

5. Press button «**Send test message**» to test the element.
6. Press button «**Save and close**».

 The created notification will appear in the list of modules and sensors in tab "**Modules**" in web interface. Notification will be seen only in modes «**View groups**» or «**View map**».

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

Pic. 2.9: New notification

Notification via SMS - installation and configuration of GSM-modem

The monitoring system can send notifications via SMS after you have installed and configured GSM modem. To configure the GSM modem, follow these steps:

1. Disconnect system power cable from the mains supply.
2. Open the metal case of the system by unscrewing the bolts and removing the cover.
3. Connect the SIM-card to the modem.
4. Connect modem to the system by two M3 bolts, connect one end of the cable to port on modem board and the other to the port on the system board.

5. Connect antenna cable to antenna port on the modem board. Put the other end of the cable with jack through a round hole in the metal case of the system, connect antenna to the antenna jack from the outside of the metal case.
6. Close the metal case using the bolts and connect the system power cable.

Once the modem is connected to the system, it will automatically detect it and GSM-modem icon will appear in the web interface in tab "**Modules**", you can configure your modem by clicking on its icon (see Pic. 2.9.1).

Pic. 2.9: New notification

Once the modem was connected and automatically detected, it has to be configured. To configure the settings follow these steps:

1. Click on modem icon.
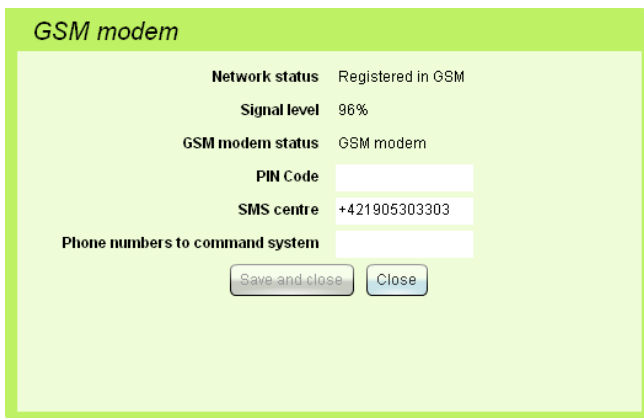
Pic. 2.9.2: GSM modem configuration

2. Type in PIN-code of the SIM card if needed in the opened window. See Pic. 2.9.2.
3. Type in the number of the SMS service centre.
4. Type in the telephone numbers from which you will send the commands to the system remotely. Only these telephone numbers will be able to send commands! It will not be possible to carry out these actions from any other phone number.
5. Press "**Save and close**" to save settings.

Remote control of monitoring system using SMS-commands

 Monitoring system with installed GSM-modem has the ability to remotely receive and carry out commands sent from mobile phones. In order to use SMS-commands, the following steps are required:

1. Make sure your monitoring system is turned on and is running, GSM modem must be connected to the system and detected by it.
2. Check the modem settings by clicking on modem icon in tab "**Modules**". Network status must be "**Registered in GSM network**", signal level must not be equal to 0%. See pic. 2.9.2
3. The phone number from which the command will be sent must be present in the field "**Phone numbers to command the system**".

 If all of the above are correct the following commands can be received by the system.

Command: reading sensor parameters

get SENSOR-ID

 This command checks the state of the sensor or relay (outlet) and sends response SMS to the phone, from which the command was sent, with the sensor state data. SENSOR-ID can be the name of the sensor or its number.

get outlet-00-1

 When this command is sent to the GSM modem phone number it will automatically send a response SMS to the phone number from which the command was sent, with either "**ON**" or "**OFF**" depending on the state of relay.

Command: setting state of relay/outlet

set SENSOR-ID STATE

 This command will switch on or off relay or outlet depending on STATE parameter. SENSOR-ID can be the name of the sensor or its number.   STATE can be ON if relay must be switched on, or OFF if must be switched off. For example, command

User Manual

set outlet-00-1 on
 Will switch on outlet-00-1 in monitoring system.

Notification via SMS

 In order for the system to be able to send SMS notifications, GSM modem must be installed and configured, notification must be created. The element «**SMS message**» is used for notification using GSM-network. The SMS alert is only possible if GSM modem is embedded into the system. If GSM device is not installed in monitoring system, sending SMS will not be possible.

In order to create SMS notification follow:

1.   Go to tab «**Modules**» in the web-interface of monitoring system.
2.   Press «**Add mailer**» in "**System menu**". A form for creating new notification will appear.
3.   In the field «**Notification type**» select «**SMS message**».
4.   Fill in the name of notification and the phone number using (+) not (0)! The default message will only contain the name of the logic circuitry and the time of notification.
5.   Press button «**Send test message**» to test the element.
6.   Press button «**Save and close**». If you see error message «**GSM-modem is not installed**», check your modem settings and refresh your browser.
The created notification will appear in the list of modules and sensors in tab "**Modules**" in web interface. Notification will be seen only in modes «**View groups**» or «**View map**».
7.   Go to tab «**Network**».
8.   In field «**SMS service center address**» type in the phone number of the corresponding center starting the phone number with (+).
9.   Press button «**Save and close**».

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

Notification through UDP (SNMP Trap)

 The element «**SNMP trap**» uses TRAP-message of SNMP protocol to notify the administrator about the events occurring in system.

 Using logic circuitry (see below) monitoring system allows to describe any set of states of sensors present in system, of which it is necessary to inform specific SNMP-manager (via given IP). By means of this element recipients of messages are described.

User Manual

In order to create such notification:

1. Go to tab «**Modules**» in the web-interface of monitoring system.
2. Press «**Add mailer**» in "**System menu**". A form for creating new notification will appear.
3. In the field «**Notification type**» select «**SNMP-trap**».
4. Fill in the fields of the form. All fields are obligatory for filling in.
5. Press button «**Send test message**» to test the element.
6. Press button «**Save and close**».

Created notification will appear in the list of notifications in tab "**Modules**" in the web-interface. To show new notification display mode should be «**View groups**» or «**View map**».

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

Notification via ICQ or AIM

The element «**AIM/ICQ notifications**» uses ICQ-message to notify the administrator about the events occurring in system.

Once you have set up notification, specify the recipient list who will receive notifications, each user from the list of recipients will receive a copy of system log. Thus, each user from the list of recipients will be immediately notified about the events via ICQ.

To create AIM/ICQ notifications you need an ICQ or AIM account, which will be free of use during running of the system. In order to create such notification:

1. Go to tab «**Modules**» in the web-interface of monitoring system.
2. Select menu item «**AIM/ICQ notifications**» in "**System menu**". A form for creating new notification will appear (Pic. 2.10).
3. In the field «**Subscription list**» enter new recipients: **ICQ** numbers or **AIM** names. These accounts will receive notifications.
4. Fill in the field «**AIM/ICQ account login**», type in the «**Account password**» of the monitoring system.
5. Press button «**Save and close**».
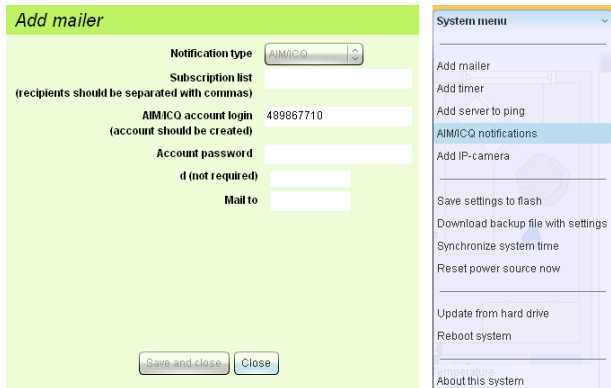
Pic. 2.10 :AIM / ICQ settings

After you click "**Save and Close**", the system tries to connect to the AIM/ICQ server. If the connection is established (ICQ server is available, password and login are correct), the system will send notification to recipients, and AIM/ICQ account registered for this system will go on-line. System log will record successful login to the AIM/ICQ server.

If registering AIM/ICQ account was unsuccessful the system log will show registration failure and error code. The most common error is an incorrect password.

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

Removal of notifications

To remove notification, click on it in tab "**Modules**". A form of changing notification parameters will appear. Press button "**Delete**". Notification will be removed.

To remove an AIM/ICQ notification, click on **ICQ** icon, and erase your login name and account password. Once you erased the login name and account password click "**Save and Close**», the notification will be disabled.

In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface.

Control of monitoring system using ICQ

PCE-MS1 monitoring system allows the user to receive information about the state of sensors and to manage outlets via ICQ and AIM services. In order to send such remote commands, the user must follow the instructions described above on how to set up ICQ notifications. After these are properly set up, it is possible to send commands from ICQ to the system, in response to which it will send certain data. The following commands can be processed by the system:

User Manual
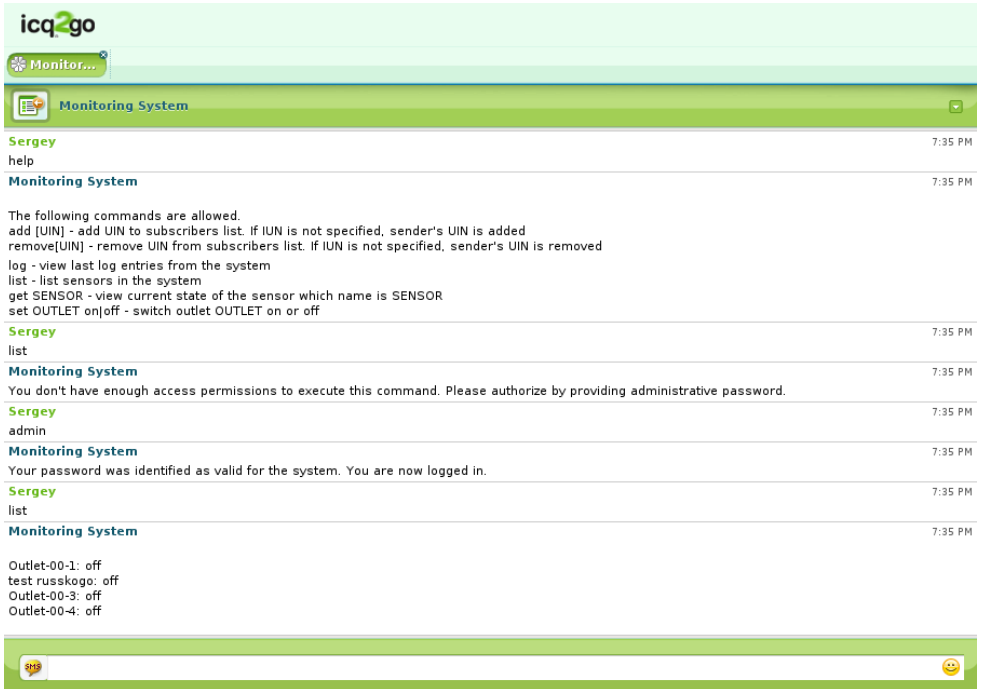
Pic. 2.10.1: Sending commands to monitoring system from ICQ

- *log* - this command will ask the monitoring system for the latest messages in the system log.

- *list* - this command will ask for the list of all sensors connected to the system, as well as the list of all outlets (relays) connected.

- *get* - this command will ask for readings of one of the sensors or outlets connected to the system. One such parameter can be for example the name of sensor, whose state is needed to be checked. Example of such command:
  get outlet-00-1
  In response to this command the monitoring system will send message with the current state of the outlet Outlet-00-1 as follows:
  Outlet-00-1: off

- *set* — this command will ask the system to change the state of outlet. It requires two parameters – the name of outlet, whose state has to be changed, - the new state to which it must be changed. Parameter "**New state**" can be on/off. Example of such command:
  set outlet-00-1 on

User Manual

In response to such command the system will change the state of relay to "**ON**" and will send the following message:
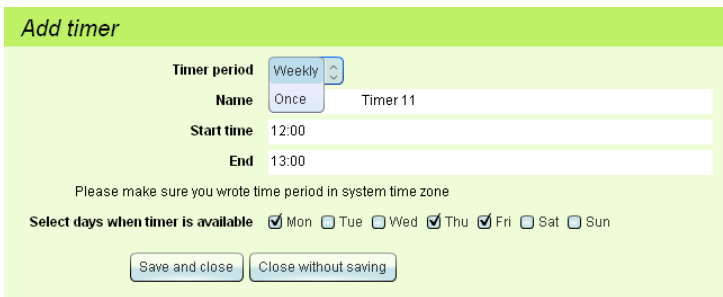"*The outlet was switched on*"

2.5 Setting timers

 The monitoring system allows you to perform certain tasks at a certain intervals with a period of 1 day or 1 week, or once. This mechanism is implemented with the help of virtual sensor-timers. Each timer in the monitoring system can be set to "**Norm**" when it's not activated and "**Alarm**" when activated. Thus, administrator has possibility to customize the logic of the monitoring system, taking into account the day of the week or by using the time period (see below, Logic).

Adding timer

 In order to add timer, follow these steps:

Pic. 2.11: Adding timer

1.   Go to tab «**Modules**» in the interface of monitoring system.
2.   Press on menu item «**Add timer**» in "**System menu**". A form for creating new timer will appear (Pic. 2.11).
3.   Select the timer mode - "**Weekly**" or "**Once**". If you select "**Once**", then the timer will react only once.
4.   Fill in the fields of the form name, start time and end time. All fields are obligatory for filling in. For "**Once**" mode you will need: start time YYYY-MM-DD HH:MM format, end time: YYYY-MM-DD HH:MM format. For "**Weekly**" mode: start time HH:MM format, end time HH:MM format. Year, month, day, hour and minute respectively.
5.   If you selected "**Weekly**" mode, tick the days on which timer should be activated.
6.   Press button «**Save and close**».

Created timer will appear in the list of sensors in tab "**Modules**" in the web-interface. To show new notification display mode should be «**View groups**» or «**View map**».

> **Attention!** In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

Removal of Timer

To remove "**Timer**", click on it in tab "**Modules**". A form of changing timer parameters will appear. Press button "**Delete**". Timer will be removed. In order to save changes in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

2.6 Ping service

Monitoring system has an automatic ping service. It can automatically check a remote host for availability. When you add several IP addresses you will be able to control remote hosts availability and round-trip time. Monitoring system can take specific actions if responses are not sent.

Pic. 2.12: Adding ping request

Adding server to ping

1. Go to tab «**Modules**» in the interface of monitoring system.
2. Press on «**Add server to ping**» in "**System menu**". A dialog box will open (Pic. 2.12).
3. Type in IP address or the name of server to ping, for example www.pce-instruments.com.
4. Select echo request period (default period 3 seconds) and estimated round-trip time.
5. Press "**Save and close**".

After you press "**save and close**", new server will be added to system and you will see it in tab "**Modules**". If you click on server icon you can see additional information about the server such as average echo-timeout, packets sent.

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

Removal of ping request

To remove ping request select it from the list of sensors in tab "**Modules**". Dialog window will open where you can edit it. Click on "**Delete**" button. Ping request will be removed. In order to save changes in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

2.7 Application of maps and plans of object

The PCE-MS 1 system gives opportunity to virtually assign specific sensors to a certain object inside the premises or other object. This allows quick determination of sensor's location in room or in office, determine the location of an alarming event simply by a quick glance on the map.

Creating or changing object map

Monitoring system has a default map of object. In order to upload your own map the following steps are required:

1. Go to tab «**Modules**» in monitoring system web-interface.
2. Select mode «**View map**», see (Pic. 2.13).
3. Press link «**Change**». Click «**Upload**» in the dialog box.
4. File window will appear. Select the required image and click «**Open**»

Attention! The system only supports JPEG, PNG and GIF images which do no exceed 5 Mb.

5. Selected file to be uploaded to monitoring system. This can take some time if Internet connection is slow.
6. Tab "**Modules**" of monitoring system will be automatically updated after the image was uploaded and you will see the map image.

Assigning sensors to location on map

In order to assign sensor to specific location drag one of the sensors onto the plan image. (Pic. 2.13)

Pic. 2.13: Assigning sensor to location on a map

The location of the sensor on the map will be saved in the monitoring system. In order to remove the sensor from the map drag it into the group «**All elements**».

Removal of maps

In order to remove map, go to tab «**Modules**» and click on «**Change**», press button "**Delete**". After the removal of map, all the sensors assigned to this image would lose their specific locations on the map.

2.8 Adding logic circuit

Monitoring system allows the administrator to create logic for the system: to set specific actions for the executive device (relay) and for the "**Notifications**" to be taken when a specific combination of logic conditions of system elements occurs.

Logic circuit is a set of the conditions defining an event, and a set of actions taken by monitoring system on occurrence of event.

Condition: if sensor changes mode. For example, temperature sensor with name "*Temp1*" changes its mode to "**Alarm**". If there are no other conditions, as soon as sensor "*Temp1*" will change to mode "**Alarm**", an event will take place, defined by the given set of conditions. Conditions are united in set of conditions inside of a logic circuit by means of logical operations AND/OR.

Action is transition of specific executive device (relay) into the given condition or actualization of the specific element from group "**Notifications**". Actions are united in a set of actions by means of logical operation AND.

Monitoring system allows to specify conditions and to set actions. Created logic circuit can be found in tab "**Logic schemes**" of system web-interface (Pic. 2.14).
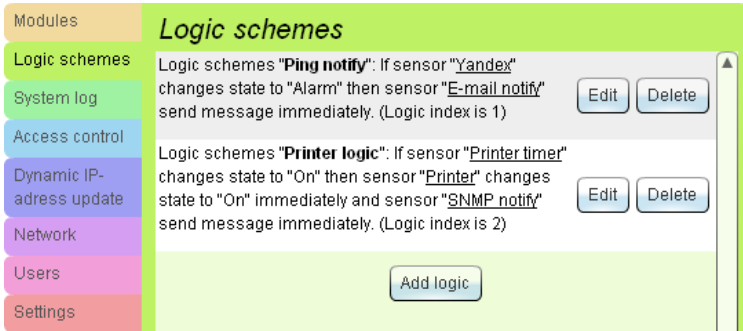
*Pic. 2.14: Tab "**Logic schemes**" of web-interface*

Creation of logic circuit

To create a logic circuit the following actions are required:

1. Go to tab «**Logic schemes**» of monitoring system web-interface.
2. Press button «**Add logic**». A form will appear for creation of logic circuit (Pic. 2.15).
3. Select a set of **conditions**, choosing required sensors and their **states**, for **actions** to be taken.
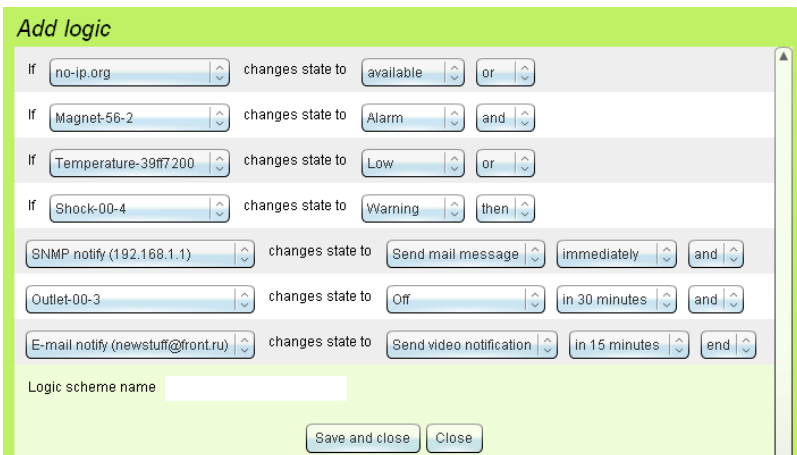
Pic. 2.15: Creation of logic circuit

1. Create set of **actions**, choosing executive device (relay) or notification and action produced by it that have to meet the **conditions**.
2. Press «**Save and close**». Newly created logic circuit will appear in the list of logic circuitry in tab "**Logic schemes**" in the web-interface.

Monitoring system checks the give logic circuit at each inquiry of connected sensors.

User Manual

Monitoring system checks the give logic circuit at each inquiry of connected sensors. Testing the logic circuit consists of checking whether the conditions of all logic circuitry are met. If all give conditions are met, the system creates an action that corresponds to the given logic circuit. The system carries out these actions only after all logic circuitry has been tested.

The set of actions of logic circuitry is carried out only during the first event that is specified in the given logic circuit. If the same event occurs for the given logic circuit at all subsequent tests by system (at all subsequent inquiries), repeated action will not be carried out. As soon as this event does not occur after a test of logic, actions corresponding to this event will be taken again once this event will occur during the consequent test.

Attention! The actions produced by the monitoring system will not be defined, if actions of different logic circuitry are mutually exclusive!

Removal of logic circuit

In order to remove logic circuit, go to tab "**Logic schemes**", press button "**Delete**" opposite the logic circuit needed to be removed. Press button "**Save**" in "**System menu**" to save changes in flash memory.

2.9 Adding logic groups

Sometimes it is convenient to distribute the elements of system into groups depending on their attributes.

For example, if one system supervises parameters of two rooms Room1 and Room2, then it is convenient to divide all the system elements into two groups depending whether they belong to the first or the second room.

In order to add logic group the following actions are required:

Pic. 2.16: Choosing viewing mode

User Manual
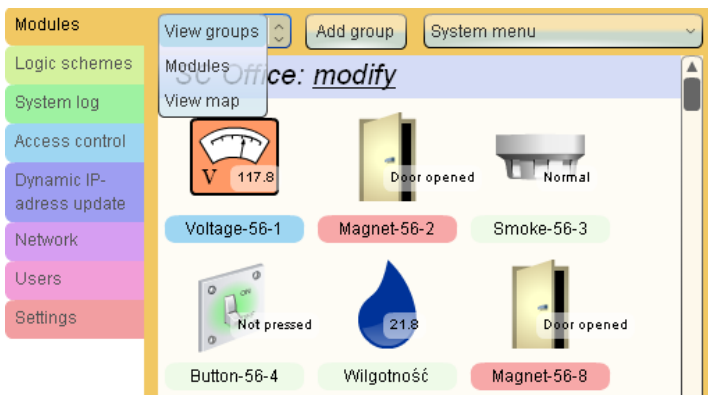
1. Go to tab «**Modules**» in the web-interface of system.
2. Select mode «**View groups**» (See Pic. 2.16).
3. Press the button «**Add group**», dialog window will appear requesting to enter the name for logic group and its description. Enter the data and press «OK». A new logic group is created.

 In order to change the list of the elements belonging to certain group, drag the necessary element from one group to another using mouse (Pic. 2.17).

Attention! In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

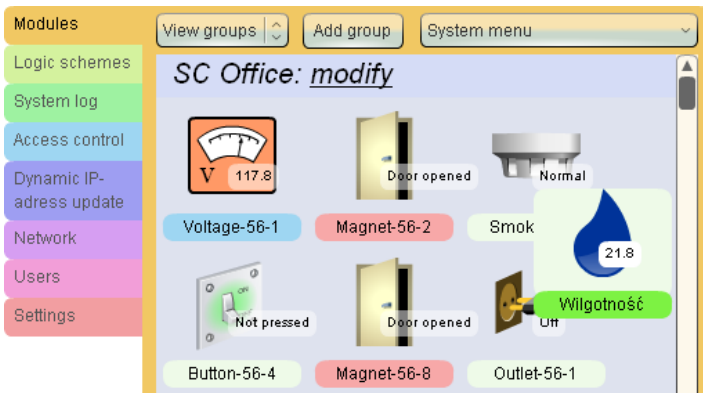 In order to remove group press the button "**Modify**" opposite to group name in tab "**Modules**". Press button "**Delete**" in the dialog window appeared. Press "**Save**" in tab "**Modules**" of system's web-interface in order to save changes in nonvolatile memory.

Pic. 2.16: Choosing viewing mode

2.10. COM-port remote control

 IP server PDU 5510.008 has 8 COM-ports of RJ-45 connector format on its front panel. If necessary, they are connected to the RS-232 connectors of the corresponding server or PC using COM-RJ45 cable. The master unit contains tab «**COM-port**» in the user interface. (Pic. 2.19)

 Tab «**COM-port**» allows you to control remote computer via LAN or the Internet, if it is connected to COM-port of IP server PDU, and if the remote computer has program that controls access to the terminal.
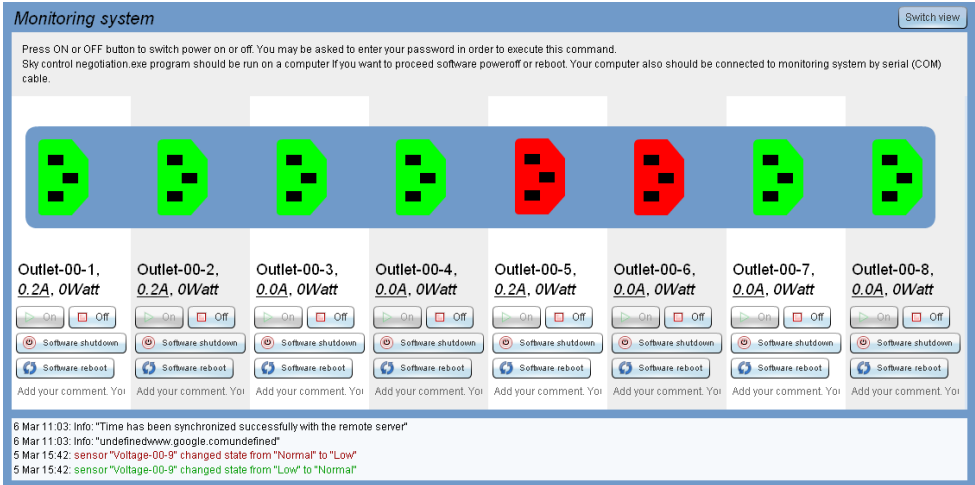
Pic. 2.18: Simple serial port remote console window

To configure the remote server for remote control the following steps are required. (Since different operating systems require to perform different actions, below is an example for Linux system (Ubuntu)). All the computers that run Unix-based operating systems will require similar actions.)

1. Make sure that IP server PDU unit 5510.008 is switched on (indicator «**PWR**» on the front panel is on), make sure that the server is on and the OS (Ubuntu Linux) is loaded and running.

2. Connect one end of COM-RJ45 cable to the COM-port on the unit, the other end to the first COM-port on the server.

3. On the server, open terminal (Alt + Ctrl + F1) and enter command
"sudo while true; do getty -L 115200 /dev/ttyS0""

This command will set up the first COM-port (will set speed to 115200 baud, 8 data bits, no parity, and will ignore the signal Carrier Detect (CD)) and will run the invitation program to login).

4. Open tab «COM-port» in the IP server PDU interface. Set COM-port number to 1, and speed to 115200 (Pic. 2.19).

5. Enter the username and password, and proceed to work with computer.

6. To shutdown the server remotely , type in:
"sudo shutdown –h now"

To reboot the server remotely, type in:
"sudo shutdown –r now"

7. It is possible to work simultaneously only with one COM-port.

User Manual

Pic. 2.19: COM-port remote control window
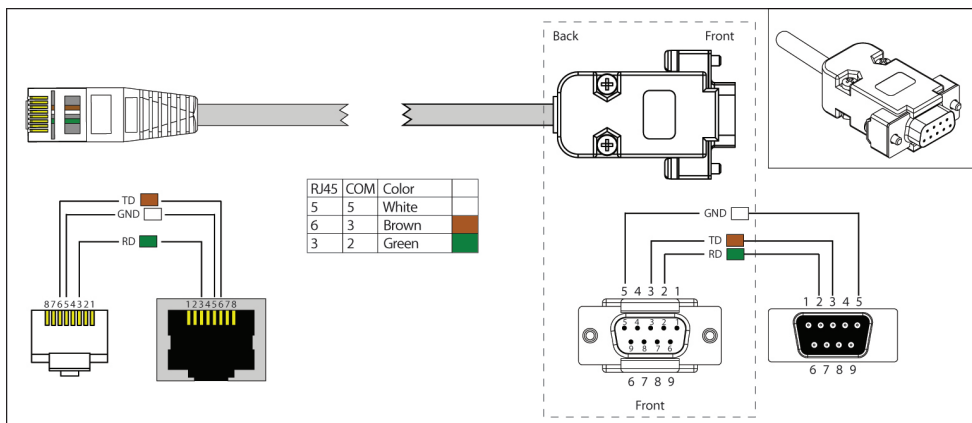
RJ-45 and COM-port cable

2.11. Connection of USB camera

PCE-MS1 monitoring system allows to connect one USB camera (web-camera). USB camera is connected to the USB connector on the front panel of monitoring system. After the connection of **USB** camera and after it is found by the system, the system log (tab "**System log**") shows "**USB camera found**", and the image of USB-cam appears in tab "**Modules**".

 Therefore monitoring system allows remote surveillance over the premises in which the system is located. To view the image from USB-camera, select corresponding camera icon in tab "**Modules**" of system interface. A new window will open where you can change the image resolution. Although the image is relatively small (JPEG format) it requires fast Internet. One such image requires from 4 to 12 Kb while the transfer rate can reach up to

10 images per sec.

2.12 IP Web-cameras

The monitoring system allows to integrate and give access to images of several IP-cameras in its interface. The system supports wide range of IP-cameras which have the possibility to transfer images in JPEG format.

Adding IP-camera

To add an IP-camera, follow:

1. Open tab «**Modules**» in the web-interface of the monitoring system.
2. Select menu item «**Add IP-camera**» in «**System menu**». Dialog box will appear (Pic. 2.20).
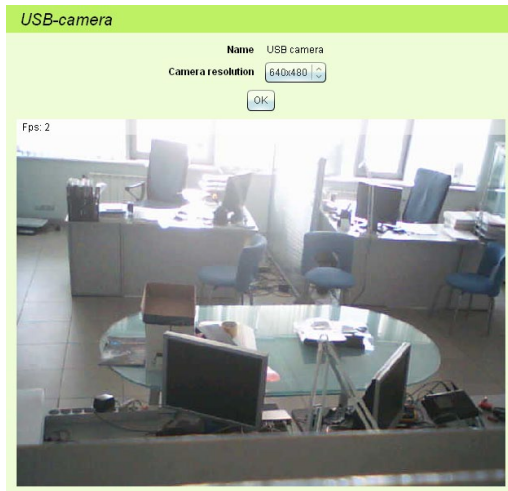
Pic. 2.20: Adding IP-camera

3. Enter the IP-address of the camera. If IP-camera requires authentication for access to the interface, enter login name and password in the corresponding fields.

4. Click on «**Search**». The monitoring system will attempt to automatically detect full path to the JPEG image transmitted by camera. If it fails, message of an unsupported IP-camera will appear. In such case, enter the full path of transmitted image in the IP-address field (which can be found in the IP-camera documentation), e.g. for AXIS IP-cameras the full path is: <ipaddress>/jpg/image.jpg.

5. If the monitoring system identifies IP-camera image will appear. Click on «**Save and close**» to apply changes.

The newly created IP-camera will appear in the list of units in tab «Modules» of monitoring system interface.

> **Attention!** In order to save settings in Flash memory it is necessary to press "**Save**" in "**System Menu**" in tab "**Modules**" of monitoring system's interface. In this case all your settings will be restored if power supply will be lost.

Removal of IP-camera

In order to remove IP-camera, select it from the list of elements in tab «**Modules**» of the monitoring system. An edit box for the camera will appear. Press button «**Delete**» on the bottom of the box. Click on «**Save**» in «**System menu**» of system web-interface to save all changes in flash memory.

2.13 Application of dynamic DNS Update

Updating dynamic IP address on dynamic DNS services

Automatic update of IP-address on dynamic DNS hosting services (http://en.wikipedia.org/wiki/Domain_Name_System, http://en.wikipedia.org/wiki/Dynamic_DNS) is needed when monitoring system is used in Ethernet network, which is not directly connected to Internet. PCE-MS1 system allows to get access to Internet even when working via dynamic IP-address, which is convenient when using the system at home.

For installation and setting up the following are required: any master unit (e.g. 5500.824), connection to Internet and router with NAT support, if you are using your Internet connection through one external dynamic or static IP address set up by your provider.

Setting up router

1. Select static IP address (not used with DHCP) for monitoring system.
2. Assign this address to the monitoring system.
3. Add redirection rules for NAT packets on the router in such manner that packets going to 80 (8008) and 443 ports of the router were redirected to 80 and 443 ports of monitoring system in the local network:

| Server name	Protocol	External port	Internal port	Server IP
HTTP	TCP	8008	80	IP-adress of monitoring
SSL	TCP	443	443	system in local network

   4. Application of external 8008 port instead of 80 port may be required since 80 port is commonly blocked by Internet providers

Application of dynamic DNS

 PCE-MS1 system supports the following services: http://www.no-ip.com, http://www.
dyndns.com.

For automatic update of IP address follow:

1.   Register with one of the services. The required DNS service is provided for free. Create domain with dynamic DNS as well as:
2.   When using service www.no-ip.com:
Select domain and sub-domain, e.g. example.no-ip.com.
Select host type «**Port 80 redirect**».
Type in the IP-address offered to you, this is your current IP-address.
Type in the port you used when setting up NAT: 8008 or 443.
3.   After successful registration adjust automatic update of IP-address of monitoring system. To do that:
4.   Go to tab «**Automatically update IP-address**» in system interface. (Pic 2.21).
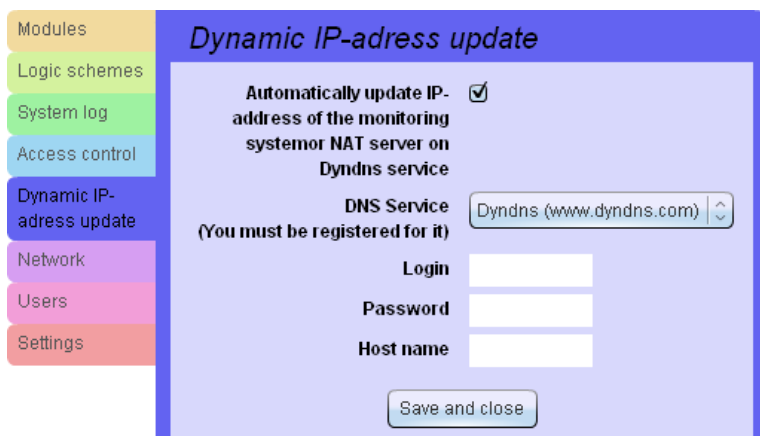
Pic. 2.21: Dynamic DNS

5.   Tick «**Automatically update IP-address...**», type in your name or your email in the field «**Login**», the one you used when registering for the service.
Type in password in the field «**Password**», which you used when registering.
Type in registered domain name in the field «**Host name**», e.g. example.dyndns.com
6.   Press «**Apply**». A record of successful IP-address update on the service will appear in the system log within a minute. If there is a record of unsuccessful update, check the details filled in.
7.   Setting up of automatic IP address update is finished.

Accessories

Monitoring System may include the following components:

- «**Monitoring master units**»:
  - 19" IP monitoring master unit – 5500.824
  - 19" IP monitoring master unit with outlets– 5510.824

- «**IP switchable metered PDUs**»:
  - 19" server switchable PDU with 8 outlets – 5510.008
  - 19" switchable PDU with 8 outlets – 5510.108

- «**Extension units**»:
  - Relay-sensor unit (RS) – 5505.814
  - Relay-sensor unit (RS) – 5505.816
  - Contacts unit (BU) – 5505.016

- «**Analog sensors**»:
  - Temperature sensor – 5500.500
  - Humidity sensor – 5500.511
  - Outdoor temperature sensor – 5500.501
  - AC voltage monitor – 5500.520
  - DC voltage monitor – 5500.525
  - Access sensor (reed switch + magnet) – 5500.530
  - Vibration sensor – 5500.540
  - Airflow sensor – 5500.550
  - Smoke sensor – 5500.560
  - Motion sensor – 5500.570
  - Leakage sensor – 5500.590
  - Water detection cable sensor – 5500.591

- «**Digital sensors**»:
  - Humidity and temperature sensor – 5500.731
  - Smoke and temperature sensor – 5500.760
  - Motion and temperature sensor – 5500.770

- «**Readers**»:
  - Wigand cards reader.
  - iButton reader.

- «**Passive components**»:
  - Patch cable UTP
  - Cables RJ-11 (6p4c)
  - Software CD
  - Power cables
  - Water detection cable
  - COM-port cable
  - USB-RJ11 cable

User Manual

Monitoring master unit

4.1 IP monitoring units – 5500.824, 5510.824

Compact devices with dimensions 440×44×110, net weight 2 kg.

It is possible to connect up to 8 analog, 20 digital sensors or 2 1-Wire readers, 16 dry contacts, up to 4 relay devices and up to 30 extension units, such as RS, BU or WT.

Pic. 4.1:IP monitoring unit 5500.824/5510.824, front view

Pic. 4.2: IP monitoring unit 5500.824/5510.824, front view

Description of I/O on the front panel of 5500.824/ 5510.824

Antenna is used by the GSM module of the system.
SIM is needed for operation of GSM modem
Micro SD provides the possibility to send voice messages.
USB-port is used to connect USB flash drive or USB Cam.
LAN-port for 10/100 Mbit, Ethernet connection using UTP/FTP cable.
RS-485 port for connection of up to 30 extension units using UTP/FTP cable.
TR switch is a load switch used to terminate extension devices for a long distance ~ 1km.
Reset button. Hidden switch used for immediate system restart.

LEDs on the front panel of 5500.824/ 5510.824

PWR – Lights up several seconds after submission of power supply on the device.
ALRM – Flashes when a disturbing event occurs in one of the sensors.
PRG – Temporarily lights up during reprogramming of the device through USB port.
ACT – Indicates exchange of data with extension units on RS-485 Bus.
1, 2, 3, 4 – Shows state of relays on/off.

Description of I/O on the back panel of 5500.824

RLY 1..4. Each of the built-in relays is with 'closed' and 'open' contacts. Max. AC voltage 250V and max. DC voltage up to 24V. Max. current on the relay up to 7A.

DI-1-DI-2. 2 1-Wire bus RJ11 sockets to connect digital sensors with 2-pair UTP cable/4-wire telephone cable or readers for access control. It is necessary to use FTP cable to avoid electromagnetic interference. The maximum recommended length of the serial bus is 70 meters. Maximum of 10 sensors on each bus can be connected!

IN1...IN8. 8 inputs RJ11 used to connect any analog sensors using RJ-11 6P4C cable. It is necessary to use FTP cable to avoid electromagnetic interference. The maximum recommended length is 30 meters.

Antenna Connection of GSM antenna.

Dry contacts. 16 dry address contacts. Needed for connection of contacts to doors, windows, locks etc. The maximum recommended length is 1 km.

PWR jack. For 5500.824 master unit connection of external network adapter 12V with 10Wt. Internal output "**+**", external "**-**". Any adapter for 9-14V, 10W can be used.

Pic. 4.3: IP monitoring unit 5500.824, backside
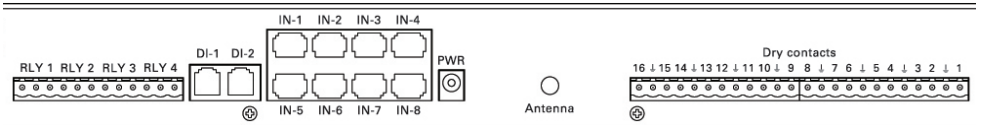
Pic. 4.4: IP monitoring unit 5500.824, backside

User Manual

Description of I/O on the back panel of 5510.824

Back panel of unit 5510.824 contains the following I/O:

Pic. 4.5: IP monitoring unit 5510.824, on the backside
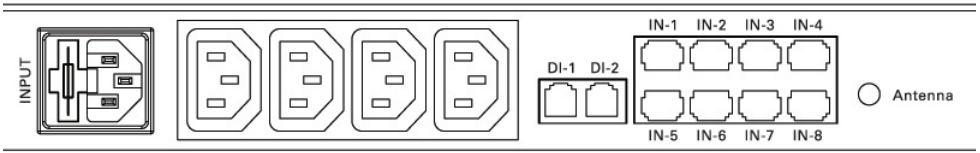
Pic. 4.6: IP monitoring unit 5510.824, on the backside

Output 1..4. Are C13 230V connectors with closed relay contacts. Max. load current per one output - 5A. Max. total load current - 10A.

PWR connectors IEC60320 C14. Power cable 230V IEC60320 C13.

DI-1-DI-2. 2 1-Wire bus RJ11 sockets to connect digital sensors with 2-pair UTP cable/4-wire telephone cable or readers for access control. It is necessary to use FTP cable to avoid electromagnetic interference. The maximum recommended length of the serial bus is 70 meters. Maximum of 10 sensors on each bus can be connected!

IN1...IN8. 8 inputs RJ11 used to connect any analog sensors using RJ-11 6P4C cable. It is necessary to use FTP cable to avoid electromagnetic interference. The maximum recommended length is 30 meters.

5.2 IP Switchable Metered PDUs – 5510.108, 5510.008

19" Compact devices with dimensions 440×44×116, net weight 2,5 kg.

Description of outlets on the front panel of 5510.008/ 5510.108

The front panel contains the following I/O and LEDs (See Pic. 4.7, Pic. 4.8):

IN1,IN2 2 inputs RJ11 used to connect any analog sensors using RJ-11 6P4C cable. It is necessary to use FTP cable to avoid electromagnetic interference. The maximum recommended length is 30 meters.

USB-port is used to connect USB flash drive or USB Cam.

LAN-port for 10/100 Mbit, Ethernet connection using UTP/FTP cable.

TR switch is a load switch used to terminate extension devices for long distance ~ 1km.

Reset button. Hidden switch used for immediate system restart.

COM 1..8 are RJ45 ports for connection to servers. (Only on 5510.008 IP PDUs).

Pic. 4.7: IP PDU 5510.008 front side

Pic. 4.8: IP PDU 5510.108 front side
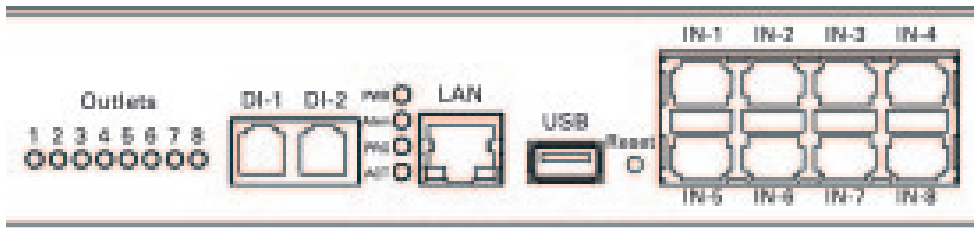
LEDs on the front panel of 5510.008/ 5510.108

PWR – Lights up several seconds after submission of power supply on the device.
ALRM – Flashes when a disturbing event occurs in one of the sensors.
PRG – Temporarily lights up during reprogramming of the device through USB port.

User Manual

ACT – Indicates exchange of data with extension units on RS485 Bus.
1, 2, 3, 4 – Shows state of outlets on/off.

Pic 4.9: IP PDU 5510.008/5510.108 LEDs on the front side

Description of I/O on the IP PDU back panel of 5510.008/ 5510.108

 The back panel of IP PDU contains the following I/O and LEDs (See Pic. 5.10):

PWR 1, 2 connectors C14. Power cable 230V IEC60320 C13.   There are built-in 10A fuses on each line.

Outputs 1...8 connectors C13 230V with relay contacts. Max. load current per one outlet - 5A. Max. total load current - 20A. Cables used IEC60320 C14/C13. If needed power can be switched on/off on each outlet remotely via IP.

 Current of each outlet is measured and is shown in the interface. In addition, power consumption is shown.

Possibility to use 3-level access to IP PDU, allowing certain user to control certain outlet.
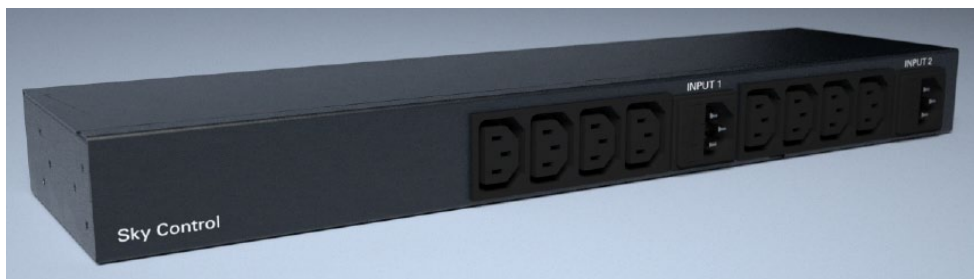
Pic. 4.10: IP PDUs 5510.008/5510.108, back view
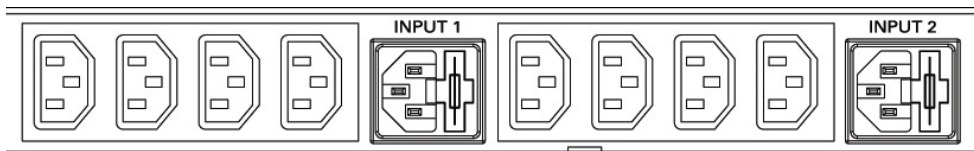
Pic. 4.11: IP PDUs 5510.008/5510.108, back view

User Manual

Extension units

5.1 Relay-sensor units – 5505.814, 5505.816

Compact device with dimensions 145×44×100 net weight 0.6 kg. Possible connection up to 8 analog, 10 digital sensors or one 1-Wire reader and up to 4 relays.

Description of I/O on the front panel of 5505.814, 5505.816

The front panel of RS extension unit contains the following I/O and LEDs (Pic.5.1):

RS-485 port is used for connection to any master unit and for connection of extension units into chain. UTP/FTP cable is used for connection.

TR switch is a load switch used to terminate extension devices for long distance ~ 1km.

IN1...IN8. (Analog sensors) 8 RJ11 ports used to connect analog sensors using cables with connectors RJ-11 6P4C. It is necessary to use FTP cable to avoid electromagnetic interference. Recommended max. length is 30 meters.

DI-1 (Digital sensor) 1-Wire bus RJ11 socket to connect digital sensors using 2-pair UTP/ FTP /4 wires phone cable or to connect access readers. It is necessary to use FTP cable to avoid electromagnetic interference. The maximum recommended length of the serial bus is 70 meters. Max. 10 sensors can be connected serially!

Pic. 5.1: Relay-sensor unit, front view 5505.814, 5505.816
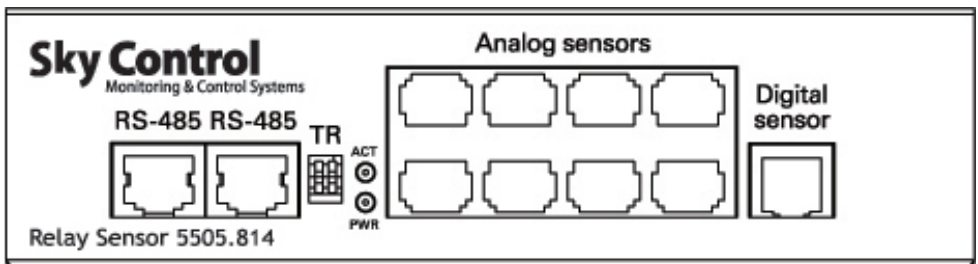
Pic. 5.2: Relay-sensor unit, front view 5505.814, 5505.816

User Manual

LEDs on the front panel of 5505.814, 5505.816

PWR – power is supplied, the system is switched on.
ACT – lights up when data is being communicated with master unit.

Description of I/O on the back panel of 5505.814

OUTPUTS 1...4 are IEC60320 C13 connectors with voltage output of 230V from relay outlets. Max. load current per one output - 5A. Max. total load current - 10A.

INPUT PWR connector IEC60320 C14. Built-in fuse.

Pic. 5.3: 5505.814 unit, backside
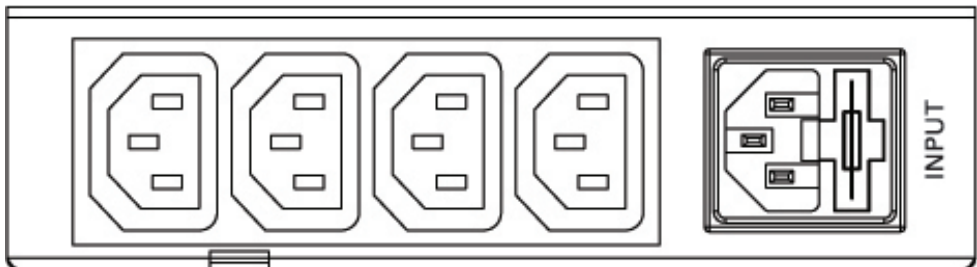
Pic. 5.4: 5505.814 unit, backside

Description of I/O on the back panel of 5505.816

RLY1..4. Each of the built-in relays is with 'closed' and 'open' contacts. Max. AC voltage 250V and max. DC voltage up to 24V. Max. current on the relay up to 7A.

PWR jack for connection of external power 12V. Internal output "+", external "-". Any charger 9-14V with minimum power of 3 W can be used.

1, 2, 3, 4 – indicate relays switched on/off.

Pic. 5.5: 5505.816 unit, backside
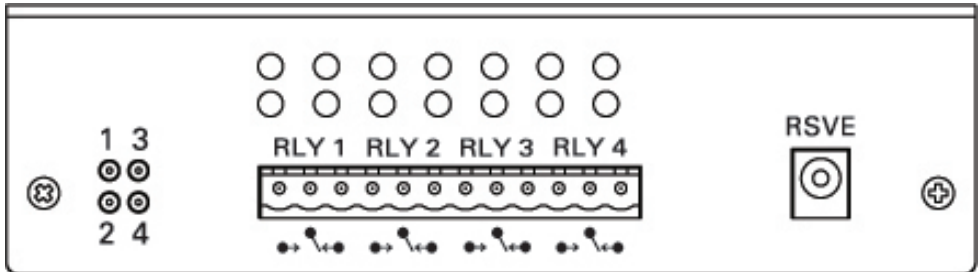
Pic. 5.6: 5505.816 unit, backside

5.2 Dry contacts unit (BU) – 5505.016

Compact device with dimensions 145*30*62, net weight 0.4 kg.

Pic. 5.7: Dry contacts unit 5505.016, front view
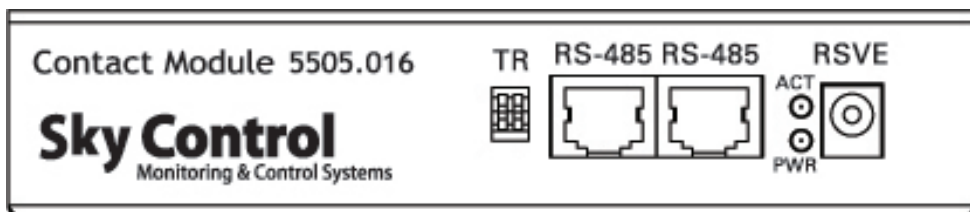
Pic. 5.8: Dry contacts unit 5505.016, front view

Description of I/O on the front panel of 5505.016

PWR. jack used only if BU unit is at a large distance from the master unit. Internal output "+", external "-". Any charger 12V with minimum power of 3W can be used.

RS-485 serial port is required for connection to the master unit or to another extension unit using cable UTP / FTP.

Description of I/O on the back panel of 5505.016

Dry contacts **1..16** – 16 addressed contacts. Any dry contacts can be connected.

Pic. 5.9: Dry contacts unit 5505.016, back side
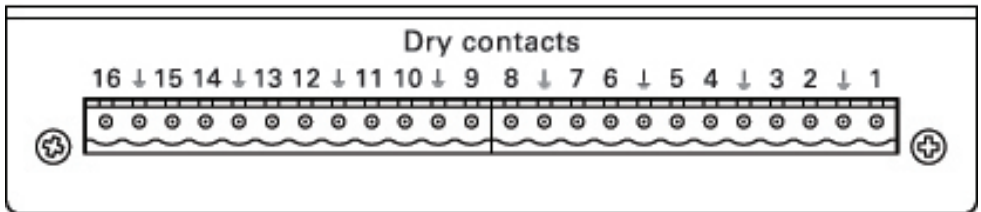
Pic. 5.10: Dry contacts unit 5505.016, back side

LEDs of 5505.016

PWR – power is supplied, the system is switched on.
**ACT** – lights up when data is being communicated with master unit.

5.3 GSM modem 5500.900

5500.900 GSM-modem can be connected to any PCE-MS1 master unit.
Supported GSM frequencies range: 900/1800/1900.
Transmit power: 2W/1W in 900/1800 range.
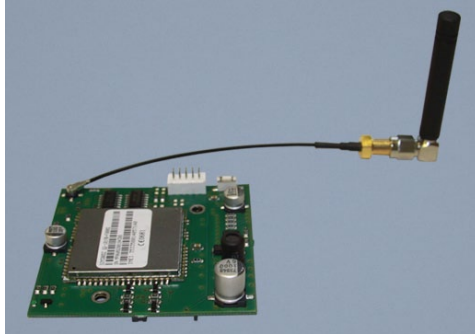
Pic. 6.11: GSM modem with antenna

Sensors

6.1 Analog Sensors

Analog sensors have one or two RJ-11 (6P4C) jacks for connection to analog input of any monitoring system's unit using RJ-11 patch cable. Second jack, if present, can be used for serial connection of several identical sensors in a circuit. At linear connection the chain of sensors will be automatically detected as one sensor, however, the monitoring system will generate an event when any of them operates. Linear connection of analog sensors can be used for smoke and non-contact sensors.

Indoor temperature sensor – 5500.500

Compact device with dimensions 60×18×18, net weight 50g. Supply includes: 4-wired telephone cable RJ11 (2m), 4.8*16mm screw. On the bottom there is a ledge with Ø4.5mm and height 1mm and a mounting hole in 50mm from it for fastening the sensor using 4.8x16mm screw.


Pic. 6.1: Indoor temperature sensor

Measured range of temperatures: from -40 to 100°C.
Temperature sensor contains **RJ-11** jack and is connected to an analog input **IN1...IN8** of any system unit. Determination of type of sensor and connection occur automatically.

Outdoor temperature sensor – 5500.501

Cylinder of Ø12*28 with an emerging 15m 2-pair UTP cable with RJ11 connector, net weight 450g.

Pic. 6.2: Outdoor temperature sensor

User Manual

Measured range of temperatures: from -40 to 100°C.

After installation of cylinder outside of a building, the UTP cable must be placed to reach the system unit. After installation **RJ-11** connector is connected to an analog input **IN1... IN8** of any system unit. Determination of type of sensor and connection occur automatically.

Humidity sensor − 5500.511

Compact device with dimensions 60×18×18, net weight 50g. Supply includes: 4-wired telephone cable RJ11 (2m), screw 4.8×16mm. On the bottom there is a ledge with Ø 4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor by 4.8x16mm screw.

Pic. 6.3: Humidity sensor

Sensor is used for measurement of humidity 20-95% indoors with relative accuracy 5%.

Humidity sensor contains **RJ-11** jack and is connected to an analog input **IN1...IN8** of any system unit. Determination of type of sensor and connection occur automatically.

AC voltage monitor − 5500.520

Device dimensions are 80×40×22, net weight 100g. Supply includes: USB RJ11 cable 1.8m.

Pic. 6.4: AC voltage monitor

Sensor is needed for measurement of standard power supply 220-230V or any other capacity in the power supply system

User Manual

Installation of AC voltage monitor

Plug **230V** is put into the outlet necessary for measurement of 230V. Cable's USB connector must be connected to the USB output, connector **RJ-11** must be connected to an analog input **IN1...IN8** of any system unit. Determination of sensor's type and connection occur automatically. The picture below shows USB – RJ11 pinouts:

RJ11	USB	Conductor	
1	4	Black	
2	1	Red	
3	2	White	
4	3	Green	
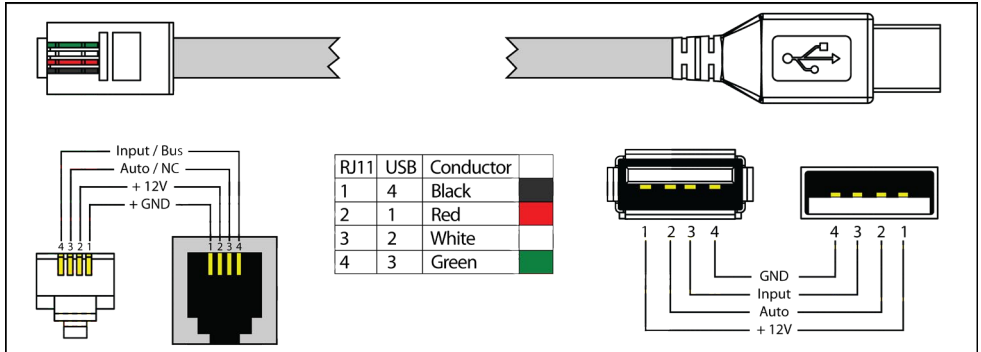
Pic. 6.5: RJ-11 USB pinout

DC voltage monitor – 5500.525

Compact device with dimensions 60×18×18, net weight 50g. Supply includes: cable RJ11 2m, 2-pin terminal strip type TBW-5-2p, 4.8x16mm screw. On the bottom there is a ledge with Ø4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor by 4.8x16mm screw.

Pic. 6.6: DC voltage monitor

Voltage measured: 0 -100 V.

Sensor has RJ-11 jack and is connected to analog input **IN1...IN8** of any system module using RJ-11 cable. Determination and connection of sensor occur automatically. 2-pin terminal strip with measured voltage is connected to the other jack on the sensor.

User Manual

Access sensor − 5500.530

Two compact devices with dimensions 60×18×18, net weight 80g. Supply includes: Contact sensor, magnet, 4-wired telephone patch cable RJ-11 (2m), two screws 4.8×16mm, 2 screws M5 and 2 nuts, bracket. On the bottom there is a ledge with Ø4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor by 4.8x16mm screw.

Pic. 6.7: Access sensor

Installation of contact sensor

Using patch-cable RJ-11 sensor is connected to an analog input **IN1...IN8** of any system unit. Determination of sensor's type and connection occur automatically. One of devices in the kit, for example, magnet, is mounted on a door; the second device is mounted on a jamb of a door. At opening a door contact is disconnected, and system of monitoring receives notification on opening. The first sensor is connected using patch-cable RJ-11 to an analog input of the system unit, the consequent sensor is connected via patch-cable RJ-11 to an output of the first sensor and so on.

Vibration sensor − 5500.540

Compact device with dimensions 60×18×18, net weight 50g. Supply includes: 4-wired telephone patch cable RJ11 (2m), screw 4.8*16mm. On the bottom there is a ledge with Ø4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor by screw 4.8*16mm.

Pic. 6.8: Vibration sensor sensor

RJ-11 jack is connected to an analog input IN1...IN8 of any system unit using RJ-11 patch

cable. Determination of sensor's type and connection occur automatically. At impact or attempts of jolting or drilling of the surface on which the sensor is established, contacts of the sensor respond and the system receives message on breaking.

Airflow sensors – 5500.550

Compact device with dimensions 60×18×18, net weight 50g. Supply includes: 4-wired telephone cable RJ11 (2m), screw 4.8x16mm, double sided sticker, 4 airflow cables with sensor head. On the bottom there is a ledge with Ø4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor by 4.8x16mm screw at any place near the fan.

Pic. 6.9: Airflow sensor

RJ-11 jack is connected to an analog input of any system unit using RJ-11 patch cable. Determination of sensor's type and connection occur automatically. Airflow sensor cables are connected to the 4 holes on the side of sensor. Sensor heads are mounted near the fan airflow.

Smoke sensor – 5500.560

Standard smoke sensor with dimensions Ø100×45, net weight 220g. Supply includes: 4-wired cable RJ11 (2m), 2 screws and 2 nuts M4, 2 screws 4.8×20mm. On the bottom there are mounting holes for fastening smoke sensor to the surface by 4.8x20mm screws or/and bracket and M4 screws. At installation indoors, in a rack and etc., the sensor monitors occurrence of smoke. Automatic restoration of power after the actuation.

Pic. 6.10: Smoke sensor

Installation of smoke sensor

Sensor's jack RJ-11 is connected to an analog input **IN1...IN8** of any system unit using patch-cable RJ-11. Determination of the sensor's type and connection occur automatically.

The system of monitoring allows to connect several smoke sensors into a linear circuit. For this purpose each smoke sensor has two jacks RJ-11: input and output. The first sensor is connected to an analog input of the system unit using a patch-cable RJ-11, the consequent sensor is connected via patch-cable RJ-11 to an output of the first sensor and so on. Such chain is seen by the system as one sensor with one address.

Motion sensor – 5500.570

Device with dimensions 105×57×40, net weight 125g. Supply includes: built in 4-wired telephone patch cable RJ11 (2m), screws, plastic bracket, manual. On the bottom there is a mounting slot for fastening sensor by plastic bracket.
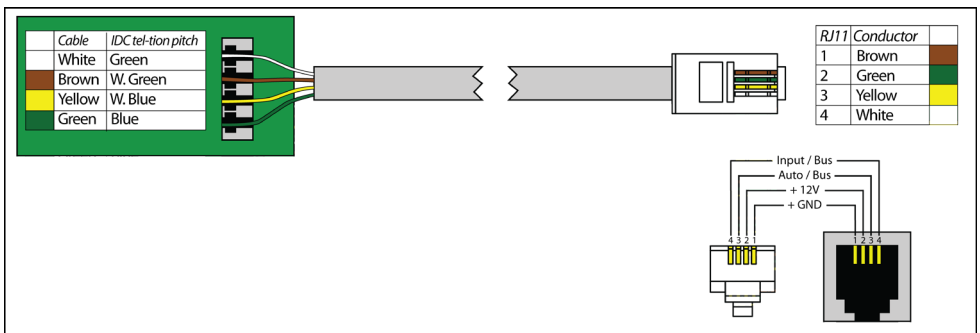

Pic. 6.11: Motion sensor

To adjust sensitivity of PIR sensor open the cover and follow the instructions in the manual (supplied with the sensor).

Sensor contains RJ-11 jack and is connected to an analog input **IN1...IN8** of any system unit. Sensor type is determined automatically.

Connecting RJ11 to motion sensor:

Connecting RJ11 to motion sensor

Leakage sensor – 5500.590

Compact device of dimensions 60*18*18mm with an emerging 2-pair UTP cable 2m, net weight 60g. Supply includes: 4-wired telephone cable RJ-11 (2m), bracket, 2 screws and 2 nuts M5, screw 4.8x16mm. Being horizontally installed on a vertical surface the sensor controls occurrence of water. When water is in contact with the metal cores, the sensor indicates the emergence of moisture.

Pic. 6.12: Leakage sensor

On the bottom there is a ledge with Ø4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor by screw 4.8x16mm. There are two metal cores on the side of device.

Connector **RJ11** is connected to an analog input **IN1...IN8** of any system unit. Determination of sensor's type and connection occur automatically.

Water cable detector – 5500.591

Compact device with dimensions 60×18×18, net weight 25g. Supply includes: cable, terminal strip type TBW-5-2p, screw 4.8x16mm.

On the bottom there is a ledge with Ø4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor by screw 4.8x16mm. 2-pin terminal strip type TBW-5-2p with mounted water detection cable is plugged into sensor's connector.

Pic. 6.13: Water cable detector

Connector RJ11 is connected to an analog input **IN1...IN8** of any system unit. Determina

User Manual

tion of sensor's type and connection occur automatically.

The other end of the sensor connects 2-wire water detection cable with the plug.

6.2 Digital sensors

The bodies of digital sensors have two RJ11 (6P4C) jacks for connection to any digital input **DI1, DI2** of any system's unit. Second jack can be used for connection of one or several more digital sensors into 1-Wire digital circuit in any order.

Attention! It is possible to connect up to 10 digital sensors consistently in one digital port in any order.

This type of connection allows each sensor to be automatically determined, and monitoring system will be able to distinguish them.

In addition, monitoring system allows to connect to digital port of any unit iButton ™ key reader or Proximity card reader. The reader will be determined and installed automatically. Only 1 reader can be connected to 1 digital port.

Humidity and temperature sensor – 5500.731

Compact device with dimensions 60×18×18, net weight 50g. Supply includes: 4-wired telephone patch cable RJ-11 (2m), 4.8*16mm screw. On the bottom there is a ledge with Ø4.5 mm and height 1 mm; and a mounting hole in 50 mm from it for fastening sensor using screw 4.8x16mm.

Digital humidity sensor contains built-in temperature sensor.

Measured range of temperatures: -20...+ 60°C.

Measured range of humidity: 10-90%.

*Pic. 6.14: Humidity and temperature sensor*

Humidity sensor contains RJ11 jack and is connected to digital input **DI1**, **DI2** of any system unit or any other digital sensor's output. Determination of sensor's type and connection occur automatically. Connection of digital sensors is serial, it is possible to connect to one digital port of any monitoring unit up to 10 digital sensors in any order.

User Manual

Smoke and temperature sensor – 5500.760

Standard smoke sensor with dimensions Ø100×45, net weight 220g. Supply includes: 4-wired telephone patch cable RJ11 (2m), bracket, 2 screws and 2 nuts M4, 2 screws 4.8x20mm. On the bottom there are mounting holes for fastening smoke sensor to the surface using screws 4.8x20mm or/and bracket and M4 screws.
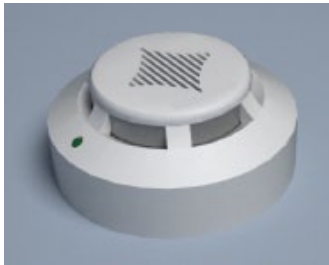
Pic. 6.15: Smoke sensor

At installation indoors, inside the rack etc., sensor monitors occurrence of smoke and temperature inside the building.

Measured range of temperatures: -20...+ 60°C.

Installation of smoke sensor

Sensor's jack **RJ-11** is connected to a digital input **DI1**, **DI2** of any system unit or to an output of another digital sensor using RJ-11 patch cable. Determination of sensor's type and connection occur automatically.

Monitoring system allows connection of several smoke sensors into a linear circuit. For this purpose each sensor has two RJ-11 jacks: input and output. The first sensor is connected to digital input of any system unit using RJ-11 patch cable. The consequent sensor is connected via RJ-11 cable to output of the first sensor and so on. Such chain of sensors is seen as several sensors with different addresses.

Motion and temperature sensor – 5500.770

Device with dimensions 105×57×40, net weight 125g. Supply includes: built in 4-wired telephone patch cable RJ11 (2m), screws, plastic bracket, sensor manual. On the bottom there is a mounting slot for fastening sensor by plastic bracket.

Measured range of temperatures: -20...+ 60°C.

Temperature sensor contains RJ-11 jack and is connected to a digital input DI1, DI2 of any system unit or an output of another digital sensor. Determination of sensor's type and connection occur automatically. Possibility to connect up to 10 sensors into a linear circuit.

Pic. 6.16: Motion sensor

Monitoring system allows connection of several PIR sensors into a linear circuit. For this purpose you need to open the cover, connect cable according to the manual supplied with the sensor.

Connecting RJ11 to motion sensor:
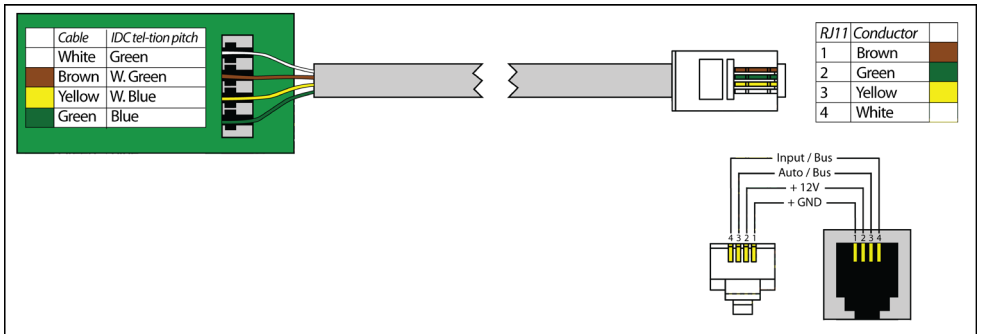
Connecting RJ11 to motion sensor

6.3 Readers

Monitoring system supports several types of 1-Wire readers. I-Button™ key readers and Proximity card readers.

Pic. 6.17: I-Button reader   *Pic. 6.18: I-Button keys*   *Pic. 6.19: Proximity reader*

Proximity card readers function in a convenient non-contact mode.

SNMP Server

Monitoring and partial system configuration can be performed via SNMP protocol, supported versions 1 (RFC 1157) and 2 (RFC 1902 .. 1907). In addition, the system provides the ability to send Traps, which can be used as notifications for the logic.

Detailed information can be found on CD supplied together with the system or on www.pce-instruments.com.

List of USB-cameras supported by the system of monitoring PCE-MS1

3Com Home Connect Lite	Intel Pocket PC Camera	Philips SPC300NC
3DeMON USB Capture	Jenoptik DC 21 LCD	Philips SPC600NC
ADS Instant VCD	JVC GC-A50	Philips SPC700NC
Agfa ephoto CL20	Kodak DVC-325	Pixart PAC207-BCA
Aiptek DV3500 Mpeg4	Kodak EZ200	Polaroid Ion 80
Aiptek mini PenCam 1.3 MPixels	Kowa Bs888e MicroCamera	Polaroid PDC2030
Aiptek Mini PenCam 2 MPixels	Labtec Webcam	Polaroid PDC3070
	Labtec Webcam Elch2	Pure Digital Dakota 62
	Labtec Webcam Notebook	Benq DC3410
Aiptek Pencam SD 2 MPixels	Labtec Webcam Plus	Concord 3045 spca536a
Aiptek PocketCam 2Mega	Labtec Webcam Pro	Creative Instant P0620
Aiptek PocketCam 3 M	LG LIC-200	Creative Instant P0620D
Aiptek Pocket Cam 4M	LG Lic-300	Creative Live!
Aiptek PocketDV	Logitech ClickSmart 310	Creative Mobile PD1090
Aiptek PocketDV3100+	Logitech ClickSmart 820	Creative Notebook PD1170
Aiptek Pocket DV5100	Logitech Inc. ClickSmart 420	Creative Notebook PD1171
Aiptek Pocket DV5300	Logitech Inc. ClickSmart 510	Creative NX
Aiptek PocketDVII 1.3 MPixels	Logitech Notebook Deluxe	Creative Nx Pro
	Mustek DV4000 Mpeg4	Creative NX Pro FW2
Aiptek Slim3000F	Mustek Gsmart 300	Creative PC-CAM 300
Aiptek Slim 3200	Mustek Gsmart D30 spca533	Creative PC-CAM 600
ApexDigital Digitrex2110 spca533	Mustek Gsmart LCD 2	Creative PCcam750
Arowana 300K CMOS Camera	Mustek Gsmart LCD 3	Creative Webcam NX ULTRA
	Mustek Gsmart Mini	Creative Webcam Vista
Benq DC1016	Mustek gSmart mini 2	Creative Webcam Vista
Benq DC1300	Mustek gSmart mini 3	Creative Webcam Vista Plus
Benq DC1500	Mustek MDC3500	CTX M730V built in Cam
Genius VideoCAM NB	Mustek MDC4000	Digital Dream Enigma 1.3
Genius Videocam V2	Mustek MDC5500Z	Digital Dream Epsilon 1.3
Genius Videocam V3	Mustek Wcam300A	D-Link DSC-350
Grandtec V.cap	Mustek WCam300AN	Flexcam 100 Camera
Hama USB Sightcam 100	Mustek Wcamm300A 2	FlyCam Usb 100
Hama USB Sightcam 100 (2)	Optimedia TechnoAME	Generic Vimicro 303b
ICM532 cam	PalmPix DC85	Generic Zc0305b
Intel Create and Share	PC-Cam350	Genius Dsc 1.3 Smart spca504B-P3
Intel Easy PC Camera	PetCam	Genius GF112
Intel PC Camera Pro	Philips SPC200NC	Genius VideoCAM Express

Genius Videocam Express V2
Firmware 2
Genius VideoCam Ge111
Logitech QCIM
Logitech QuickCam chat
Logitech QuickCam chat
Logitech QuickCam
Communicate STX
Logitech QuickCam Express II
Logitech QuickCam for
Notebook
Logitech QuickCam for
Notebooks
Logitech QuickCam IM
Logitech QuickCam Image
Logitech QuickCam IM/Connect
Logitech QuickCam IM ftp mib yur
Logitech QuickCam IM + sound
Logitech QuickCam Traveler
Mars-Semi Pc-Camera MR97311
MI0360

Maxell Compact PC PM3
Maxell Max Pocket LEdit. 1.3
MPixels
Megapix V4
Mercury Cyberpix S550V
Mercury Digital Pro 3.1Mp
Mercury Peripherals Inc.
Micro Innovation IC200
Micro Innovation WebCam 320
Mustek Digicam 330K
Mustek DV 3000
QCam Sangha
QCam xxxxxx
QC Express
Qtec Webcam 100
Sangha 350k
Smile International
Sonix Btc PC380
Sonix Pccam +
Sonix PcCam
Sonix sn9c102P Hv7131R

Sonix sn9c10x + Pas106
sensor
Sonix VGA Ov7630
Speed NVC 350K
Sunplus CA500C
Sunplus Generic spca536a
Sweex SIF webcam
Terratec 2 move 1.3
Toptro Industrial
Typhoon Webshot II
Unknow Ori Camera
Usb Grabber PV321c
Veo Stingray 1
Veo Stingray 2
VideoCam Messenger
sn9c101 Ov7630
ViewQuest M318B
ViewQuest VQ110
Xcam Shanga
Z-star Vimicro zc0301p