

Intelligent electric installation for buildings – INELS®

Inels Designer & Manager guide

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All information stated bellow can be changed without a prior notice.

Up-to-date version is available on the manufacturer's web sites <http://www.inels.com>

History of changes

[illegible]

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1. General description

1. The software Inels Designer & Manager (hereinafter IDM) is supplied with the INELS system. The software serves for creating background of graphical environment of the application, which is used in IDM as well as web server. The software serves also as complete INELS application manager, the central unit manager (hereinafter just CPU), and all connected units manager. We can adjust all system actions in IDM software. GSM communicator is also programmed here. The software is also able to run without connecting the central unit, or by the means SoftPLC¹ product to simulate and to test actions setting.
2. Inels Designer & Manager software is freeware supplied with each CPU and it is available for download on the manufacturer's web sites www.inels.com. After the registration of the IDM software you will get an access to CPU firmware updates, internal and external masters of the CIB bus, peripheral units of the CIB bus and IDM program on its own.
3. The software must be installed in a PC. The software contains basic language versions.
4. The software is intended for PCs with the operation system Windows XP and newer ones. Minimum resolution of a monitor is required 1024x768 pixels.

¹ SofPLC – software version PLC. When installed, manual SoftPLC for Windows is obtained. The product requires registration.

2. Installation

1. The installation is done by setting up IDM_setup.exe.

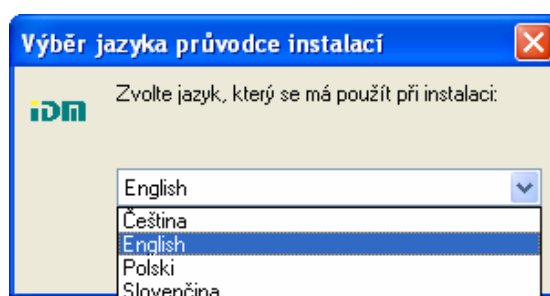
Picture 1



IDM_0.9.5.412_setup.exe

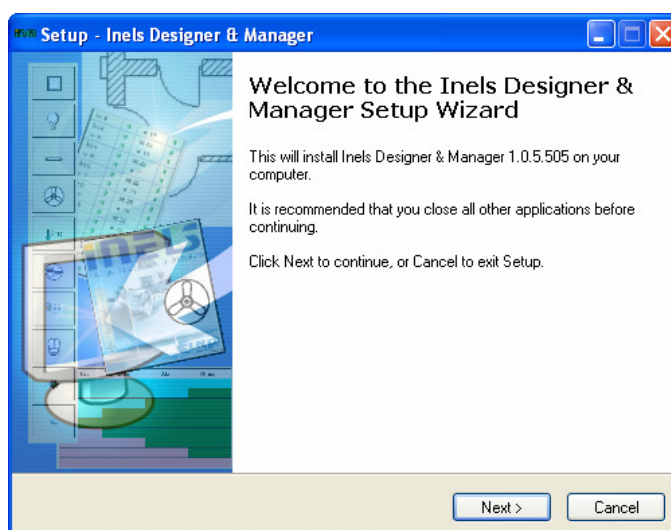
2. Select a language for installation.

Picture 2



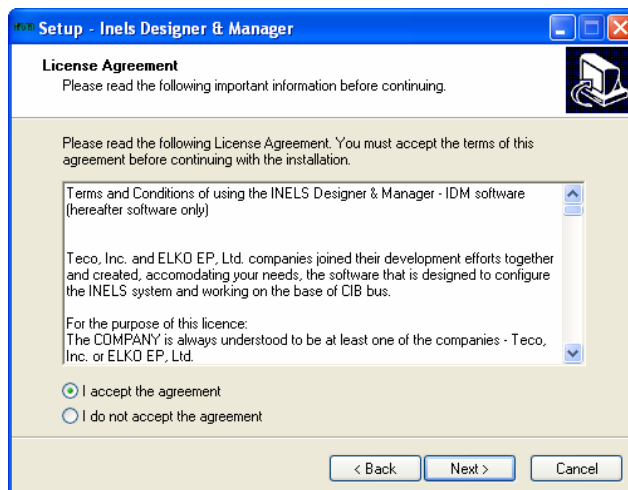
3. Installation guide appears.

Picture 3



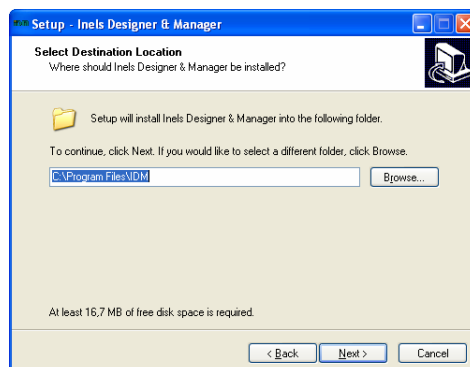
4. License agreement appears.

Picture 4



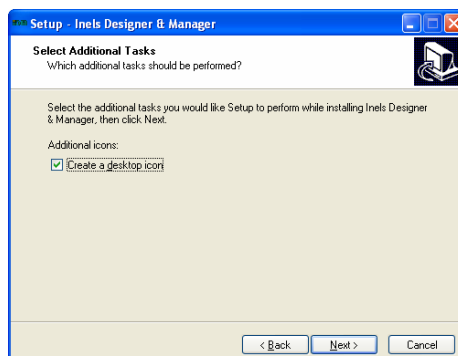
5. In the next step select a file for IDM to be installed.

Picture 5



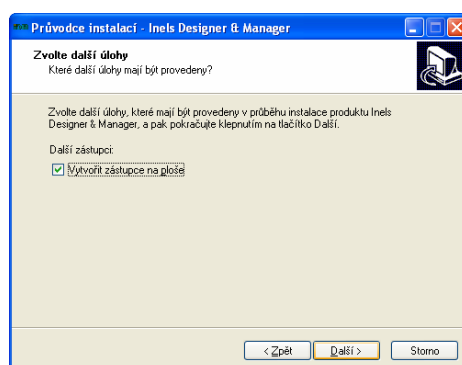
6. Further step is an option whether SoftPLC, product of Teco a.s., shall be installed to Windows. If you wish to install, thick the box.

Picture 6



7. If you do not wish to make the icon on the screen, cancel the thick in the box.

Picture 7



8. When you manage to install, you can start the program. In some cases a history.txt appears which describes new features of IDM or clears up errors.

Picture 8



3. Running the program

1. Start the program INELS Designer & Manager by clicking on the item "*Inels Designer & Manager*" in the menu of Start button, or click on the icon on the screen.

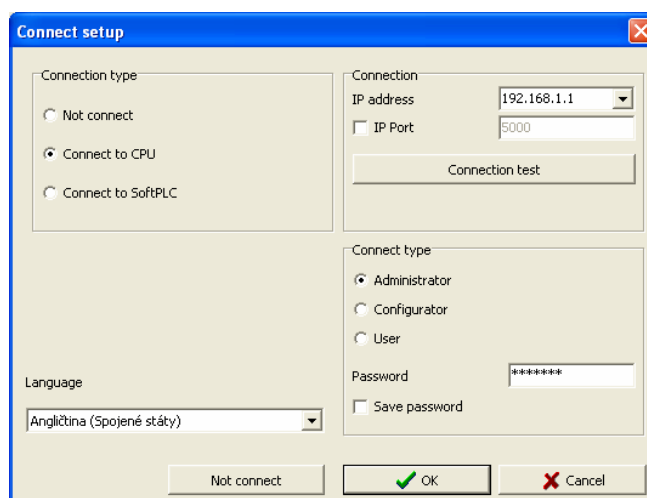
Picture 9



Inels Designer & Manager.Ink

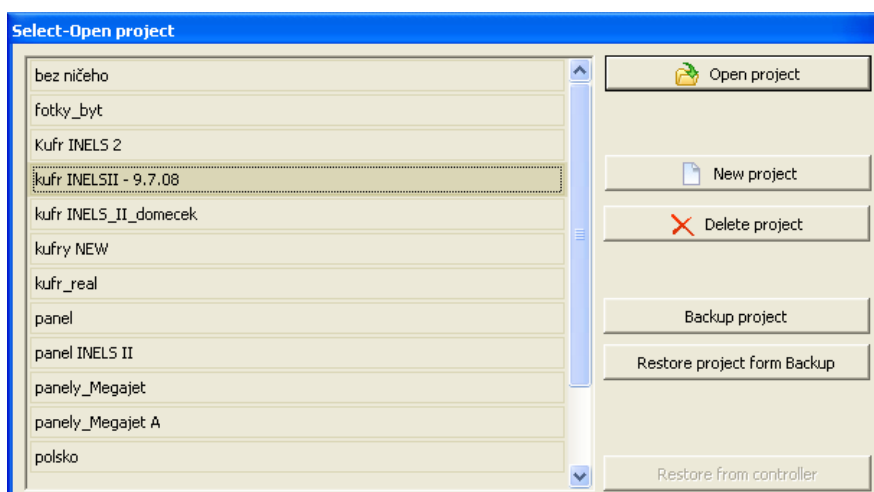
2. When triggered, the window "Connect setup will be displayed (Picture 10), where you shall set up:
 - "*Connection type*" – according to a type you choose you can decide whether you will connect to an appropriate CPU, or you will make a project without a connection, or you will connect through SoftPLC product which enables simulation and testing of programmed actions.
 - "*Connection*" – enter IP address of CPU, or IP port (default IP port for communication is 61682), on which CPU communicates. In this dialogue you can also "Connection test" to the central unit (analogy of the command ping).
 - "*Connect type / password*", where you have the following options:
 - a. *Administrator level* enables an access to all setting windows of IDM program and it allows full administration of the system and project. For this level the connection to CPU is not necessary and it is possible to work off-line over a project on the disk.
 - b. *Configuration level* enables basic user configuration of the program. You need CPU connection.
 - c. *User level* does not allow any configuration and it serves only for basic displaying the system and its control. You need CPU connection.

Picture 10



- „Language IDM“— you can select from Czech, English, Spanish, Hungarian, Dutch, Polish, Romanian, and Russian.
3. After choosing a connection type and confirmation by “OK” button, a dialogue window will be shown “Select-open project” with projects list (Pict. 11). If you are connected on the user level, the window “Select-open project” is not displayed, but the initial screen of the program will appear with the dialogue of downloading the project from CPU.

Picture 11



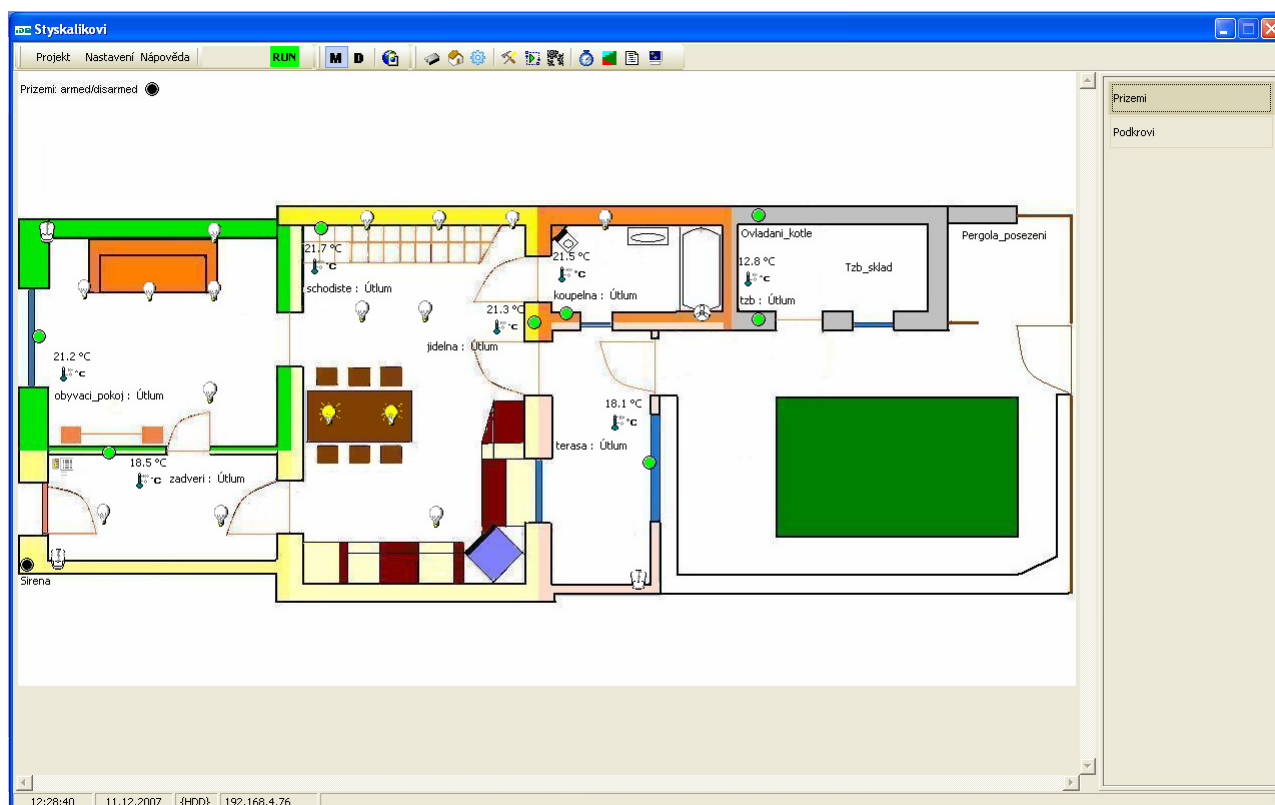
- With the button “New project” make a new project.
- With the button “Open project” open a new project that have been chosen.
- With the button “Delete project” delete a selected project. If you do so, you cannot recover.
- With the button “Backup project” you will make back-up of the project on the disk. The file with “*piz” suffix contains full information on the project, full list and setting of all used INELS units, and all used pictures. The back-up file does not contain communication parameters of the central unit connected, either firmware that has been downloaded. The file can be transferred from a computer to another by any means of transferring, or it can be sent by e-mail.

- With button "*Restore project from back-up*" you will restore the project from the back up "**piz*". A new project is made for the restored project.
- With button "*Upload from CPU*" you will upload the project from CPU, where you are being connected, if the CPU contains the project.

4. Basic screen of the program

When you open the program, the basic screen will appear (Pict. 12).

Picture 12



The screen consists of the following:

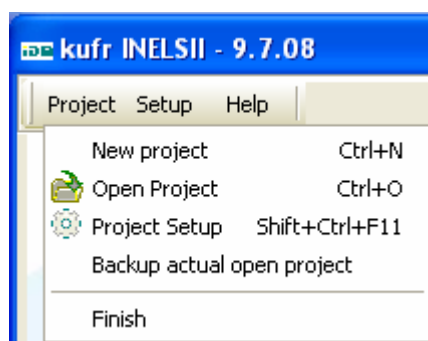
- The main menu,
- List of plans (floors),
- Visualization of a floor – the biggest area on the screen.

At the bottom bar of the main window there is also running time of CPU, date, and information whether a project that we are working on is saved on the computer disk ("*HDD*"), or whether we are working on a project that we have downloaded from CPU and that has not been saved on the disc yet ("*CPU*"). You can also see IP address of CPU where you are connected and a description of an inserted object, when you put the mouse pointer on it.

The main menu contains the following items:

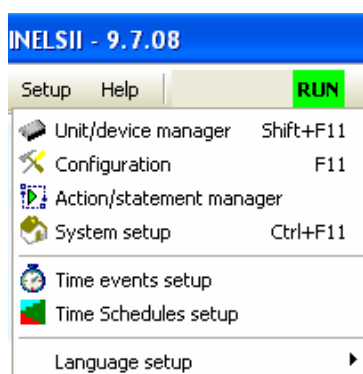
- "*Project*" item (Picture 13) contains basic operation with the project. Creating "*New project (keys Ctrl+N)*", "*Open project (keys Ctrl+O)*", "*Close project*", "*Project setup (keys Shift+Ctrl+f11)*" and "*Backup actual open project*", i.e. project that you are working on. Last option is "*Finish program*".

Picture 13



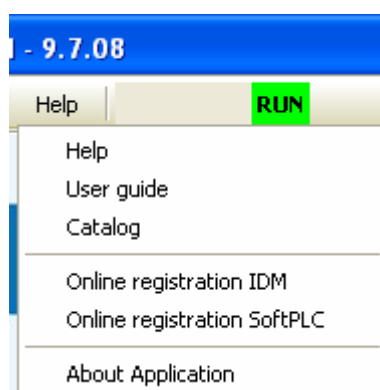
- “Setting” item (Pict. 14) contains options for the system configuration. The option “Unit/device manager (keys Shift+f11)” opens the window for a choice of connected peripheral units and their basic setup. The option “Configuration (key F11)” serves for displaying the window to configure unit inputs and outputs and their mutual links. The option “Action/statement manager” displays the window for managing programmed system events. The option “System setup” (keys Ctrl+F11)” displays the window for main system setup, e.g. date and time, IP address, password to connection levels to the central unit, etc. There are also options to open windows to set up “Time schedules” and “Time events”. By an appropriate choice of “Language”, you can switch to any language version.

Picture 14



- “Help” item (Pict. 15) contains options for displaying help, the guide of the software (Inels Designer & Manager software), hyperlink to a catalogue of intelligent electric installation Inels, also IDM registration, and SoftPLC registration (if you have not done so having installed IDM). Only registered IDM users have a possibility to detect new IDM versions, firmware for CPU, internal and external masters of the CIB bus and peripheral units. The last option is information on application.

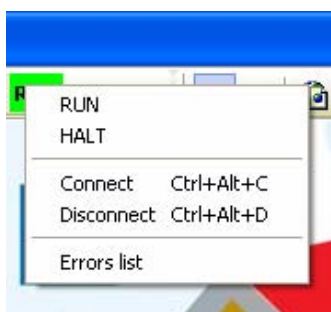
Picture 15



The main menu also contains information on “CPU connection state” (Pict. 16) and menu “Connect (keys Ctrl+Alt+C)” or “Disconnect” (keys Ctrl+Alt+D)” and further “CPU errors list”:

- **RUN** - CPU is running and controlling peripheral units, the display of the central unit is indicating G,
- **HALT** - CPU is stopped, not controlling peripheral units, the display of the central unit is indicating H,
- **RUNs** – you are on SoftPLC (mode),
- **NoComm** – communication is off, i.e. CPU is not connected,
- **CommErr** – communication error caused by frequent communication failure between IDM and CPU,
- **ERR** – central unit failure. In CPU a failure occurred while controlling, it is not controlling peripheral units. At the same time the error notice appears on the front panel of CPU, where red LED is on and the notice with a failure number appears on the display. Error diagnostics and their recovery is a subject of Chapter 12 Errors diagnostics and their recovery, see page 98.

Picture 16



In the main menu there are fast selection icons (left => right), picture 17:

- Program change over “Manager <-> Designer (M <-> D)”. The mode “Manager” enables changing states of objects inserted to the plan. The mode “Designer” enables to add individual graphic plans², and change their parameters. Also it allows adding and deleting objects to the plans, changing their position and size. Merely the administrator is allowed to switch to the “Designer”. Being switched to the “Designer”, on the bar you can see objects that you can place to the plan.
- See [www sites](#)³
- Administrator,
- System setup,
- Project setup,

² Plan format must be *.jpg. Space for web must be 3 MB maximum, while size of individual plan is not limited, however 128 kB is recommended.

³ An initial browser is opened

- Configuration,
- Action/statement manager,
- Saving configuration to controller,
- Time events setup,
- Time schedules setup,
- View logged events,
- Showing monitor of user's bits, counters, and timers,
- Setting and reading archive of input/output state.

Picture 17



The following fast selection icons can be used only in the mode “*Designer (left => right)*”, picture 18:

- Add plan,
- Delete plan,
- Plan setup,
- Add object,
- Delete object,
- Object setup.

Picture 18

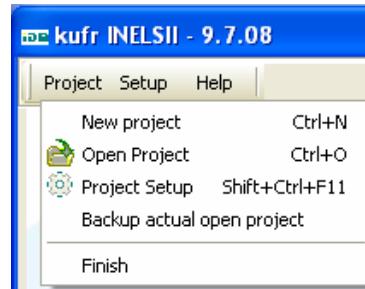


5. Description of menu and graphic icons

You can find detailed description of an offer menu IDM.

1. Item „Project“ (Pict. 19):

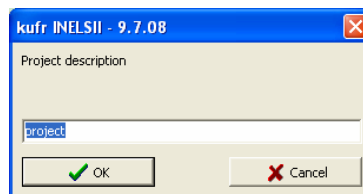
Picture 19



When new project is opened, you will see the above listed items:

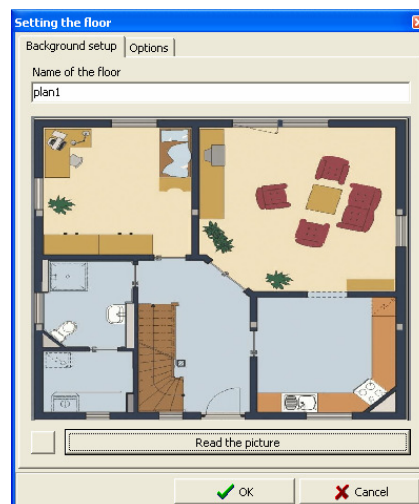
- *“New project (keys Ctrl+N)”* to create a new project. We will demonstrate basic steps for making a new project (the procedure is like the option *“New project”* which is offered after connection to the central unit in window *“Select-open a project”*, see page 7, Pict. 11). When you choose the option, the new dialogue window *“Project”* will be opened (Pict. 20) with a possibility to choose a name of the new project.

Picture 20



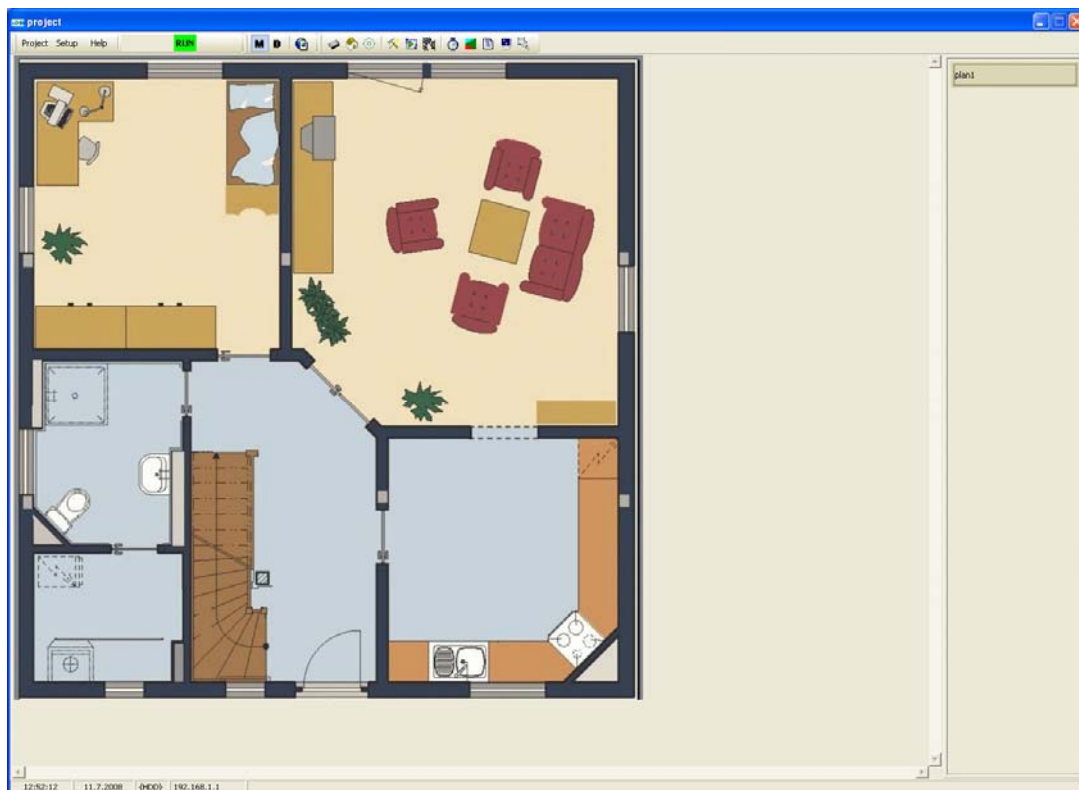
When you confirm the choice by „OK“, you will get to the next level of creating the project, which is *“Setting the floor”* (Picture 21), where you can define names of floors and insert a graphical background of the application.

Picture 21



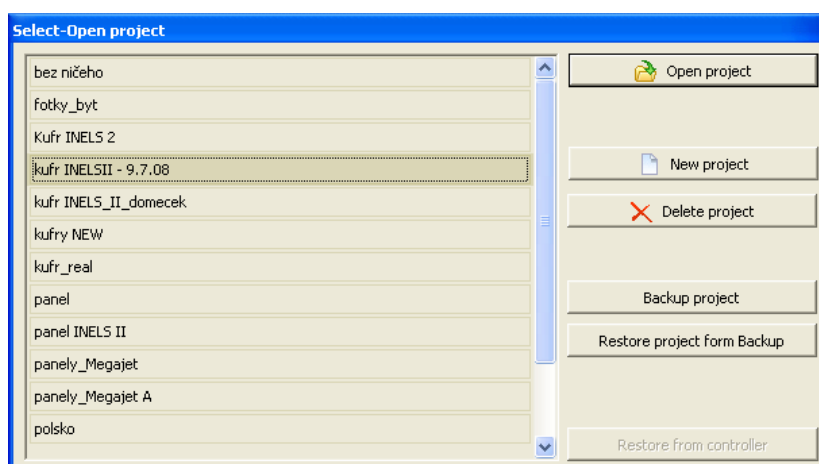
When you confirm the selection by “OK”, the inserted graphical background will be uploaded to the main window of the program (picture 22), whereas the name of floor is shown on the right hand top (plan list, see page 8, picture 12) and name of project on the left hand top next to the IDM icon. Then you can work with the project that you have just made in the designer mode (more on page 26).

Picture 22



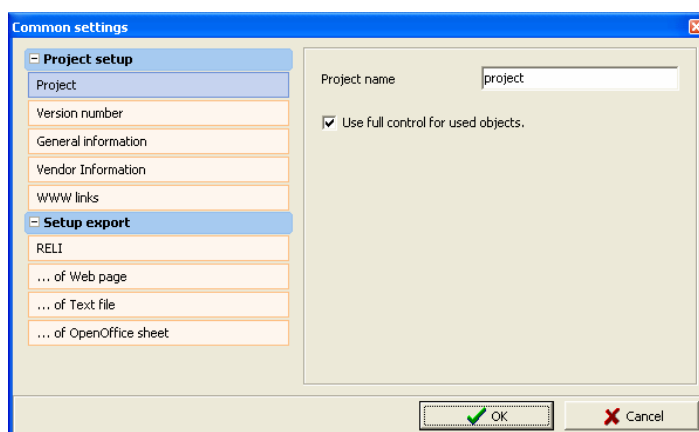
- „Open project (keys Ctrl+O)” serves for opening projects that have already been created. If you choose the option, the dialogue window “Select-open project” will be opened (picture 23).

Picture 23



- “Close project” to close an actual project. After confirmation of the option a blank window of floor visualization will appear.
- “Project setup (keys Shift+Crtl+F11)” serves for global adjusting of a project being opened. The option is also accessible in fast selection icons (see page 11, Pict. 17). If you choose the option, new dialogue window “Project setup” (Pict. 24) will open.

Picture 24

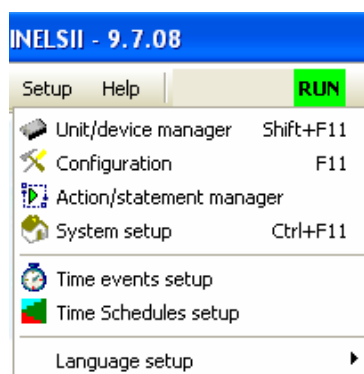


“*Project*” item enables editing of the name of a project. “*Numbering of version*” enables numbers of modifications of the project, which we do on the project with a possibility of automatic incrementation. “*General information*” contains general description of a project, which is displayed when you access through web server. “*Vendor information*” will also be displayed when you access via web server. The dialogue window also contains possibilities “*Setup export of a web site, text file and Open Office sheet*”, and “*WWW links*” to turn on/of generating for web server (heating, alarm, user’s actions and external hyperlinks, e.g. web camera). The option “*Use full control for used objects*” serves especially for testing, when full service is generated for all used objects in a plan, even if it is not used in a statement, or an action is not matched. The option “*RELI*” serves for making export of variables for scada/hmi software Reliance 4 (see individual Chapter 13, page 110).

- “*Back-up actual open project*” to make back-up of a project that you are working on. The file has “**piz*” suffix.
- “*Finish*” to close a program.

2. Item „Setup“ (Pict. 25):

Picture 25

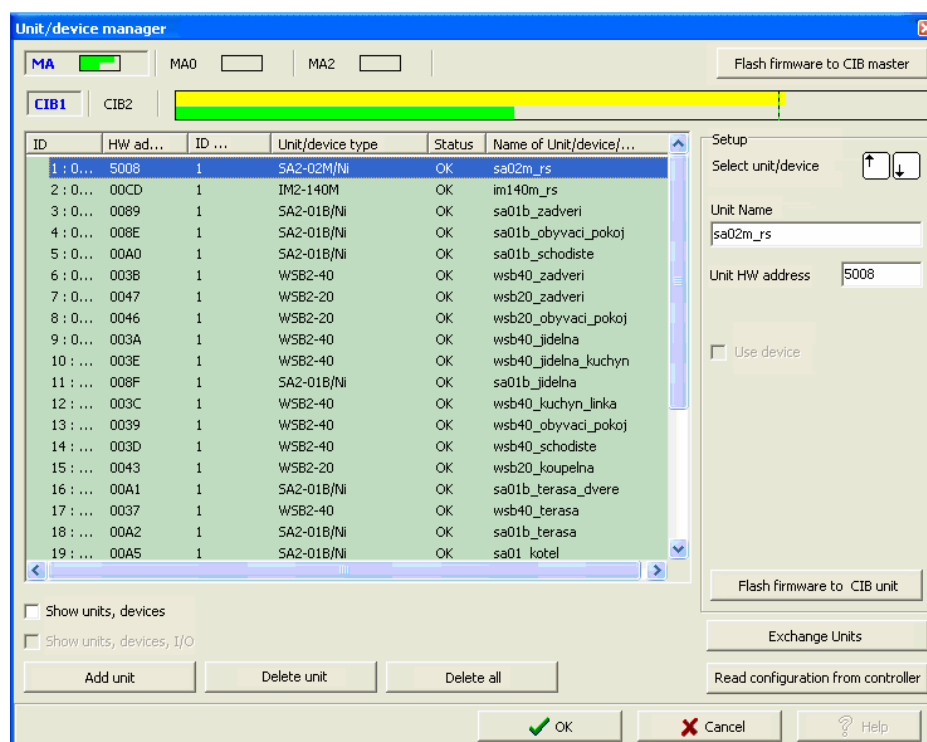


Choosing the option the items above are offered:

- “*Units/devices manager (keys Shift+F11), Pict. 26*” to add/delete units from net configuration, upload new firmware to peripheral units, internal master of CIB bus and its external masters, to exchange defective units with new ones while plan and events functions is kept, and eventually to allow/forbid individual devices of the unit. You can also name individual units (recommended)

and thus in the configuration use their new names instead of part numbers. E.g. use “Bedroom controller” instead of IART2-1 and the name will be used in the environment further on. You can name all inputs / outputs of units in the same way. You can open the item also by the means of fast selection icon (see page 11, Pict. 17).

Picture 26



Definitely the biggest part of unit manager screen takes unit connected to CIB bus. To make it better organized, you can switch over branches of the bus with buttons CIB1 and CIB2. You can also see how the branches are occupied with connected units. Next, buttons MA, MA0, and MA2 can change between internal and external masters of the CIB bus if those are connected to CPU via TCL2⁴ bus. „ID“ represents an order of units on each bus (1 - 32), when you broaden the column you will see a unique internal number of a unit. „HW address“ represents a unique physical address of a unit, which is assigned to the unit in the factory⁵. „ID CIB net“ indicates which CIB bus are the devices connected to, whereas the number corresponds with CIB1 and CIB2 buttons. „Unit/device type“ shows a part number of the unit. „Status“ indicates communication status of units connected CIB1 and CIB2⁶. Use the button “Upload firmware to CIB master” see chapter 12“ to upload firmware to the internal master and external masters, if those are connected to CPU. “Select unit” is used to browse units / devices. Item “Unit name” enables description of units instead of their part number. “Exchange units” is used to exchange a unit with another one. Here is a simple example – let’s say, there is the unit WSB2-40 with HW address e.g. 1111 on the bus. The unit discontinues communication (ECOM) and it is necessary to change it. Connect a new unit WSB2-40 with HW address e.g. 2222 and add it to CPU configuration, whereas the new unit overtakes all setting programmed in IDM for the old unit.

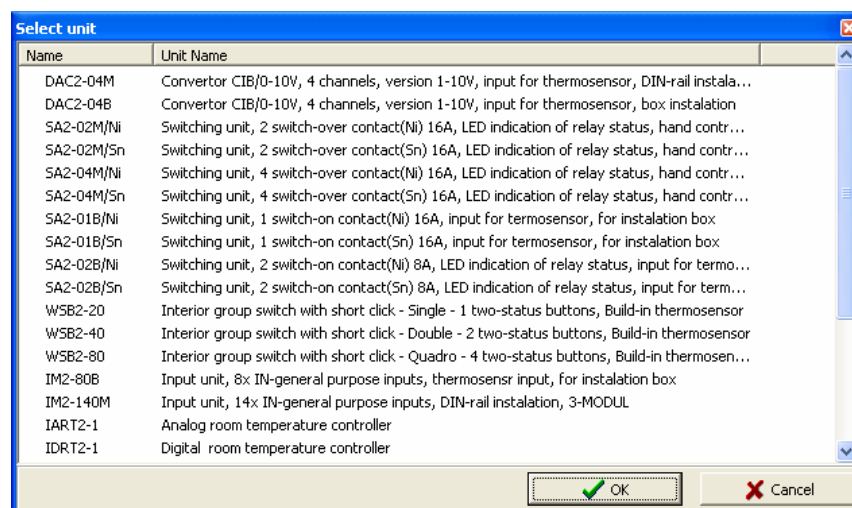
⁴ In case that external masters of bus are connected, it is necessary set an address to TCL2 bus corresponding with numbers displayed in the unit/device manager, i.e. 0 and 2 – the catalogue of intelligent electroinstallation, page 12. Set on the front panel by a rotary switch.

⁵ You can find it on the plastic enclosure of the unit.

⁶ State can be OK – the unit is the communication state or ECOM (error communication) .

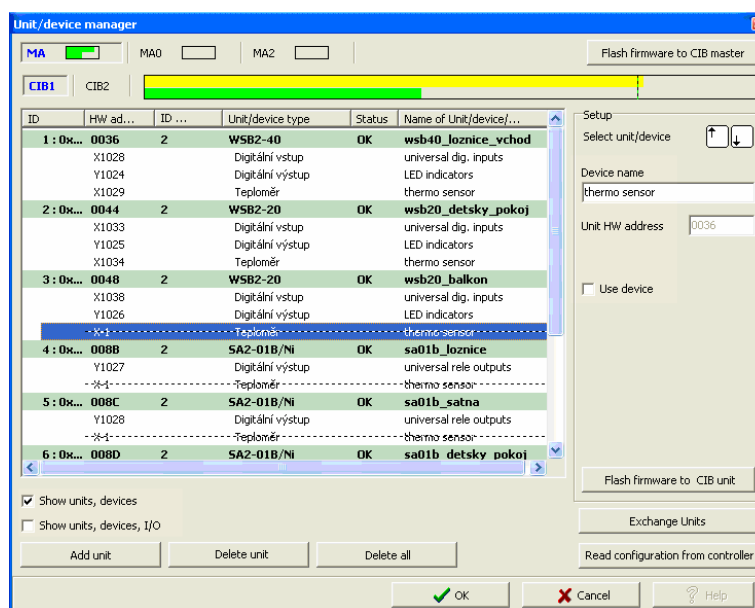
The same is applied also for changing units among masters of CIB. “Load configuration from CPU” stands for automatic search of units connected to CIB bus. „Add unit“ is used to add units to CIB bus manually. If the option is used, a dialogue window “Select unit”, showing portfolio of units supported by the up-to-date IDM version, will be displayed (picture 27)

Picture 27



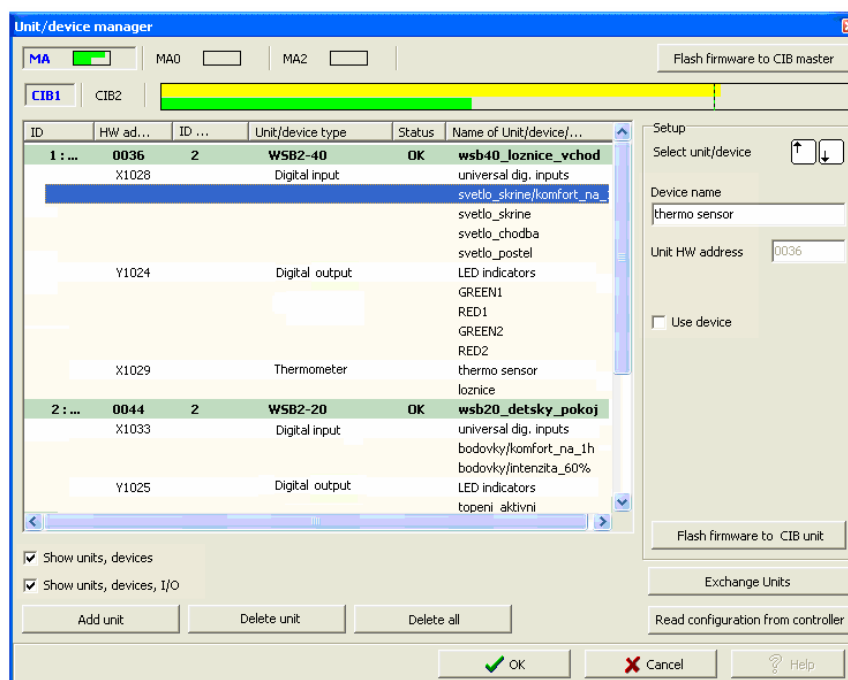
“Delete unit” is used to delete a selected unit that has been uploaded in the manager of units/devices, “Delete all” shall delete all units in the Unit/device manager. Choosing the item “Show all devices” evokes list of devices integrated in units connected to CIB bus, and their addressing in IDM, e.g. we can see that WSB2-40 unit on the position ID 1 contains digital input, output, and thermometer (picture 28). Simultaneously the option “Use devices” is activated, allowing or banning some devices integrated in units – for example, you can see that in unit WSB2-20 on ID 3 position the thermometer is not used in the system, i.e. the option “Use device” is not active, the box is not ticked.

Picture 28



You can also use item “*Show units, devices and inputs/outputs*” (Picture 29), which enables to see detailed data structure of devices integrated in units, including their description from configuration system (see page 18, picture 30). For example, you can see the unit WSB2-40 on ID 1 position, that the digital input consists of 4 – WSB2-40 is 4-points bus button. Moreover, you can mark and name i/o that we intend to use (export) for visualization in scada/hmi software Reliance 4 (see individual Chapter 13, page 110).

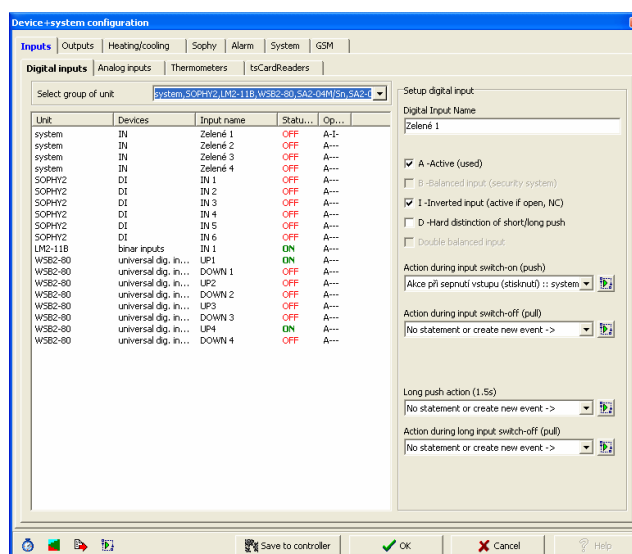
Picture 29



The option “OK” shall close the window of the manager of units/devices and save changes done in the window of units/devices. The option “Cancel” shall close the window of the Device/unit manager, but changes that have been done will not be saved.

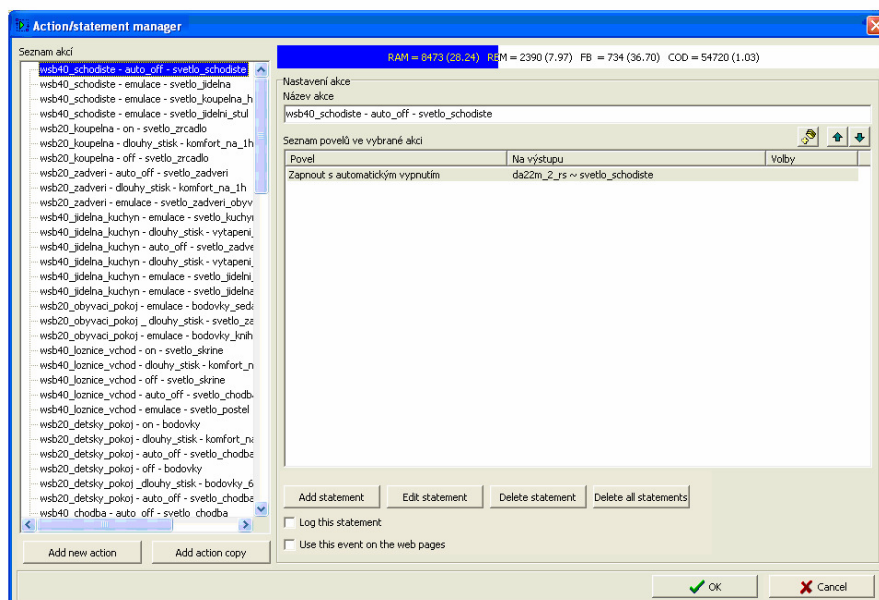
- “System configuration (key F11”, picture 30” sets parameters of individual inputs/outputs, configuration of heating/cooling, alarm system, GSM modem, keypad, and multifunction unit Sophy. The separate chapter 6 – Configuration of the system, page 33 deals with the window.

Picture 30



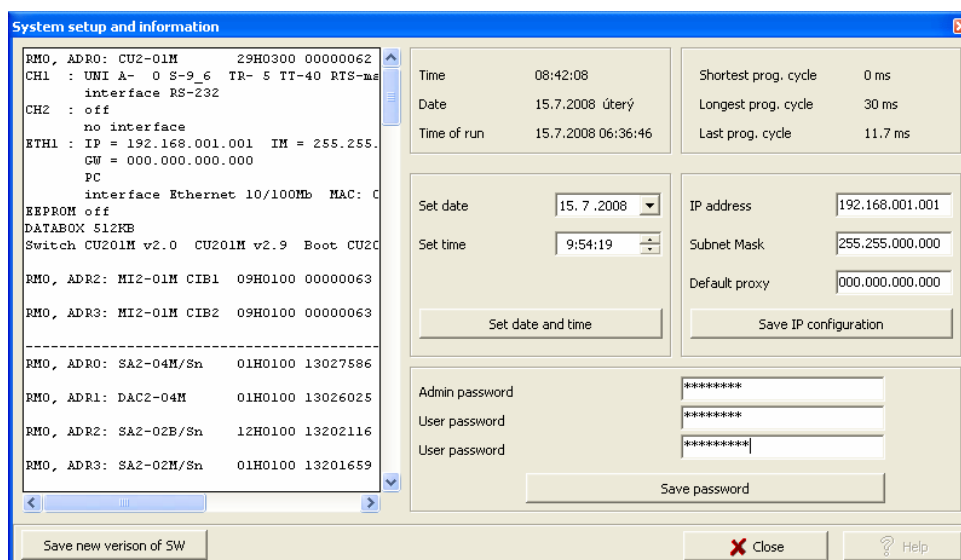
- “Action/statement manager, picture 31” is a window defining actions/statements assigned in the window of system configuration, which is very closely associated with the manager. The window will be described in details when we are dealing with window System configuration, see the separate Chapter 7 Action/statement manager, page 60.

Picture 31



- “Systems setup (keys Ctrl+F11), picture 32” is used to set basic CPU data, such as date and time, IP address, net mask, initial gate, and passwords for different levels of access to the central unit.

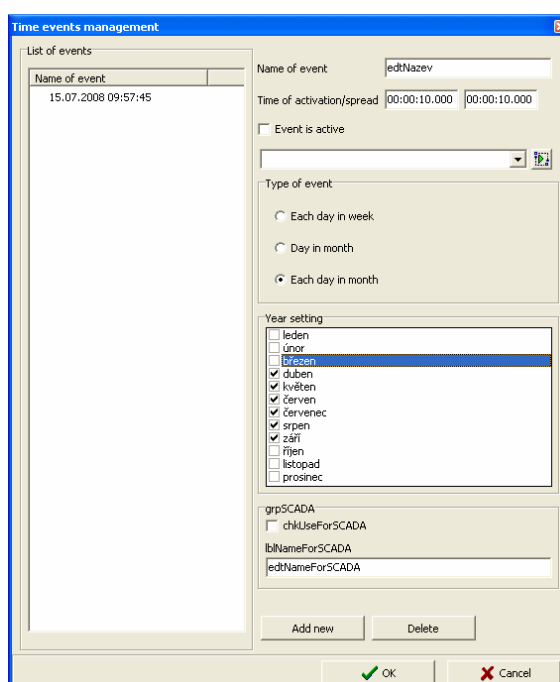
Picture 32



An important item in the list is the option “*Save new SW version*“, which we recommend to use always after installation of a new version of IDM – actually you will save IDM application to CPU. Other important information is “*Last prog. cycle*“, which is information on a rotation (cycle) of CPU, during which CPU reads all inputs, evaluates their state, and performs actions on outputs – time of the loop depends on number of i/c being services, i.e. i/c controlled by program. It also depends on web sever service and other communication. Further information shown in the left hand window is accessible only in a special mode. Detailed description is the subject of chapter 12 – Error diagnostics and their remedy, see page 98.

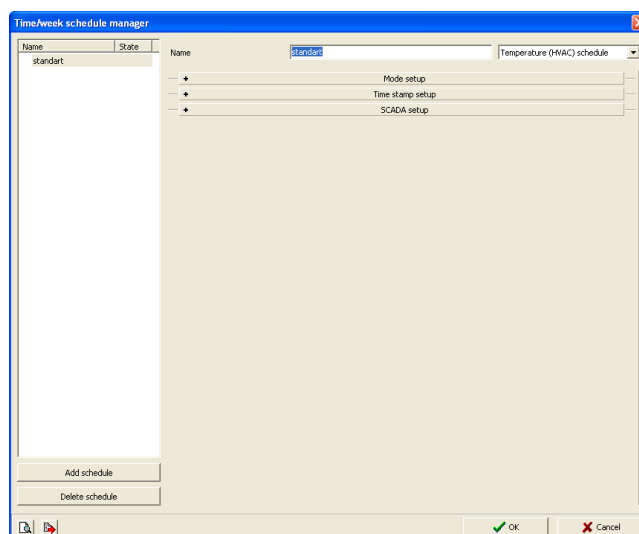
- „*Time events setup, picture 33*“ is a window of time events that have been set up. The window can be opened by a fast selection icon (see page 11, picture 17). Work with time events is a subject of a separate chapter 9 – Time events manager, page. 87.

Picture 33



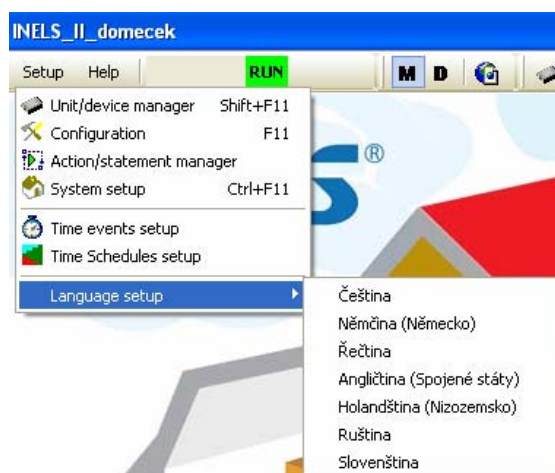
- „Time schedules set up, picture 34“, shows the window “Time/week schedule manager“, which is linked to Heating/cooling bar in the window “System configuration“. The window can be also opened by a fast selection icon (see page 11, picture 17). Detailed description is a subject of a separate chapter 8 – Time/week schedule manager (see page 80).

Picture 34



- “Language setup, picture 35“ serves for switching IDM to a language version used in an area. You can choose from the following versions:

Picture 35



3. Item “Help” (picture 36):

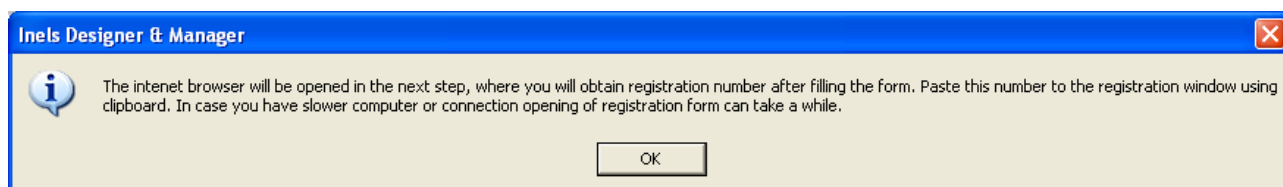
Picture 36



The item offers the following options:

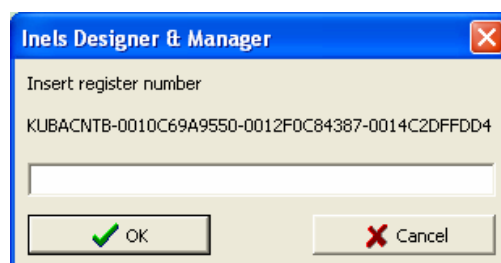
- “*Help*” generates text of the guide.
- “*User guide*” opens the guide for Inels Designer & Manager software, the one that you are just dealing with.
- “*Catalogue*” opens a catalogue of intelligent electric installation Inels in pdf format, where you can find detailed technical parameters of all Inels elements.
- “*Online registration IDM*” serves for IDM registration. If you choose that option, the following notice will appear (picture 37):

Picture 37

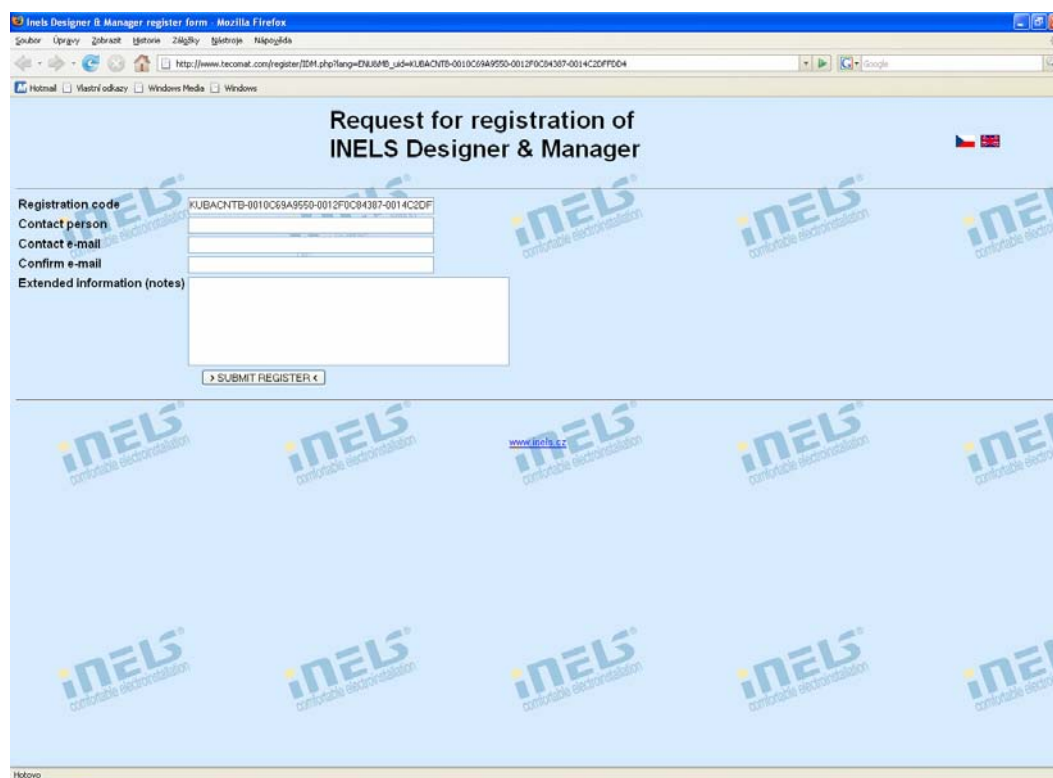


By clicking “OK” you will open Internet browser (picture 38) with a form (picture 39).

Picture 38



Picture 39



As soon as you fill in the form and send the registration, a registration number will appear on the window. Paste the number to the window above for an e-mail code (picture 38). By the clicking the option “*Check up-to-date versions*” (page 23, picture 44) the registration will be done.

- “*Register SoftPLC*” is the option for SoftPLC product registration, if you have not done the step when installing IDM and SoftPLC (see page. 5, picture 6). SoftPLC enables simulation and testing of programmed functions. If you choose this option, the following form of SoftPLC registration will be opened in the Internet browser (see picture 40).

Picture 40

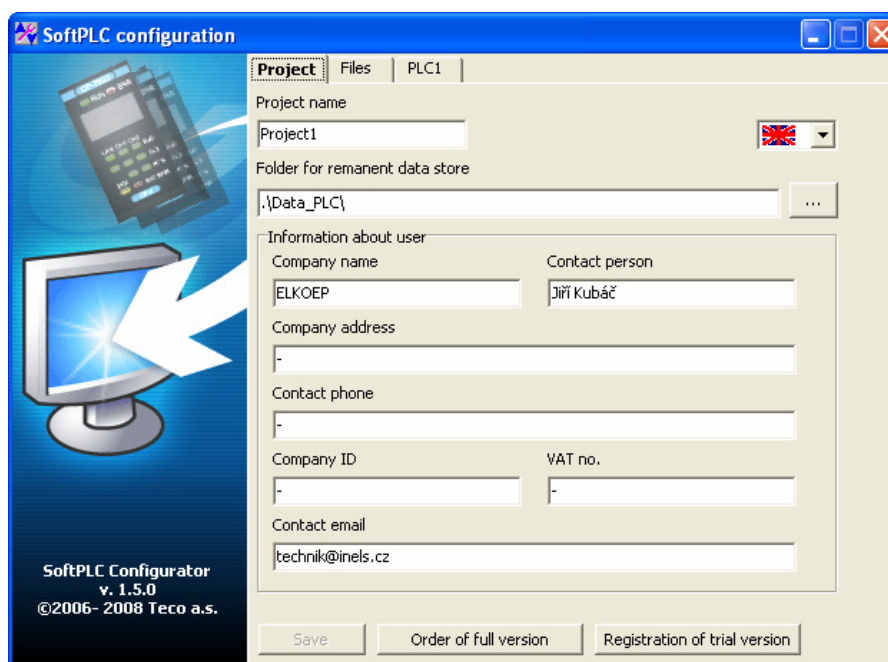
After completing the form it is necessary to map out „*SoftPLC_Info.TXT*” file that is being generated to the computer screen. The generating of the file will be completed by starting SoftPLC (Picture 41), whereas starting will open the window “*SoftPLC configuration*” (picture 42).

Picture 41



Konfigurace SoftPLC.Ink

Picture 42



Filling in basic data and clicking “Save” will activate options “Registration of full version” and “Registration TRIAL”. We recommend to register TRIAL version. It is free of charge and valid for 4 hours from launching. If you click on “Registration of TRIAL version “will generate the file *SoftPLC_Info.TXT*“. Paste it to the registration form. When you send the registration, within a couple of minutes you will receive a message with the activation key for SoftPLC. By opening the key will be imported to SoftPLC, which is then ready for using. SoftPLC can be executed from the window above from PLC1 bar (picture 42), where you can just click on the option „Run“ – by this you will make SoftPLC work. The general application for SoftPLC will appear (picture 43).

Picture 43



However, it is not necessary to start SoftPLC in that way. As you choose the option “Connect to SoftPLC” in the window “Connect setup (see page 6, picture 10)”, SoftPLC is launched automatically. You can see its activity on a bar in the indicative area. If the option is not active, SoftPLC product is not registered.

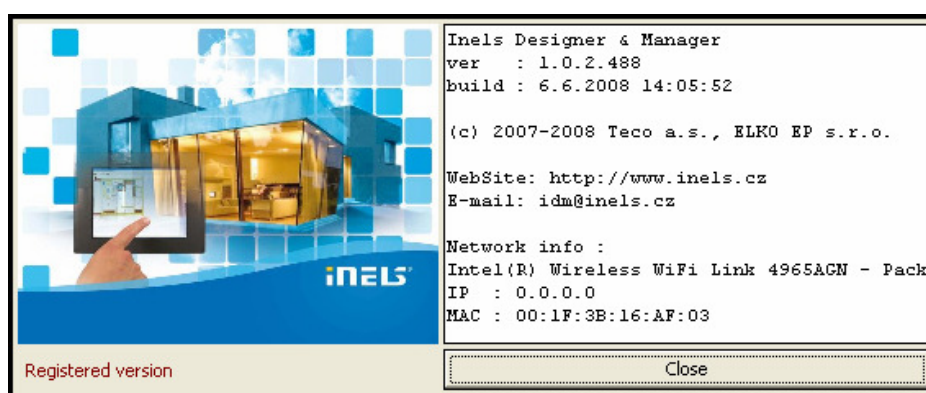
- “*Check up-to-date versions*” is an option for detection of new version of IDM. By activation the window for downloading a new version of IDM will be opened, if a new version is available. If it is not, the window in picture 44 will appear.

Picture 44



- The option “*About application*” (Pict. 45) opens the window with IDM version, copyright software IDM and information if the version is registered or unregistered.

Picture 45



4. Fast selection icons for “*Manager*” mode (see page 11, picture 17):



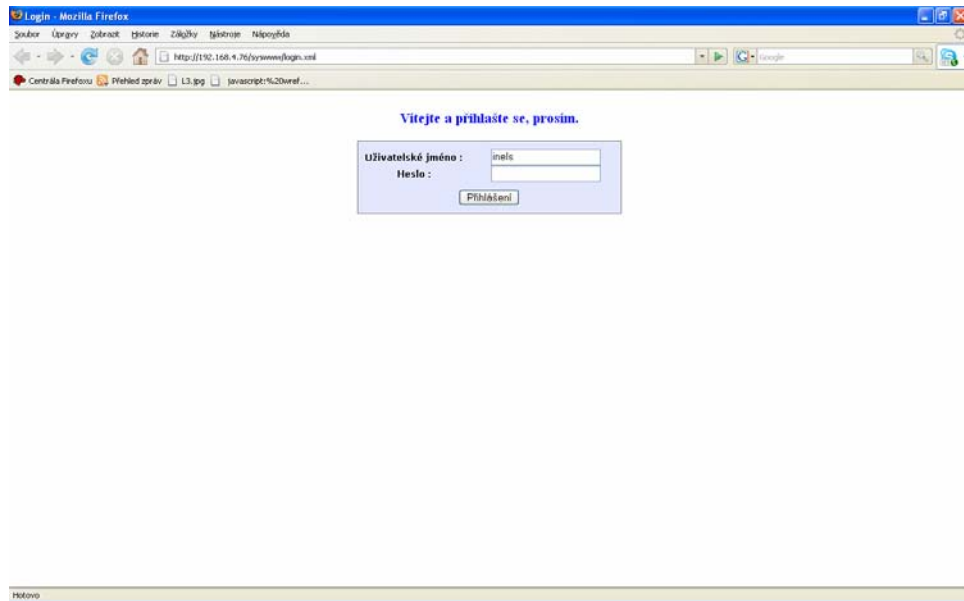
You are familiar with some icons from description of the item „*Project*” and item „*Setup*”. They include:

- Device manager,
- System setup,
- Project setup,
- Configuration,
- Action/statement manager,
- Time events setup,
- Time schedule setup.

Among those we have not mentioned yet there are as follows:

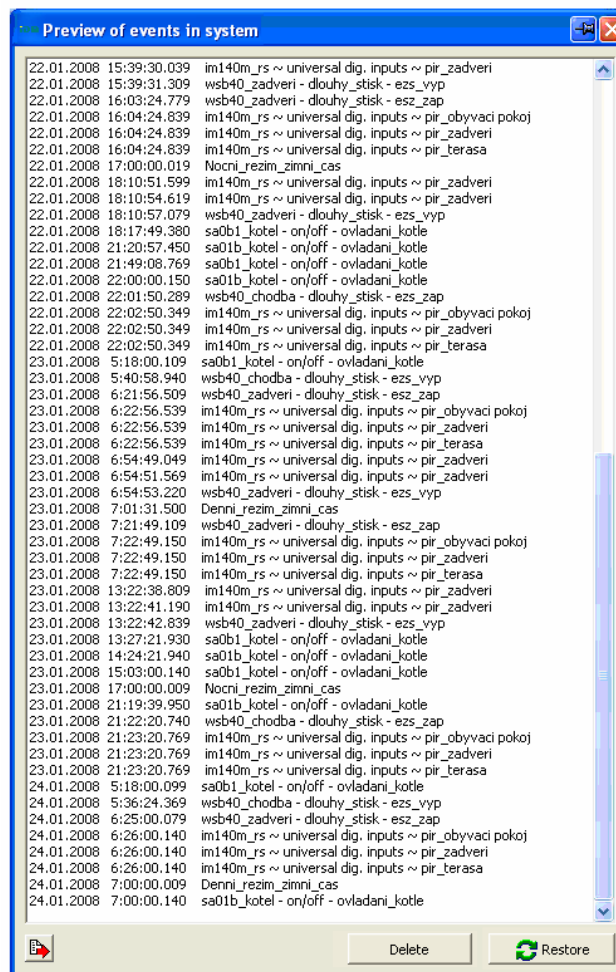
- “*Show as www, picture 46*” opens the window of an initial Internet browser with the log in window. Use a user password to log in (see page 19, picture 32).

Picture 46



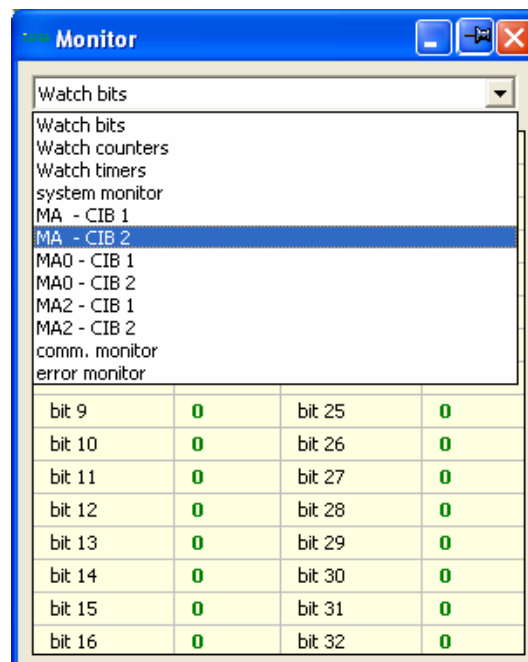
- “Save configuration to controller “ performs saving of action/statement, time events, time schedules, and CPU programming. Saving of the above mentioned terms is indicated by dialogue window, where a text is running - central unit programming, saving of a project to the central unit and an update of plans in CU.
- “View logged events, picture 47“ to preview recorded events. Events saved in DATABOX in CPU (512kB size) are shown here. The logged events can be defined in “Action/statement manager“ (see chapter 7 – Action/statement manager, page 60). Obviously, you can export the events to a text file “*txt“, using an icon on the left bottom. In CPU memory there is a space for 10000 events of the action/statement manager and 10000 events of the alarm system. When it is full, the logged events will be overwritten from the oldest log.

Picture 47



- „Monitor, picture 48“ enables browsing bit status, counters and timers.

Picture 48



Next, you can monitor system information here, though it is available only in a special mode. More details in chapter 12 - Error diagnostics and their remedy.

- “Setup and reading archive state of input or outputs, picture 49” chapter 10.

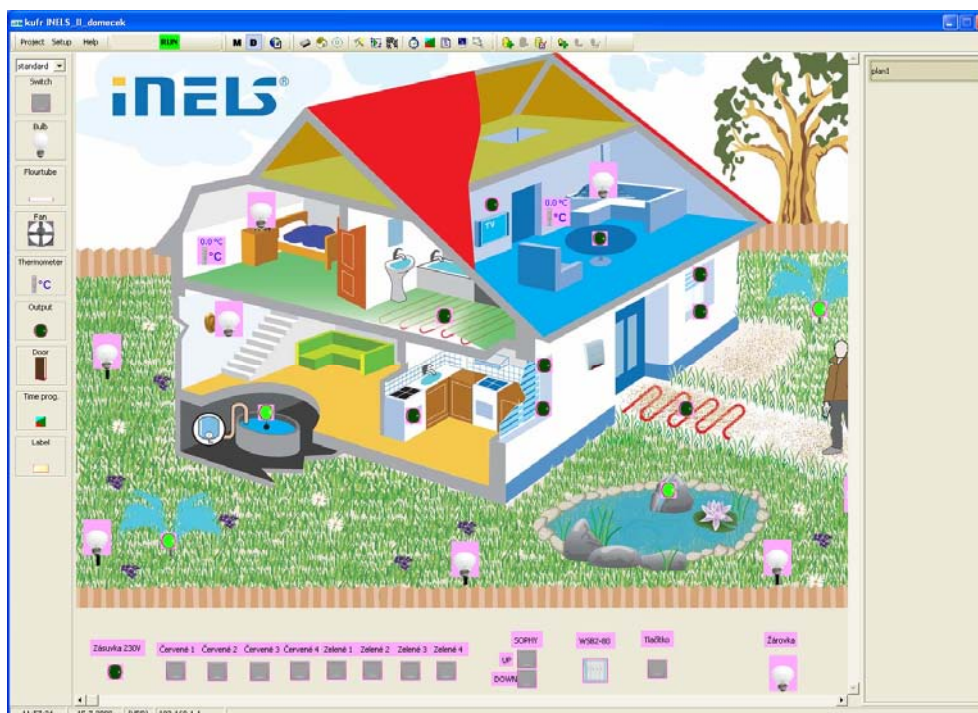
Picture 49

Date and time	Caption	Value
13.01.2008 16:43:03.019	teplomer_obyvaci_pokoj	22.010000
13.01.2008 16:43:03.019	teplomer_zadveri	16.090000
13.01.2008 16:43:03.019	teplomer_koupelna	20.879999
13.01.2008 16:43:03.019	teplomer_terasa	16.010000
13.01.2008 16:43:03.019	teplomer_tzb	11.340000
13.01.2008 16:43:03.019	teplomer_loznice	20.420000
13.01.2008 16:43:03.019	teplomer_detsky_pokoj	21.639999
13.01.2008 16:43:03.019	teplomer_satna	20.209999
13.01.2008 16:43:46.750	teplomer_schodiste	21.309999
13.01.2008 16:43:46.750	teplomer_jidelna	21.100000
13.01.2008 16:43:46.750	teplomer_obyvaci_pokoj	22.000000
13.01.2008 16:43:46.750	teplomer_zadveri	16.090000
13.01.2008 16:43:46.750	teplomer_koupelna	20.900000
13.01.2008 16:43:46.750	teplomer_terasa	16.010000
13.01.2008 16:43:46.750	teplomer_tzb	11.340000
13.01.2008 16:43:46.750	teplomer_loznice	20.420000
13.01.2008 16:43:46.750	teplomer_detsky_pokoj	21.639999
13.01.2008 16:43:46.750	teplomer_satna	20.209999
13.01.2008 16:44:56.400	teplomer_schodiste	21.309999
13.01.2008 16:44:56.400	teplomer_jidelna	21.100000
13.01.2008 16:44:56.400	teplomer_obyvaci_pokoj	21.990000
13.01.2008 16:44:56.400	teplomer_zadveri	16.090000
13.01.2008 16:44:56.400	teplomer_koupelna	20.889999
13.01.2008 16:44:56.400	teplomer_terasa	16.010000
13.01.2008 16:44:56.400	teplomer_tzb	-304.929993
13.01.2008 16:44:56.400	teplomer_loznice	20.420000
13.01.2008 16:44:56.400	teplomer_detsky_pokoj	21.639999
13.01.2008 16:44:56.400	teplomer_satna	20.180000

5. Fast selection icons for “Designer” mode (page 11 and page. 27, picture 18):

We have briefly mentioned the icons in Chapter 4. The designer mode enables to add plans and change their features – add and delete objects of plan, change their position and size. Merely the administrator can switch over to the Designer mode. When you enter the mode, the bar with possible objects to be put on the screen is available. The window looks as follows (Pict. 50):

Picture 50



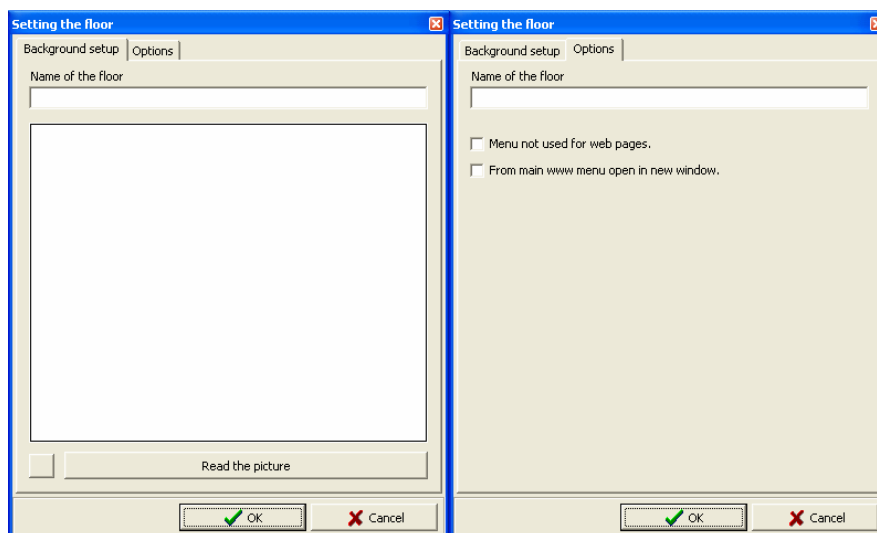
The main icons of fast selection (Pict. 18) are:

Picture 18



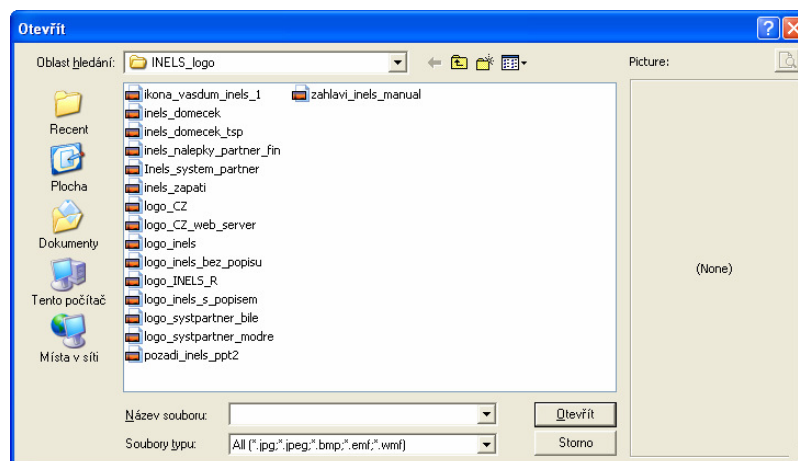
- “Add plan icon (1st from left), picture 19” is used to add a new or another graphic background (we do not mean only a floor, but also a part of a building, e.g. room, boiling room, etc.) Space for web can be 3 MB maximum, while size of plans is not limited. However, we recommend 128 kB. By clicking the new dialogue window “Background setup” (Pict. 51) will appear.

Picture 51



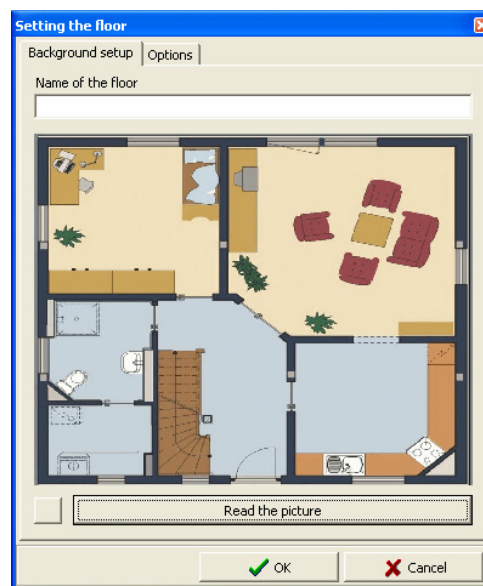
Type its name to “Name of the floor”. “Read the picture” offers a navigation window “Open” (Pict. 52) for a choice of a saved graphical background.

Picture 52



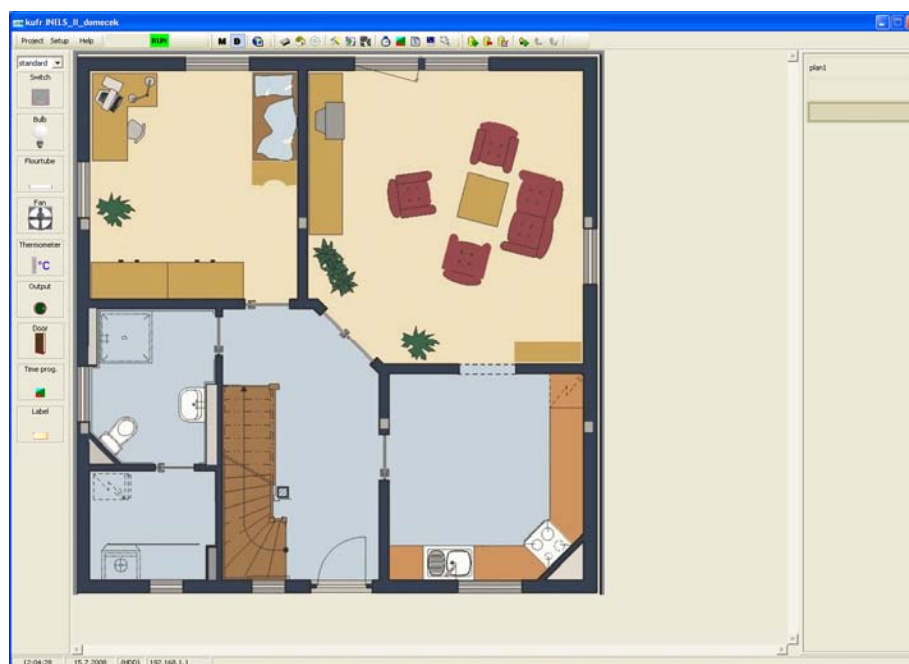
Choose required graphical background and insert it to the window “Setting the floor” by clicking “OK”, which pastes the chosen file to the window (picture 53). The option in picture 51 is used for setting up an option for www site – “Menu not used for web pages” and „From main WWW menu open in new window”.

Picture 53



Click “OK” to insert a graphical background to the main window of the Designer (Pict. 54).

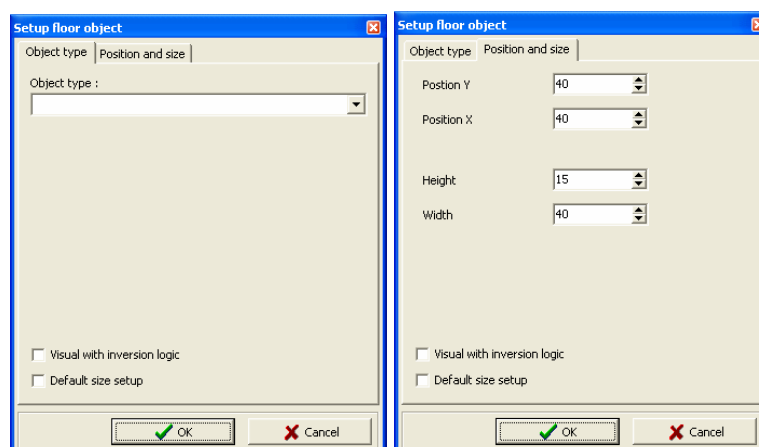
Picture 54



- “Delete plan icon (2nd from the left hand side), picture 18” is used to delete selected graphic background, more precisely plans being shown in the right hand part of the main window of the Designer mode.
- “Plan setup” (3rd from left), picture 18” serves for editing a selected plan. Plans are displayed in the right part of the main window. By clicking the icon a window you are familiar with “Setup of floor” will appear (picture 51), where you can change graphic background of the plan and its name.
- “Add object icon (4th from left), picture 18”, adds objects (their offer corresponds with the bar in the left part of the main window Designer mode, picture 51). You can select an option “STD - standard” (switch, bulb, fluor tube, fan, thermometer, output, door - door contact, time schedule, and label - free), “EXT - extern” (smoke detector, keyboard, and PIR sensor) and “SIM - simulation” (wsb

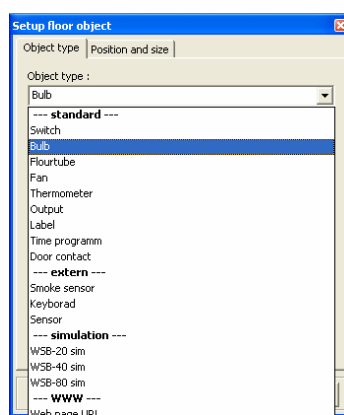
buttons). By clicking you will evoke the window “*Object setup*” (picture 55). We can do the same with the key “*Ins (Insert)*”. You can also insert objects directly from the bar by pulling with a mouse to the graphical background. Then the dialogue window „*Select of control controlled device*” (see page 30, picture 58) will appear.

Picture 55



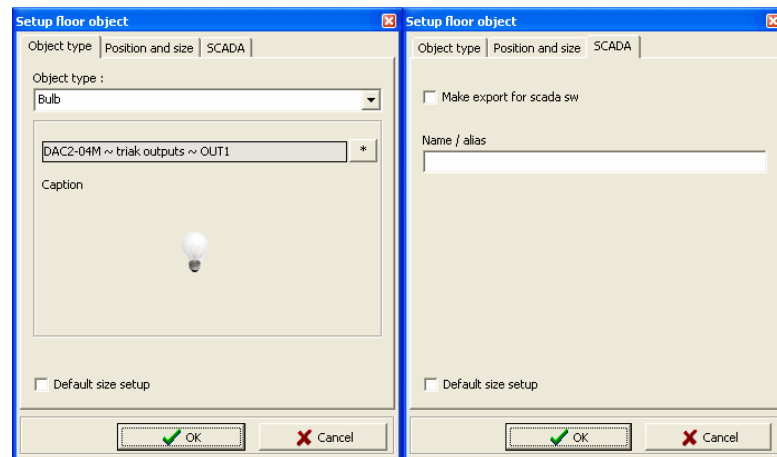
- “*Position and size*” changes a position of the object within axis X and Y and also change size of the object by entering numeric values. “*Default size setup*” returns the object to the initial icon size.
- “*Visual with inversion logic*” can be found only with sensor, as the sensor output is NC. “*Object type*” represents the offer of objects above mentioned, which is listed if you open the item. (page 30, Pict. 56).

Picture 56



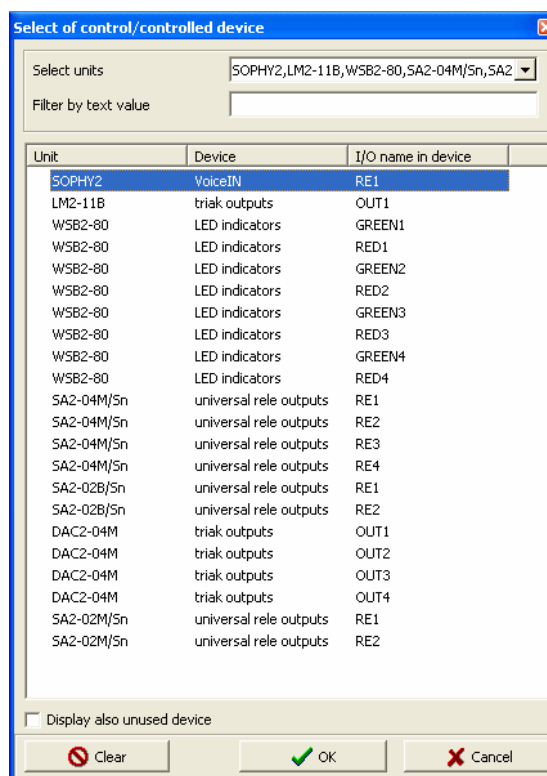
If you insert e.g. a bulb, graphic picture of the object will appear instead of “*edCaption*” object (picture 57). *Make export for SCADA SW* serves for export of i/o and creating visualization by means of scada/hmi software Reliance 4 (see separate chapter 13, page 110).

Picture 57



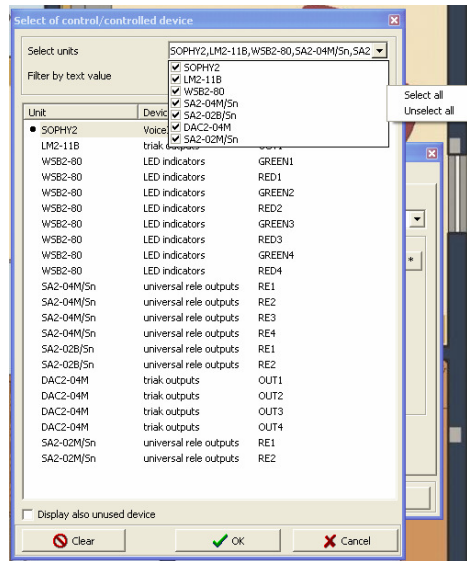
If you insert an undefined object to a plan, it will be displayed with the red edging, which means that the object is not matched with any unit (its input/output for an action) connected to CIB1 or CIB2 bar. To match click a “star” sign under an object type. The window “*Select of control / controlled device*” (picture 58) will be shown, where you will appoint an input/output of e selected unit to an object.

Picture 58



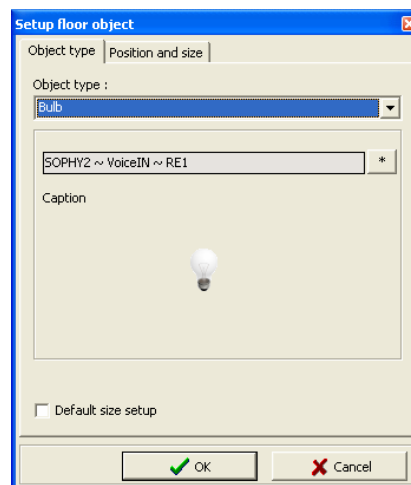
To avoid complicated browsing a list of i/o, you can filter by “*Select units*” or “*Filter by text value*”. You can evoke “*Select all*” and “*Cancel selection*” by right button of the mouse (Pict. 59).

Picture 59



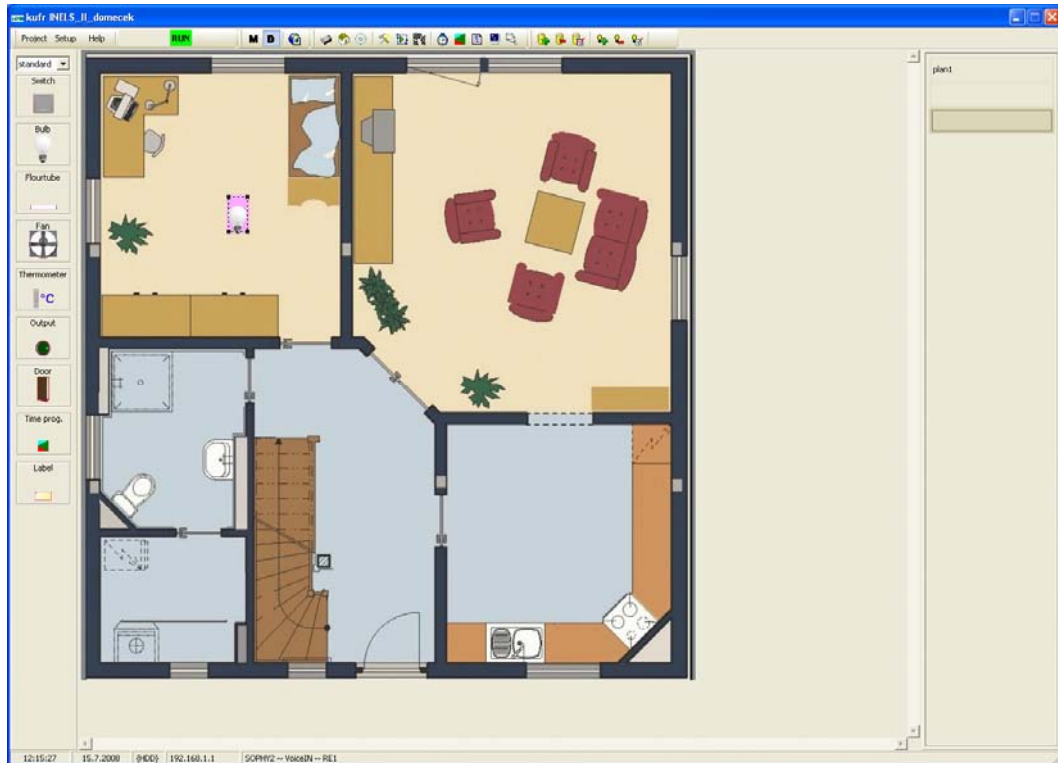
Select a required unit and its input/output and confirm by clicking “OK”. Then you are back in the window “Object setup” (Pict. 60).

Picture 60



Confirming by “OK” you will insert the object to the plan. You can see that red edging has disappeared, as the unit was matched with the object. If you point at the unit with the mouse indicator, a description of the Unit/device manager and description of output will appear (picture 61). Double click will open again the window “Object setup” (Pict. 60) and you can edit the object.

Picture 61

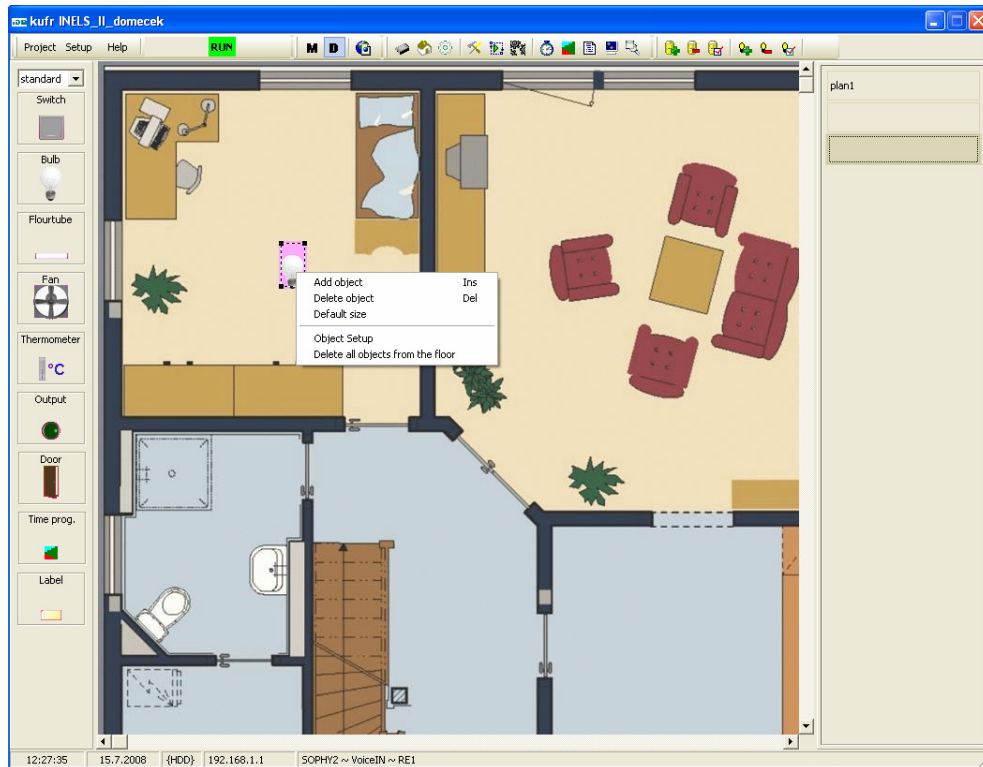


- *"Delete object" icon (5th from right), picture 18* deletes a selected object from the floor. You can also use the key "Del".
- *"Object setup" icon (6th from the left), picture 18*, used for editing an inserted object, will open the window *"Object setup"* (Pict. 60) and you can do so.

Fast selection icons (Add object, Delete object, Object setup) will also appear if you click the right button of the mouse. Also the following items will be offered (Pict. 62):

- *"Default size"* – in case of size change it will setup the default size of an object,
- *"Delete all objects from the floor"* – all objects will be deleted.

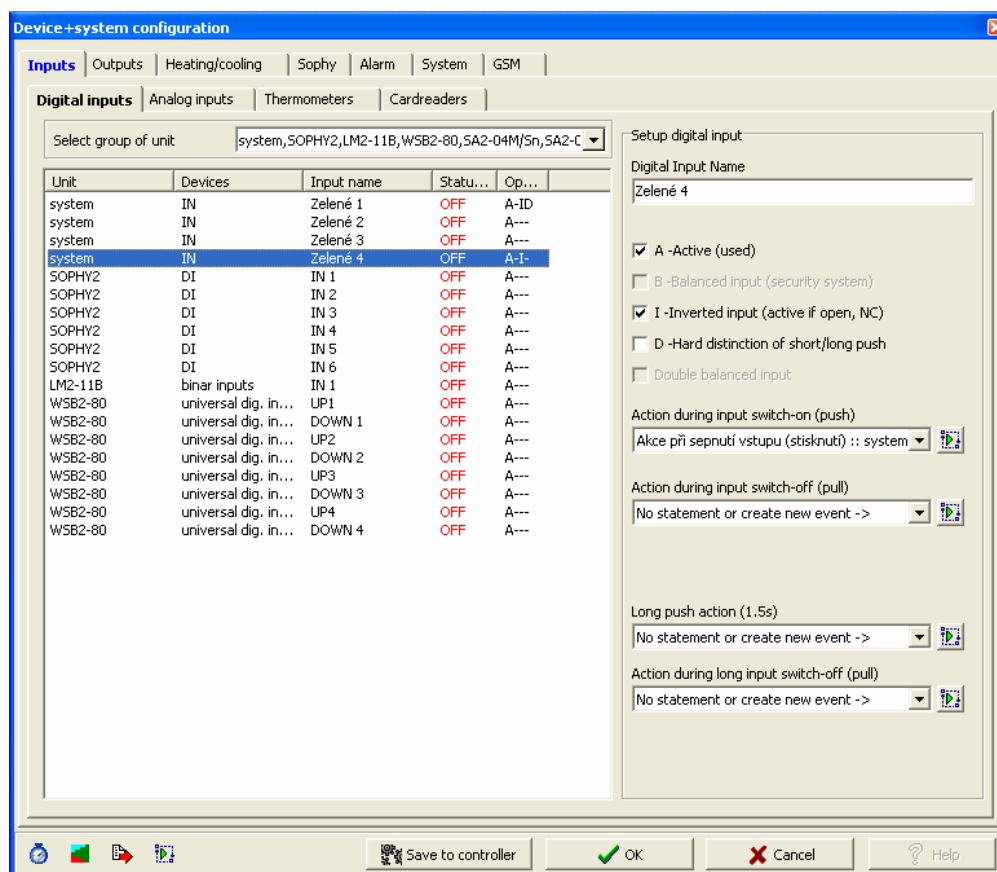
Picture 62



6. System configuration

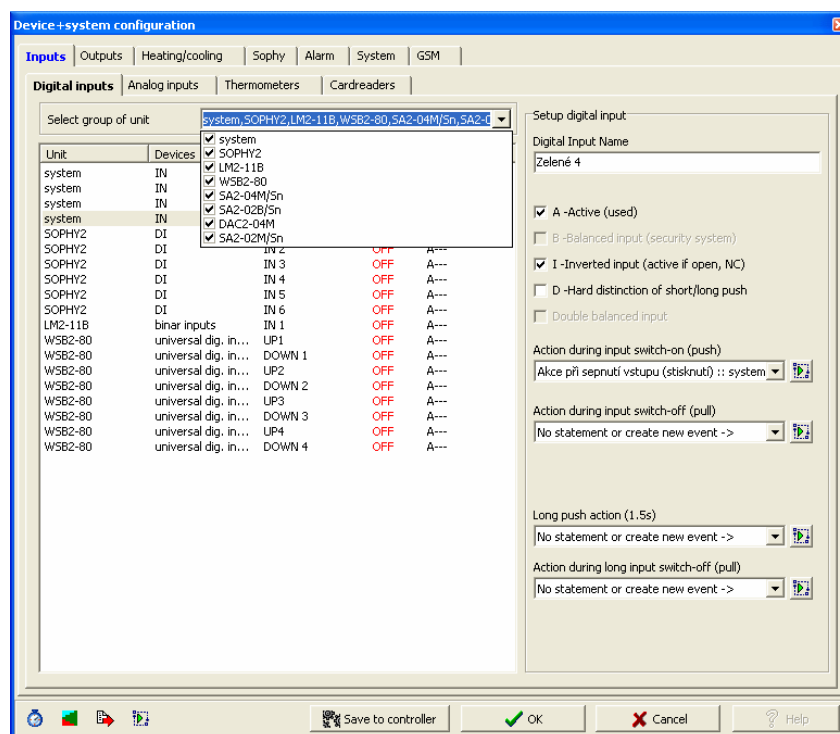
“Configuration” window (Pict. 63) sets up parameters of inputs/outputs, heating/cooling, alarm system, GSM modem, keyboard, and multifunction unit Sophy. The items are divided to basic sections by sheets.

Picture 63



The sections/sheets will be described in details in individual sub-chapters including their links to “Action/statement manager” (see page 18, picture 31) – in picture 63 the last icon on the left bottom, “Time events manager” (see page 19, picture 33) – in Pict. 63 the first icon on the left bottom, and “Time/week schedules manager” (Pict. 63) – in Pict. 63 the 2nd icon on the left bottom. It is necessary to highlight the following information about the “Configuration” window. The red exclamation mark (!) in front of an item means a change of saved setting. If you do not save changes when closing the window, the changes will not be done. The item “Save to CPU” serves for saving of programmed actions/statements, time events, and time schedules and CPU is programmed. Saving of the above described items is indicated by a window with a running text – the central unit programming, project saving, or plan update in CU. You can also find the option on the fast selection icon bar (see page 24, picture 17). Confirm by “OK” or “Cancel”. The option “Select group of units” is a roll-off element if you have lots of inputs/outputs (i/o) – by the element you can select one unit or several units that will be displayed in (Pict. 64). By the right mouse button you will display the familiar options – “Select all” and “Cancel all”. If you need to set up a feature for more inputs/outputs, press together “Ctrl” or “Shift” and select more items with a mouse – the change will be carried out on more items. You cannot change name of more items at the same time.

Picture 64



6.1. "Section (sheet) Inputs (picture 63)".

The sheet contains a list of all input devices read in the system. They are divided into three subgroups:

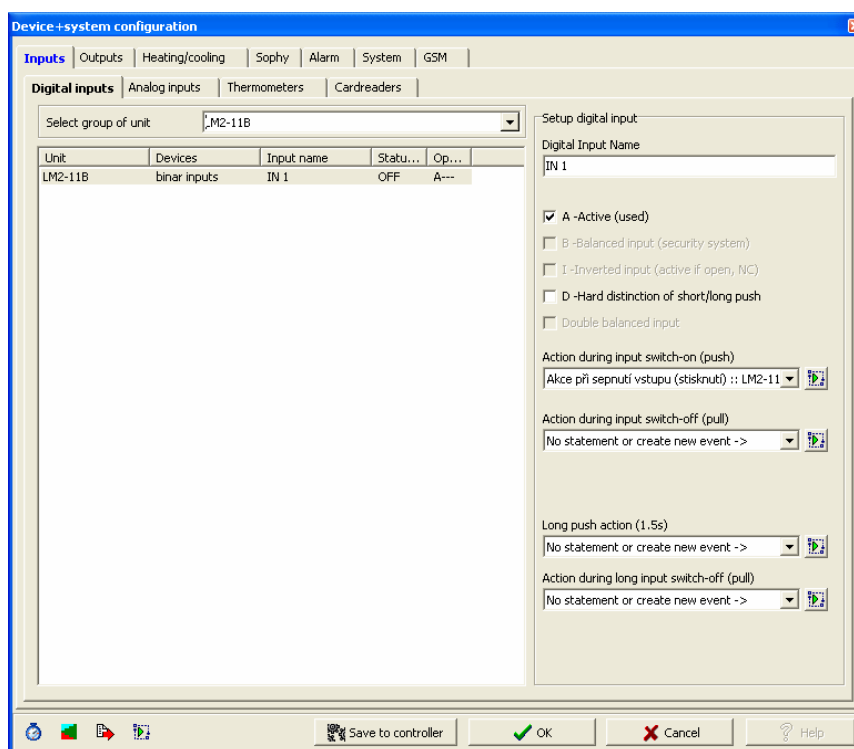
1. "Digital inputs, i.e. binary inputs" (picture 63) "are all binary inputs read in the system, if they are allowed in the window "Unit/device manager" (see page 16, Pict. 28, option Use device)". Among those devices there are bus buttons (WSB, SOPHY, SOPHY L), input units (IM), and 4 universal inputs that CPU (system) manages and also SOPHY (SOPHY L) unit. The column "Unit" stands for a name of unit defined in "Unit/device manager" (see page 15, Pict. 26). The column "Device" contains a name of a device, whereas a name cannot be edited. The column "Input" is description of a particular input, which can be edited in the window "Name of digital input". "Input status" means an actual status of a particular input „ON/OFF“. The last column "Selection" means input setup - generally, for binary inputs depending on an input type it is possible to set, if the input is "A – Active used", "B – Balanced input (for security systems)", "I – inverted input (active if open, NC)", "D-Hard distinction of short/long push" or "Double balanced input" (for security systems). If the input is not used (active), appropriate events are not evoked. You can define an action for each input:
 - a. "Action on input switch-on (press)", i.e. response to a short press,
 - b. "Action on input switch-off (release)", i.e. response to a release of a short press,
 - c. "Long push action (more than 1.5s)", i.e. response to a long press, whereas there are 2 possibilities:
 - if you do not mark the option "D-distinction of short/long push", short press will cause statement defined for "Action on input switch-on" (if defined) and then if you hold long press, also for an action defined for "Long push action (minimum 1.5 s)".

- If you mark the option “*D-distinction of short/long push*”, short press will cause only an action defined for “*Action on input switch-on*” or if you hold, only action defined “*Long push action (minimum 1.5 s)*”⁷.
- d. “*Action on long input switch on*”, i.e. response to the release of a long press. Previous option is also applicable.

If you define one of the options listed above by an icon “*Action/statement manager*”⁸, the window “*Action/statement manager*” (see page 18, Pict. 31) will appear. The window “*Action/statement manager*” is a subject of chapter 7 – Action/statement manager.

2. “*Analogue inputs (Pict. 65)*” represent all analogue inputs uploaded in the system, if they are allowed in the “*Unit/device manager*” (option *Use device*)“, i.e. only rotary switch adjusting temperature on thermo-regulator IART2-1 and IDRT2-1. Actually these inputs do not have any options. The column “*Unit*” stands for a name of unit that is defined in “*Unit/device manager*”. The column “*Device*” contains a name of device, whereas the name cannot be edited. The column “*Name of IO*” is a description of a particular input, which can be edited in “*Name*” window. “*Status*” means an actual status of a particular input in °C.

Picture 65

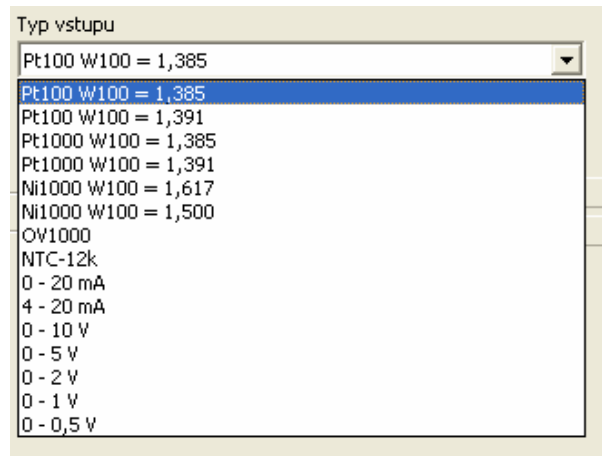


On the unit adc2-40m we can define the following “*Input types*” – Picture 66 (but those are not selectable at iart2-01 and idrt2-01).

⁷ Response time of short press can be up to 1.5 sec.



Picture 66.



„*Input filtration*“ means time in which input value is updated. If you need to filter the input analogue value, update the filtration mode and set the time constant. Set values of an appropriate channel go through the filter of the 1st rate. The filter is set by the formula:

$$y_t = \frac{y_{t-1} \cdot \tau + x}{\tau + 1}$$

x --> converted value of the analogue input

y_t --> output

y_{t-1} --> last output

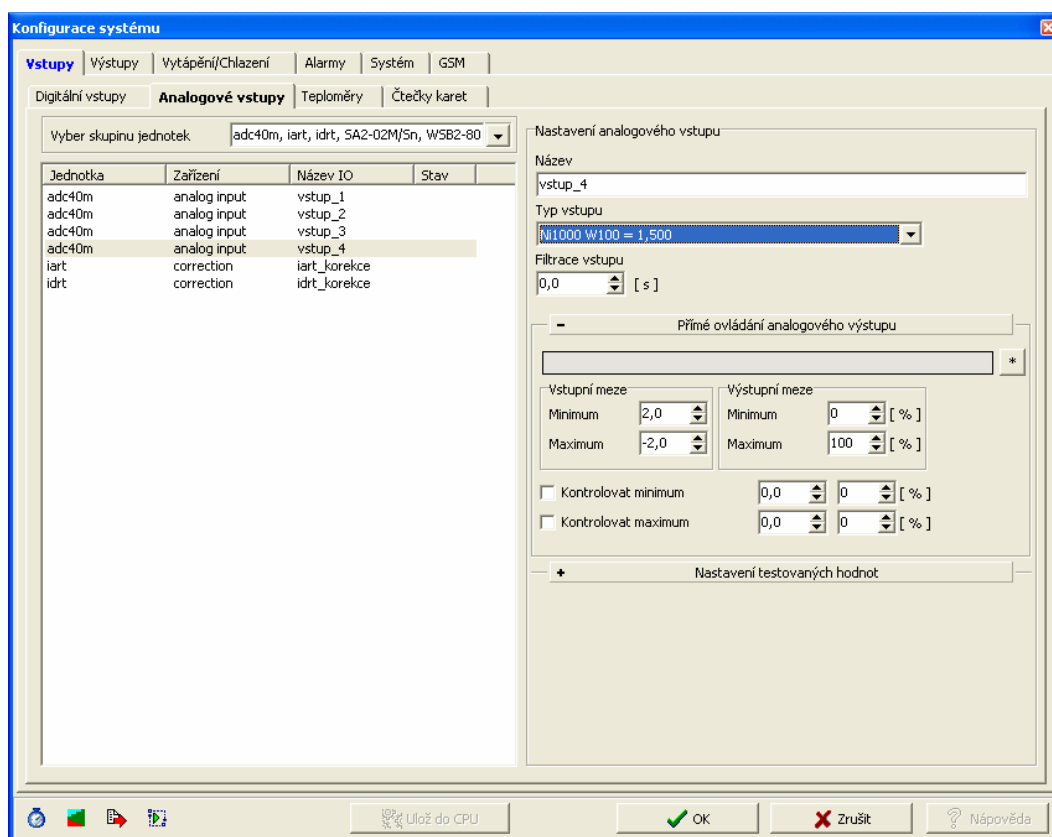
τ --> time constant of the 1st rate filter

Value of time constant is set in the range 0,1 ÷ 25,0 s.

We have two options how to operate the analogue input. The first one is „*Direct control of analogue output* – *Picture 67*, which represents e.g. control of dimmable output via light sensor.

If direct control is used, it is not possible to control output via events, because the output is controlled directly.

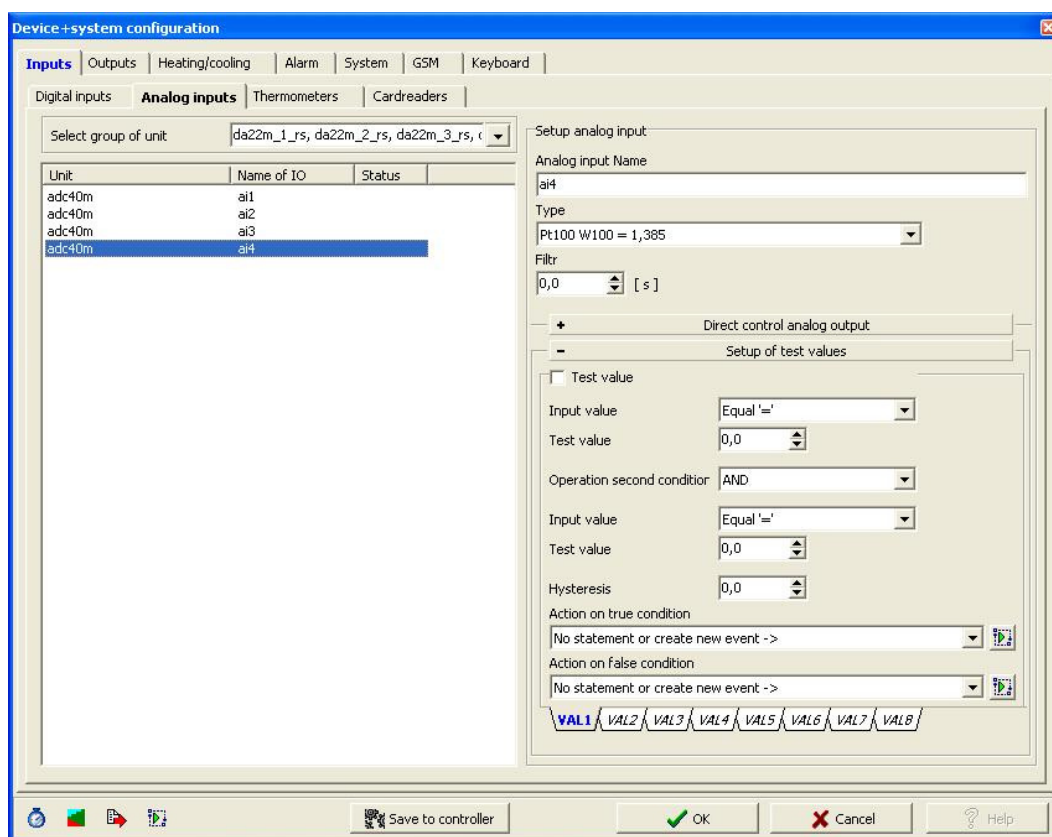
Picture 67



By press the icon „Select analog output“ which you want to control – it wil open the window „Select of control / controlled device“. Next, you can define „Input limits“ and „Output limits“, where it is possible to tick an option „Check minimum“ and „Check maximum“. Those options serve for statuses, when minimum and maximum is exceeded --> defined value is set, while any value can be on the input.

The other option is using the analogue input „Setup of test values – Picture 68“.

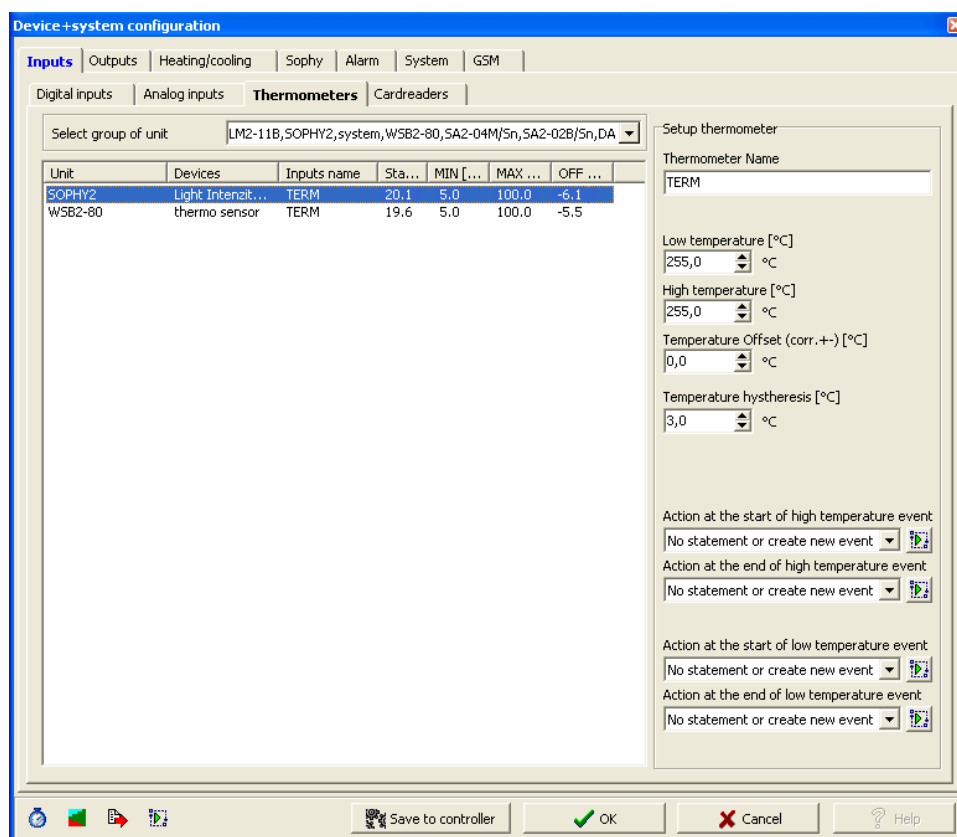
Picture 68



3. "Thermometer" (Pict. 69) contains all temperature sensors read in the system, if they are allowed in the "Unit/device manager" (see page 16, Pict. 28, option Use device. These are temperature sensors integrated in bus buttons (WSB), in multifunction units (SOPHY, SOPHY L) and external temperature sensor connected to units as an installation box version. The column "Unit" stands for a name of a unit that is defined in "Unit/device manager" (see page 15, Picture 26). The column "Device" contains the name of a device, whereas the name cannot be edited. The column "Input" is a description of a particular input, which can be edited in the window "Name of thermometer". "Thermometer status" is a current temperature measured by the temperature sensor. The column „MIN (°C)“ is a value, at which "Action at the start of high temperature event" is performed and "Action at the end of high temperature event". The columns „MAX (°C)“ is a value at which "Action at the start of high temperature event" and "Action at the end of high temperature event" is performed. The temperature value is set up in the item "Low temperature" and the item "High temperature". The column „OFFSET“ serves for calibration of measured (monitored) temperature, i.e. to eliminate influence of temperature emission of a unit placed in a room. The value can be setup in the item "Temperature offset (correction +-)". In the item "Temperature hysteresis" you can setup a temperature hysteresis, i.e. in what temperature range will the action be done.

If you define some of the above described action by the icon "Action/statement manager", the window "Action/statement manager" will be displayed. The window "Action/statement manager" is dealt with in an individual Chapter 7 – Action/statement manager.

Picture 69

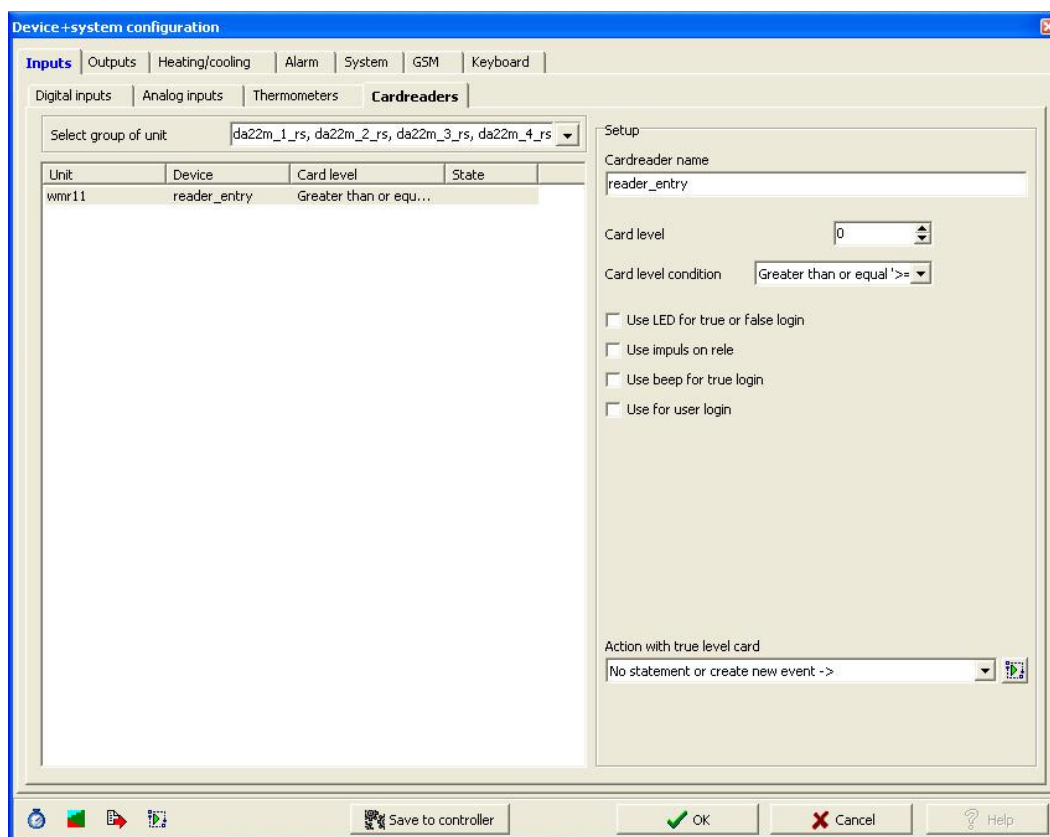


4. “Card readers” (Pict. 70) are all external media readers in the system, if they are allowed in the window “Unit/device manager – option “Select group of units”. The column “Unit” stands for a unit name defined in “Unit/device manager”. The column “Device” contains device name whereas the name can be edited in the item “Cardreader name”.

“Allowance level” views test condition defined in the item “Card level” here you can choose is higher or equal ($\geq$), is higher ($>$), or is equal ($=$). „Status“ displays card number when a card is placed to the reader. „Basic level of allowance“ is bound with allowance level in the sheet „Alarm/users“; range of the level is 0-255. It serves to assign allowance level tested by logic operands in the item „Card level condition“.

Next, the option „Use LED for true or false log in“ activates LED diodes on the reader indicating reading the card. „Use impulse on relay“ is an option for impulse for digital output that the reader contains. „Use beep for true login“ is an option when the reader gives an acoustic signal when a card is placed. „Use user to log in“ is an option when placing a card to the reader logs in to the security system. At last you can define „Action with true level card“. If it is defined by the icon „Action/device manager“, when a card is placed the window „Action/device manager“ will open (see Chapter 7 – „Unit/device manager“).

Picture 70



6.2. "Section (sheet) Outputs (Pict. 71)".

The sheet contains list of all output devices read in the system. Those are divided into two basic subgroups:

1. "Digital outputs" (Pict. 71)" are all digital (binary) output uploaded in the system, if they are allowed in the "Unit/device manager" (option Use device).

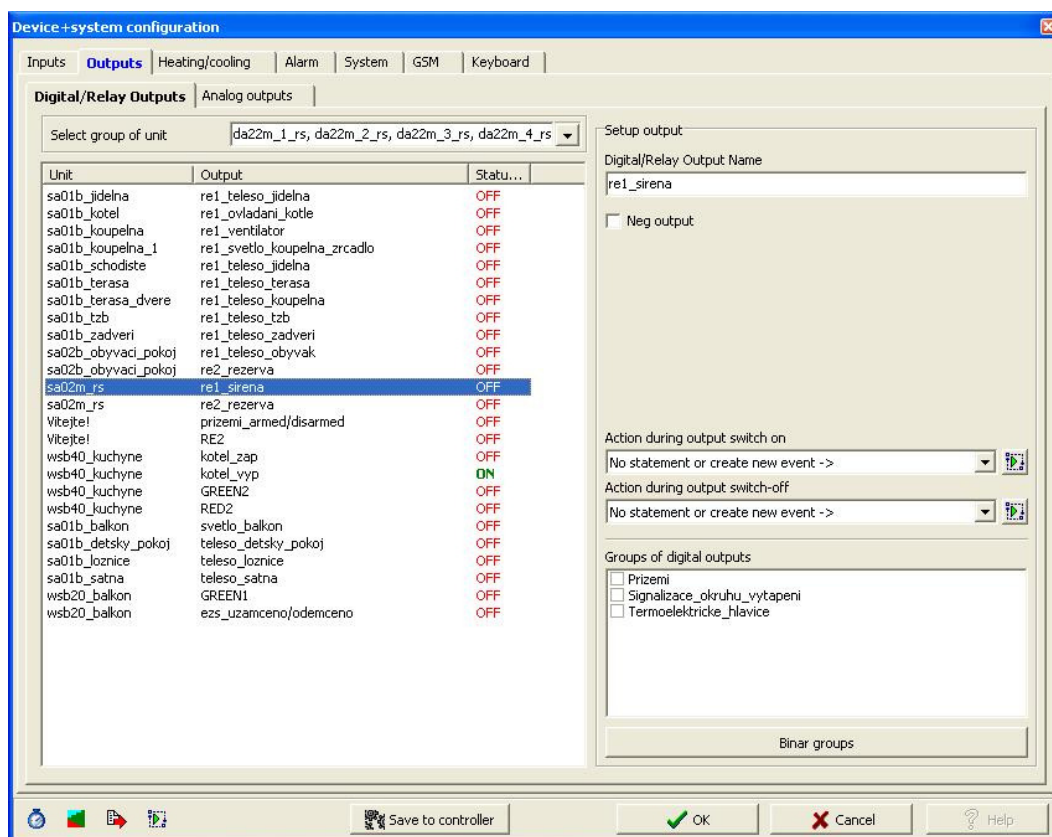
The devices correspond with all outputs of switching actors (SA units and also LED indicators of bus buttons (WSB). The column "Unit " represents the name of the unit defined in the "Device/unit manager". The column "Device" stands for the name of a device, whereas the name cannot be edited. The column "Output " is a description of a particular output, which can be edited in the window "Digital/Relay output name". "Status" means an actual status of a particular output "ON/OFF". If you need the output in an inverted performance, you can click the option "Neg output".⁹ Each output is allowed to have an action defined:

- a. "Action during output switch on",
- b. "Action during output switch off".

If you define some of the above described action by the icon "Action/statement manager", the window "Action/statement manager" will be displayed, (see page 18, Pict. 31). The window "Action/statement manager" is dealt with in an individual chapter 7 – Action/statement manager.

⁹ Primary it is intended for thermo, type NO, i.e. opened without voltage.

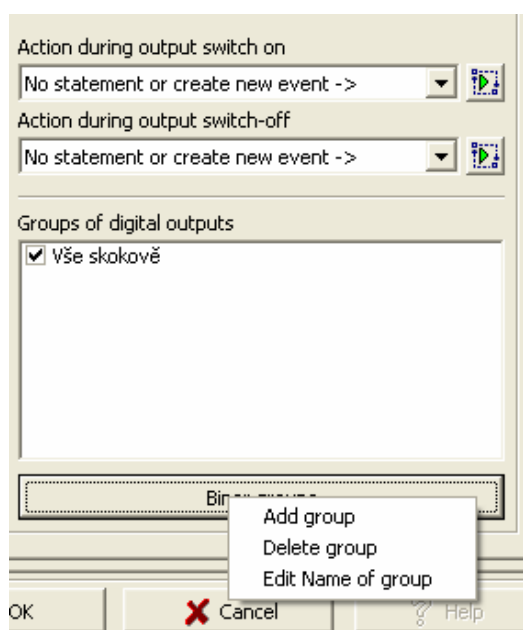
Picture 71



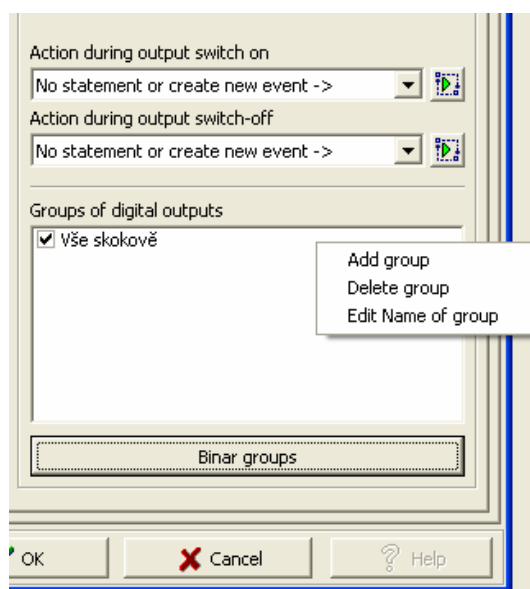
Binary outputs are also divided into groups – the window “Groups of digital outputs”. Maximum number of groups is 32, number of output in a group is unlimited. You can create binary groups in two ways:

- Click the option “Binary group”, which will open an offer *Add group*, *Delete group* and *Edit Name of group* (Pict. 72).
- Press the right mouse button in the window “Digital output groups” and the offer above will be opened (Pict. 73). Function of the options is evident.

Picture 72



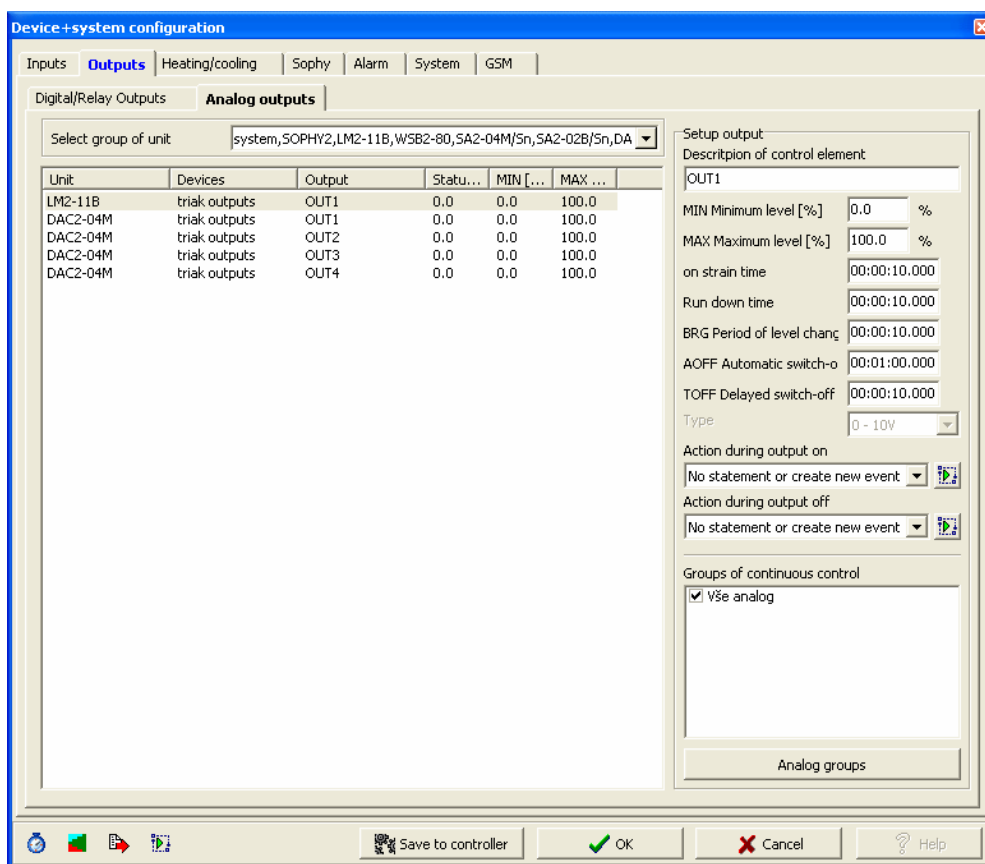
Picture 73



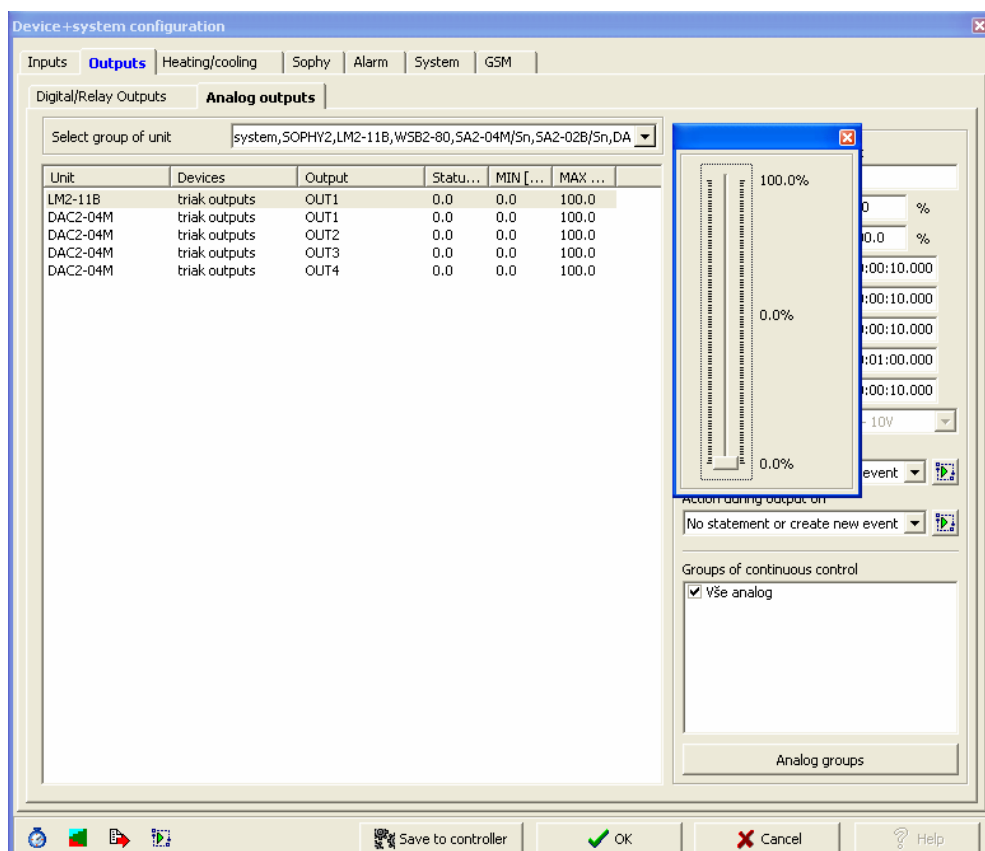
2. *Analog outputs (Pict. 74)* contains all analog outputs uploaded in the system, if they are allowed in the window *"Unit/device manager (see page 16, Pict. 28, option Use device)"*. These devices are outputs of dimming (units LM, DA, LBC) and also outputs of converters d/a (units DAC). The column *"Unit"* means the name of a unit defined in *"Unit/device manager"* (see page 15, Pict. 26). The column *"Device"* means the name of a device, which cannot be edited. The column *"Output"* is a description of a particular output, which can be edited in the window *"Description of control element"*. *"Light status"* means a state of a particular output, which can take value 0 - 100%. Double-click of left mouse button opens a roller of a gradual light control (Pict. 75). The columns *"MIN%"* and *"MAX%"* is a status, i.e. minimum and maximum light level defined by the option *"Minimum level"* and *"Maximum level"*¹⁰. On the controlling element output (dimming actor) you can define the following options:

¹⁰ You can define any value within range 0 - 100%. Minimum value is not required 0% and maximum 100%.

Picture 74



Picture 75

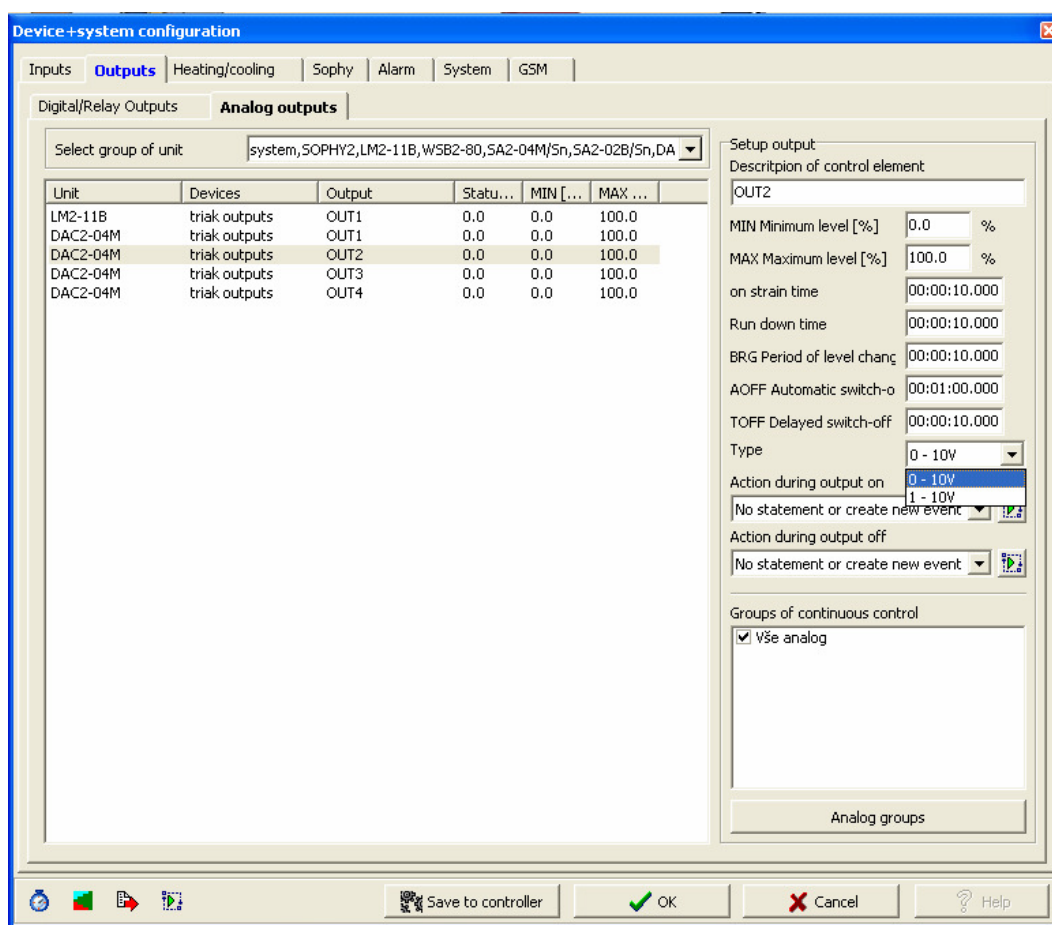


- a. "Delay ON" means on strain time from 0 to 100% when a light is switched on. Time basis is from 0.01 sec - 24 hour.

- b. *Delay OFF* is a run down time when from 0 to 100% a light is switched off. Time basis is 0.01sec – 24 hour.
- c. *Period of level change* is time during which light intensity is changed while holding the button. The value is always 0% to 100%. E.g. if it is 10 sec, the change from 10% to 30% lasts 2 sec. Time base is from 0.01 sec to 24 hour.
- d. *Automatic switch off* is a function of automatic switch off after defined time. Time base is from 0.01 sec to 24 hour
- e. *Delayed switch OFF* is a function when after the input activation a light switches off when defined time elapses. Time base is from 0.01 sec to 24 hour.

If dimming actors LBC or converters DAC are included in the system, you can select between the outputs 0 - 10V or 1 - 10V, the option *Type* (Pict. 76).

Picture 76



Each output is allowed to have an action defined:

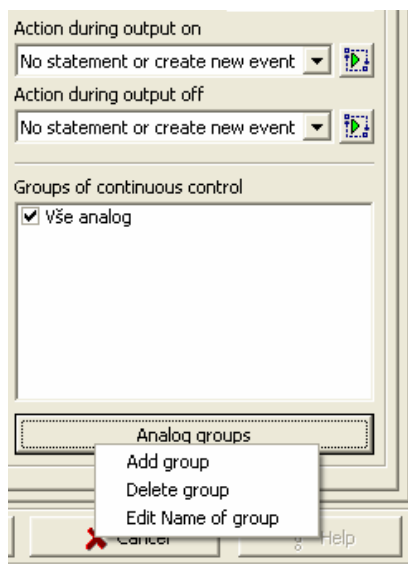
- c. *Action during output switch on*,
- d. *Action during output switch off*.

If you define some of the above described action by the icon *Action/statement manager*, the window *Action/statement manager* will be displayed. The window *Action/statement manager* is dealt with in an individual chapter 7 – Action/statement manager.

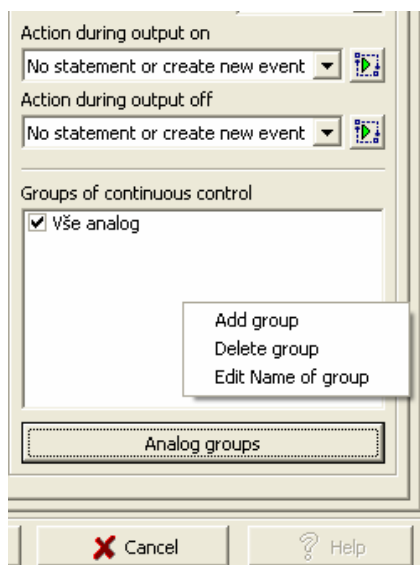
Analog outputs can also be grouped – the window *Group of continuous control*. Maximum number of groups is 32, number of output in a group is unlimited. Group of continuous control can be created in two ways as described above (for digital output group):

- a. click on the option “Analog groups”, which will open the offer “Add group”, “Delete group” and “Edit group name” (Pict. 77).
- b. Press the right mouse button in the window “Analog groups” and the offer above will be opened (Pict. 78). Function of the options is evident.

Picture 77



Picture 78



6.3. “Section (sheet)) Heating/Cooling (Pict. 79)“.

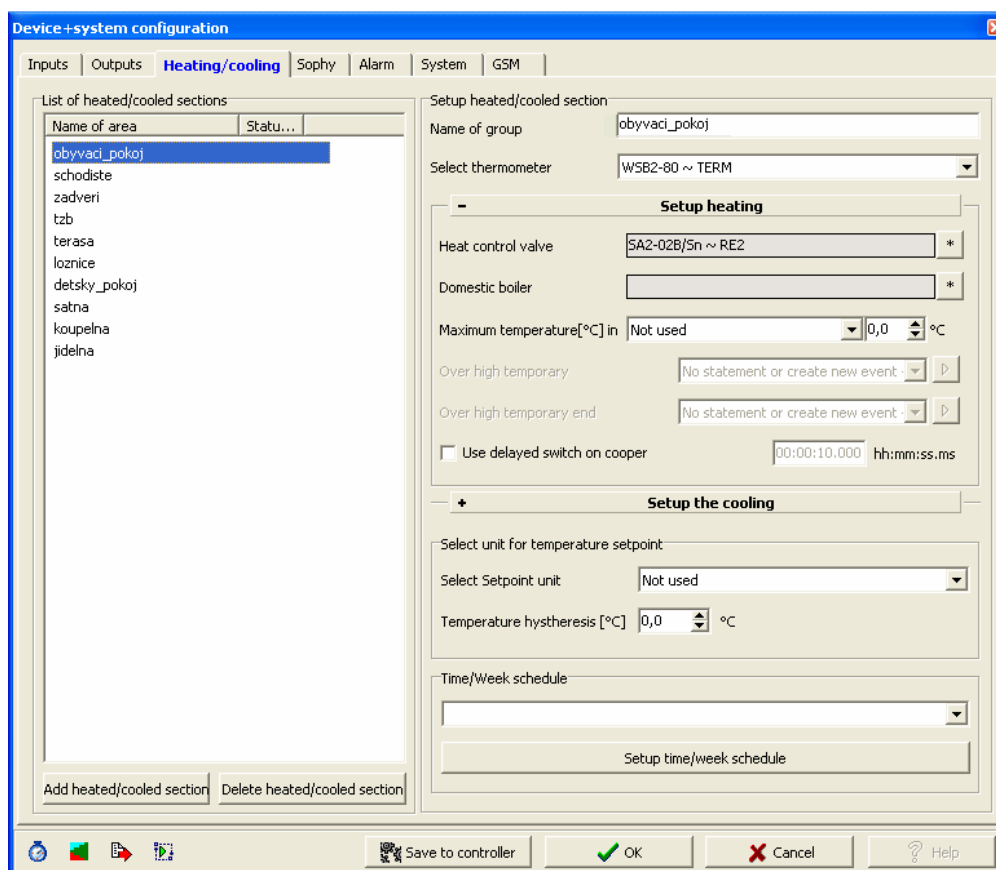
The sheet serves for full setup of heating and cooling circuits, including their links to Time/week schedule. You can add heated/cooled sections in the window “List of heated/cooled sections” by the option “Add heated/cooled section”, delete by “Delete heated/cooled section”. Altogether you can define 64 sections of heating/cooling. It is possible to edit a name in the column “Name of area” by the option “Name of group”. The column *Status of area* displays actual status (operation mode) of an area from “Time/week schedule manager” – operation modes are as follows:

- Comfort,
- Normal,

- Depression,
- Minimum,
- And combination of impressed modes, presentation mode, changeover of modes, changeover of mode and time schedule application.

Detailed description is in chapter 8 – Time/week schedule manager.

Picture 79



In “*Thermometer*” window selects a thermometer from the system which will monitor temperature in a particular room. Then in “*Setup heating*” menu define by clicking on the icon “*” (will be opened the window “*Select of control/controlled device*”):

- “*Heat control valve*”, is a switching actor controlling thermo-valve 0/1 230 V or 24 V on the heating unit or floor heating distributor.
- “*Domestic boiler*”, is a switching actor, from the center controlling heating source following requirements from different circuits¹¹. The window is closely related with the window “*Used delayed switch on cooper (global option)*”, which causes delayed control of the switching actor controlling the boiler in order to avoid heating to closed circuits¹².
- “*Maximum temperature*” is a function monitoring temperature of floor or medium in a circuit when floor heating is used. The function works on the basis of inner logic, i.e. you set up only temperature. Moreover, you can link the function to actions performed at “*Over high temp.*” and “*Over high temp. end*”. Define the actions by the icon “*Action/statement manager*” that will open the window “*Action/statement manager*”. The window “*Action/statement manager*” is dealt with in Chapter 7 – Action/statement manager.

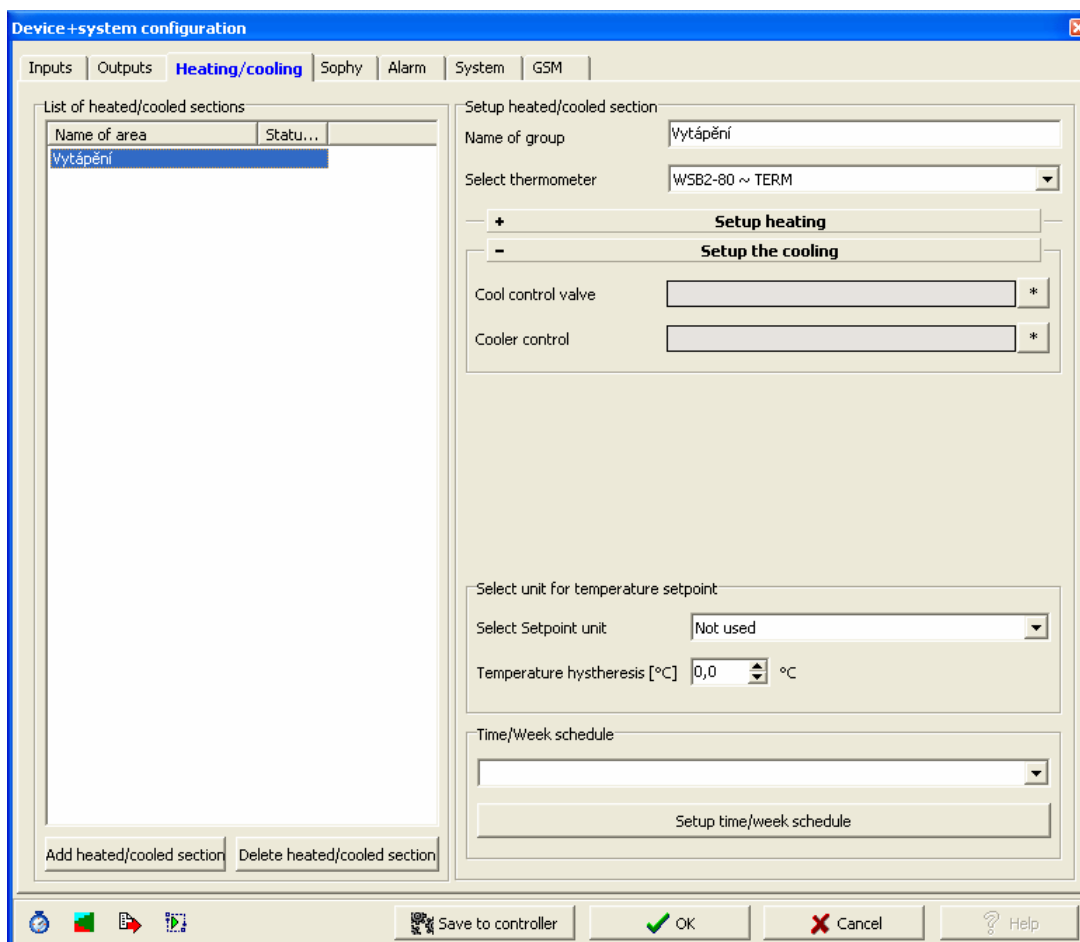
¹¹ Simply said, if there is no demand on heating from any circuit, the boiler does not heat and vice versa.

¹² We recommend to set time till the valve is switched over from closed to opened, approx. 3 min.

Rolling menu to set up cooling is similar- “*Setup cooling*” (Pict. 76)“. Again, by the icon “*” (clicking on the icon will open the window “*Select of control/controlled device*” define:

- “*Cool control valve*” is a switching actor controlling cooling unit.
- “*Cooler control*” is a switching actor controlling directly from the centre cooling source according to cooling circuits requirements.

Picture 80



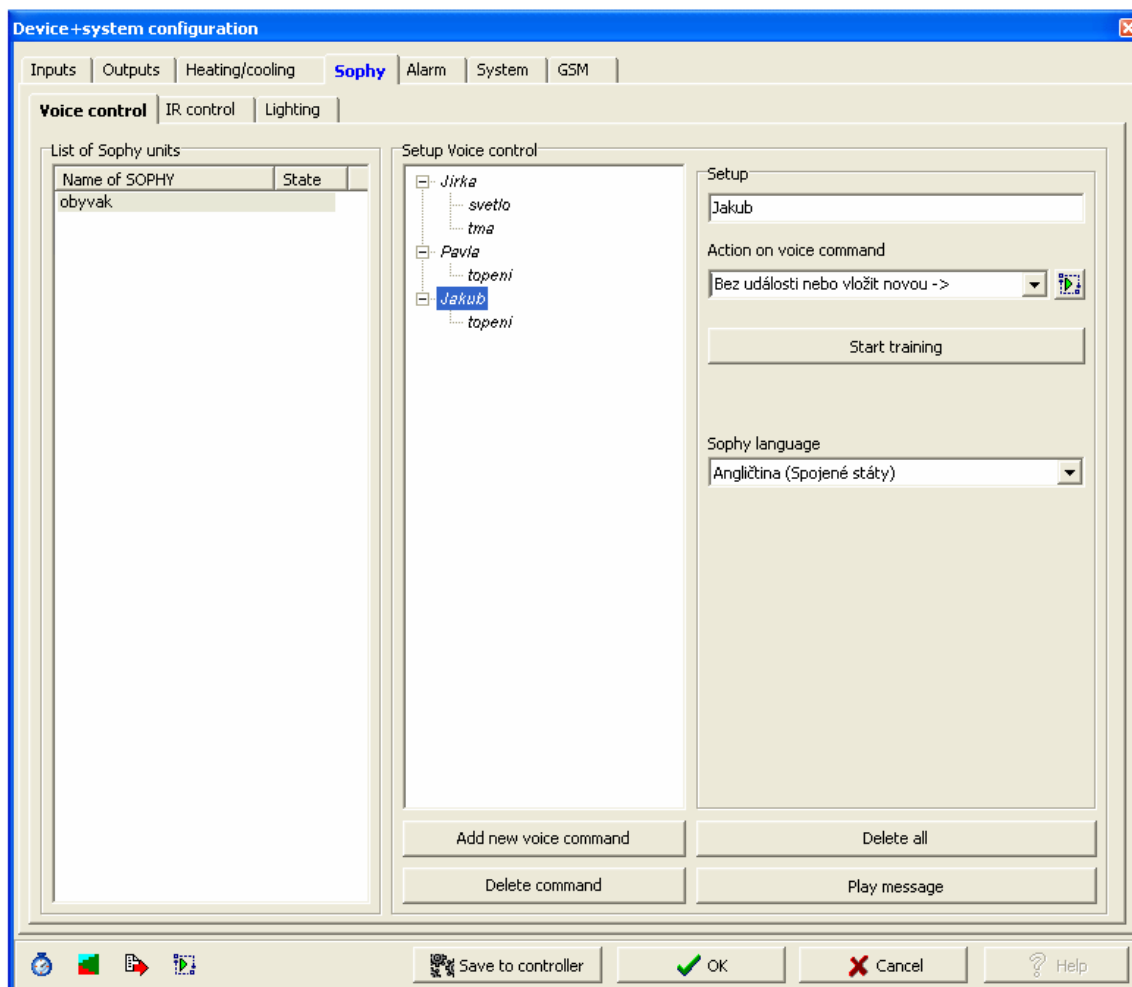
Further setting do by the option “*Select unit for temperature set point*” where there are items:

- “*Select set point unit*” to select room thermoregulator IART or IDRT, if those are allowed in the window “*Unit/device manager (the option Use device)*”.
- “*Temperature of hysteresis*” setting temperature dispersion.
- “*Week schedule*” defined by the option “*Setup time/week schedule*”. Click the option to open the window “*Time/week schedule manager*”. You can evoke the window also by the 2nd icon from the left on the left bottom. The window is more described in Chapter 8 – Time/week schedule manager.

6.4. “Section (sheet) Sophy (Pict 81)”.

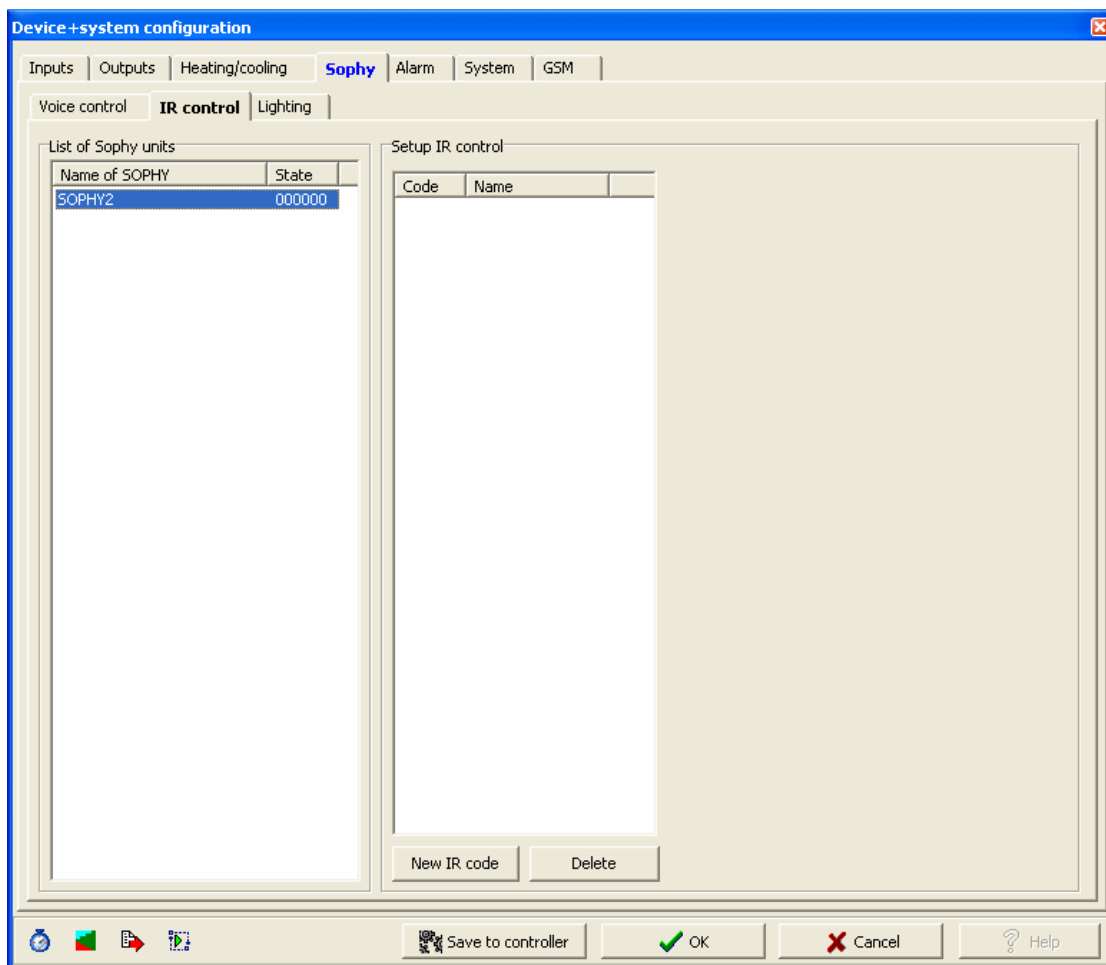
The sheet serves for setting up parameters of the units Sophy a Sophy L, it is divided to three subgroups.

Picture 81



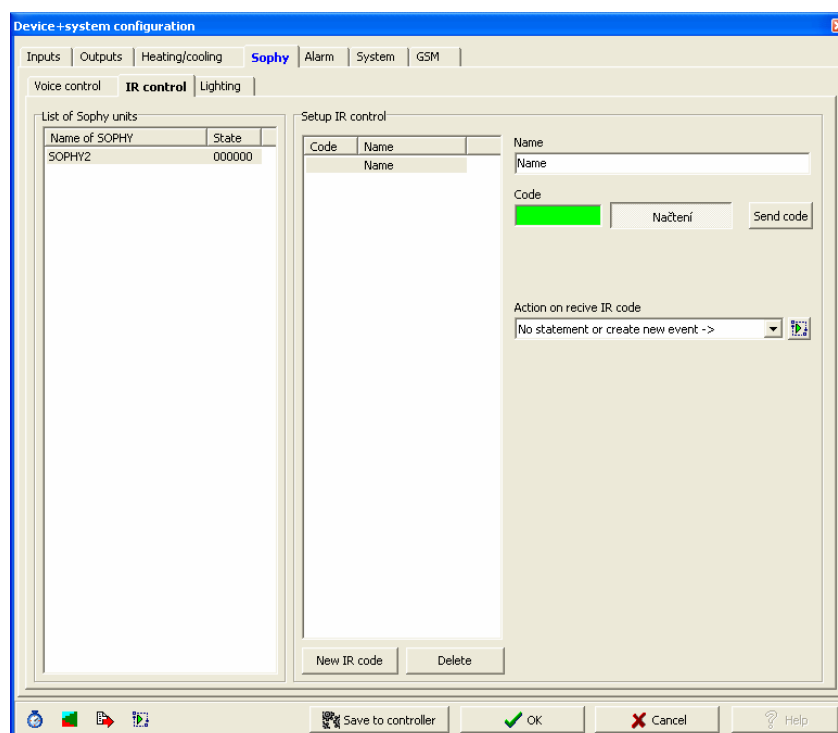
- “Voice control (Pict. 81)” serves for voice processor training. In the left window “List of Sophy units” there are listed all Sophy units connected to the CIB bar and managed by IDM. “Name of Sophy” contains description of a particular unit. Define the name through the window “Unit/device manager”. Define commands in the window “Setup voice control” by the button “Add new voice command”, when you click you will be offered options “Add voice command/Add nested voice command”. You can delete commands by “Delete” or “Delete all”. “Play message” plays voice messages saved in the memory – click the button and enter a message number to the window. You can change name in the window “Setup. By “Action on voice command” define action on voice command any by clicking the “Action/statement manager” you will open the window “Action/statement manager (see page. 18, Pict. 31)” – the window is described in more details in Chapter 7 – Action/statement manager. By clicking the button *Start training* you will evoke a window advising to follow voice unit Sophy instructions when training. “Sophy language” selects a language version of Sophy – nowadays there are 4 basic language versions – Czech, English, German, and Russian.
- “IR control (Picture 82)” sets up IR signal of transceiver and transmitter of remote control.

Picture 82



In the left window "*List of Sophy units*" there are displayed all Sophy units connected to the CIB bar and managed by IDM. "*Name of Sophy*" contains description of a particular unit. Define the name through the window "*Unit/device manager (see page 15, picture 26)*". "*Status*" stands for IR code. In the right window "*Setup IR control*" is used to set IR control of transceiver and transmitter. From the list choose a particular Sophy unit for which you want to read codes from IR control. The button "*New IR code*" adds new button to the list. If you mark a code, you will open detailed setup of IR control (Pict. 83). You can delete by "*Delete*" button.

Picture 83



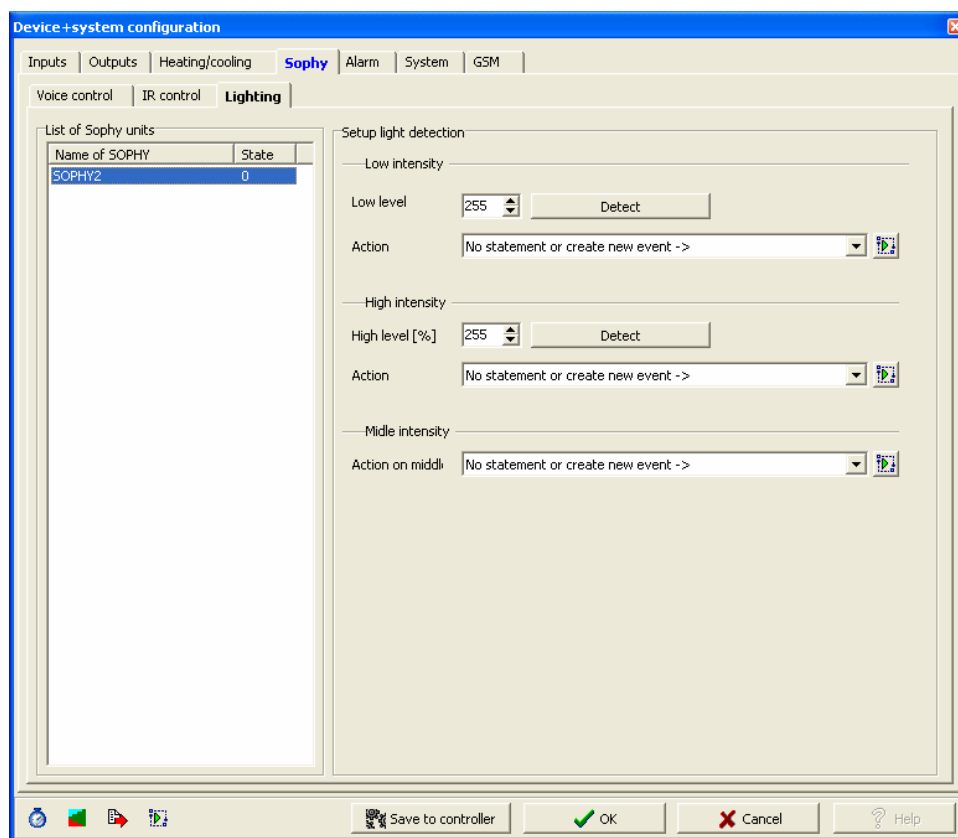
You can change code name in Name window, e.g. corresponding with IR remote control key. If you want to read a code from an IR control, press the button “Read / Nacteni”, which activates IR code reading. It is possible to read out 128 codes, which are common for all Sophy units connected to the CIB bus. If you want to define an action on IR code, select a SOPHY unit from the list, select required IR code and by “Action on receive IR code” – clicking “Action/statement manager” open the window “*Action/statement manager*” (see page 18, Pict. 31) – the window is a subject in Chapter 7 – Action/statement manager. The button “Send code” serves for testing.

- “*Lighting (Pict. 84)*” sets detection of Sophy unit light. In the left window “*List of Sophy units*” there are displayed all Sophy units connected to the CIB bar and managed by IDM. “*Name of Sophy*” contains description of a unit. The name is defined in the “*Unit/device manager* (see page 15, Pict. 26)”. In the right window “*Setup light detection*” define low/high intensity¹³ and three actions performed when set value is exceeded. Low or high intensity can be set manually in the “*Low level/High level*” or automatically by the button “*Detect*”. In the window “*Action*” for low/high/middle intensity define actions performed when set values of intensity are exceeded. Clicking the icon “*Action/statement manager*” you will open the window “*Action/statement manager*” (see page 18, Pict. 31), which is a subject of Chapter 7 – Action/command manager. As described above, it is possible to define 3 actions – their performance can be described as follows. Action at low intensity (A), i.e. if actual bellow low, action at middle (B), i.e. if actual is above low, but lower than high, and action at high, i.e. if actual is above high intensity. Say, we have set up low intensity 100 and high intensity 200. Defined actions in the “*Action/statement manager*” (see page 18, Pict. 31) will be performed as follows:

¹³ Light intensity range is 0 - 255. Hysterthesis is +/- 5 of defined.

- Action for low ≤ 95 (A),
- Action for high ≥ 205 (C),
- Action for middle ≥ 105 and ≤ 195 (B).

Picture 84



6.5. "Section (sheet) Alarm (Pict. 85)".

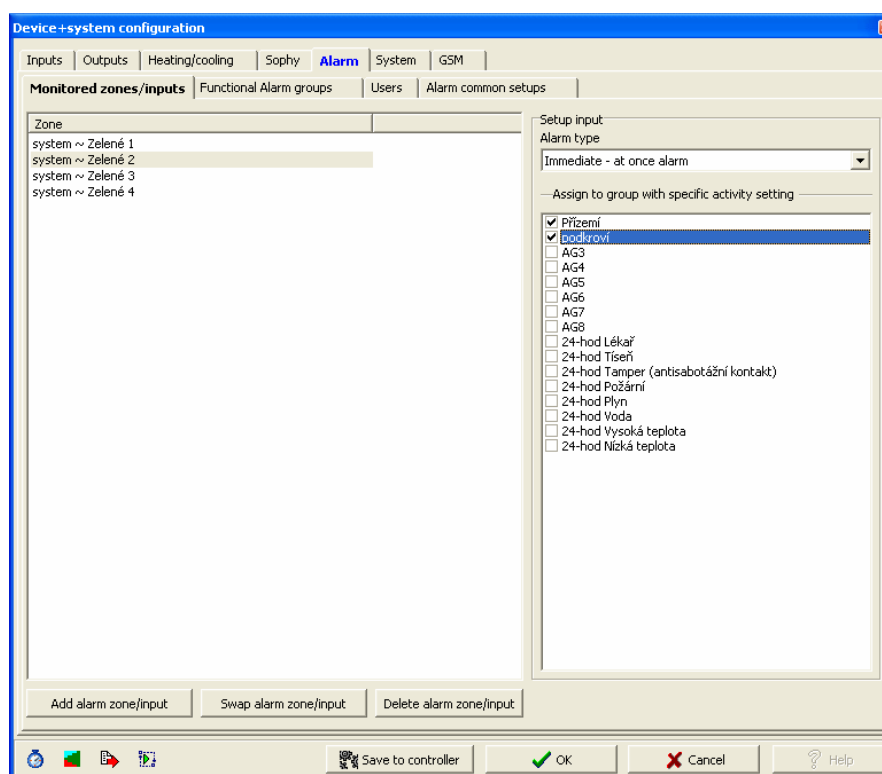
The sheet alarm enables to define the system setting for the security system. The sheet is also divided into several subgroups, in this case 4 subgroups.

- "Monitored zones/inputs (Picture 85)". In the subgroup define monitored zones (inputs), i.e. individual detectors of the security system connected to the system via digital (binary) inputs. In the left window named "Zone" you can add zones or sensors by the button "Add zone/sensor". The window "Select of control / Controlled device (see page 31, Pict. 59)" will appear where you will select binary outputs and appropriate security sensors. When you confirm by "OK" the inputs will be displayed in the "Zone" window. The option "Exchange zone/input" is intended for exchanging zones/inputs – if you click, you will evoke the window "Select of control / Controlled device (see page 31, Pict. 59)". Use the button "Delete zone/input" to delete selected zone/input. In the right window called "Input setup" in the window "Zone" you can assign inputs to zones and assign them type of zone by clicking the box "Alarm type". You can choose from the following zones:
 - "Immediate" – in a zone defined in this way, the alarm will be alerted immediately after an intrusion, if it is activated (monitoring). The zone is mainly used for monitoring windows, balcony door, and other peripheral areas.

- “*Delayed 1*” – if the zone is in monitoring status, after an intrusion there is time to enter a code and thus turn off the system. The keyboard is warning with bleeping for 30 sec that it must be deactivated. If the code is not entered within this time, the alarm is alerted.
- “*Delayed 2*” - works as Delayed 1 but with different delay. It is used e.g. for a garage door/gate.
- “*Internal*” – if the zone is intruded, the alarm is not alerted, if Delayed zone was not intruded before. Otherwise an immediate alert is caused. It is used mainly to protect indoor, e.g. for motion sensor.

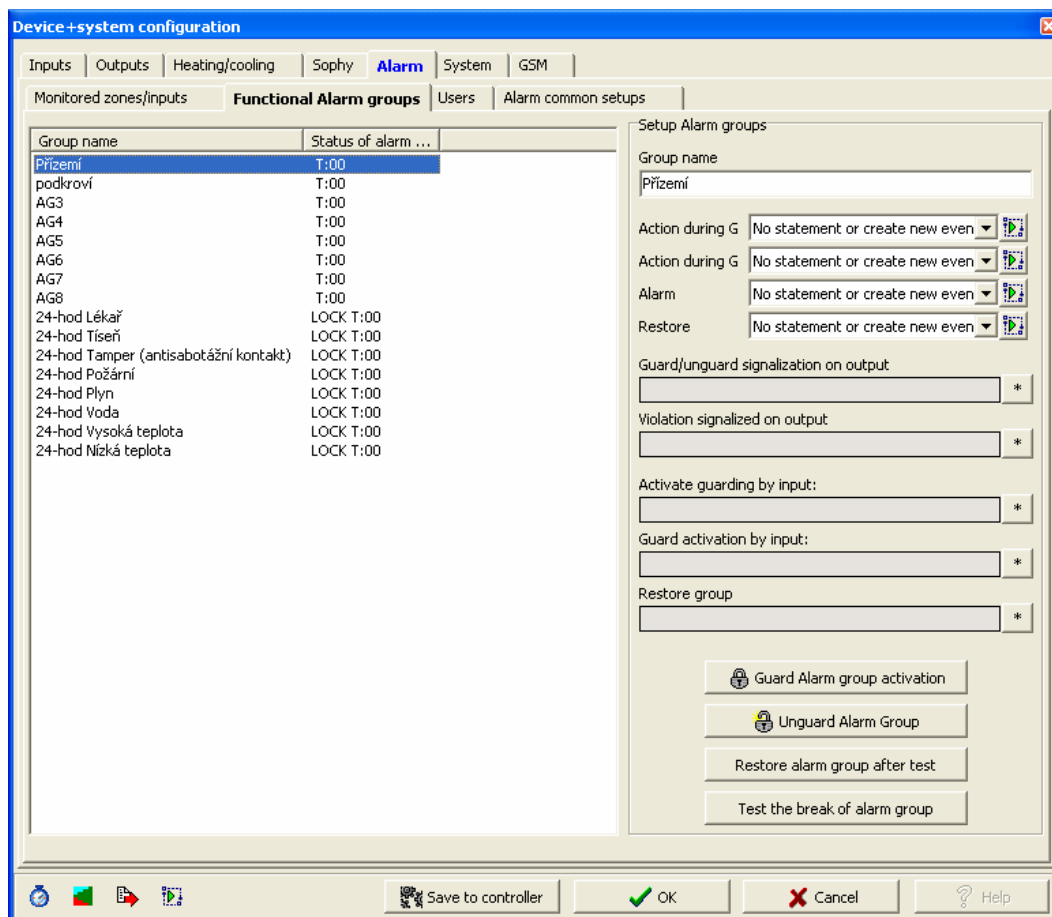
If you define zones/inputs as described above, you can join zones/inputs to eight groups (AG1 - AG8) – a change of name is done gradually in the subgroup “*Functional alarm groups*”, and also to groups with 24-hour attribute 24-hod (medical, trouble, tamper, fire, gas, water high/low temperature) – if the groups are intruded, the alarm is alerted, regardless its status (ON/OFF).

Picture 85



- “*Function alarm groups (Pict. 86)*” serves for a detailed alarm parameters setup. In the left window there are alarm groups displayed (AG1 - AG8). “*Group name*” is defined in the box “*Setup alarm groups*”. Also 24-hours alarm groups are displayed in the window. In the column “*Status of alarm group*” are displayed the following statuses:

Picture 86



- “*Locking*” – the group is in activating status (locking) and “T” sign indicates time to leave (delay),
- „*Lock*“ – the group is locked,
- „*Alarm*“ – the alarm is alerted, „T:“ sign indicates the alert length and time to next alert, when the one is over.

In the right window „*Setup alarm groups*“ you can define „*Group name*“ and further primer security system setups:

- “*Action when switched on*“, i.e. action when the security system is activated,
- “*Action when switched off*“, i.e. action when the security system is deactivated,
- “*Alarm*“, i.e. action when alarm alerts.
- “*Restore*“, i.e. action when the security system is activated – change over from the “*Alarm*” status to “*Lock*” status.

All the actions are defined in the way you are familiar with, by the icon “*Action/statement manager*”, which will open the window “*Action/statement manager*” (see Pict. 31) – the window is a subject of Chapter 7 – Action/statement manager.

There is also a possibility to define a grip control setting:

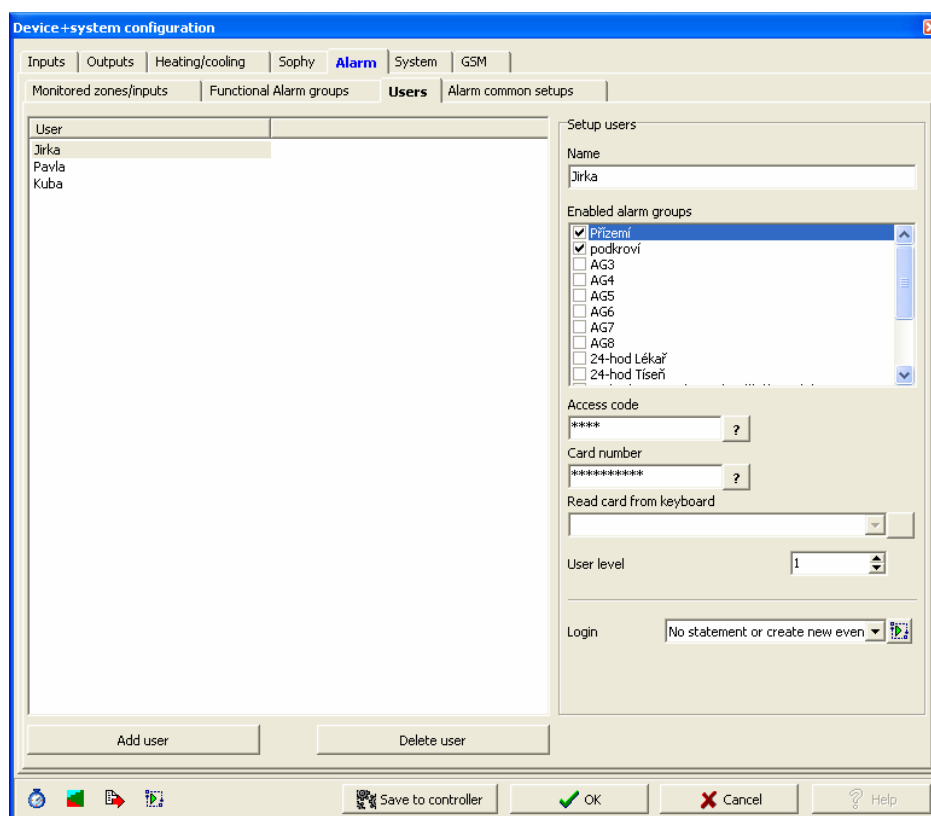
- “*Guard/unguard signalization on output*“, e.g. LED indicators ws2 or key2-01 are flashing during time to leave and they are continuously on after activation,
- “*Violation signalized on output*“,
- “*Activate guarding by input*“,
- “*Guard activation by input*“,

- “Restore group”.

There are also four options for the security system control directly from IDM. The options are as follows:

- “Guard alarm group activation”,
- “Unguard alarm group”,
- “Restore group after test”,
- Test the break of alarm group“
- “Users (Pict. 87)”. In the subgroup we define users controlling the alarm system.

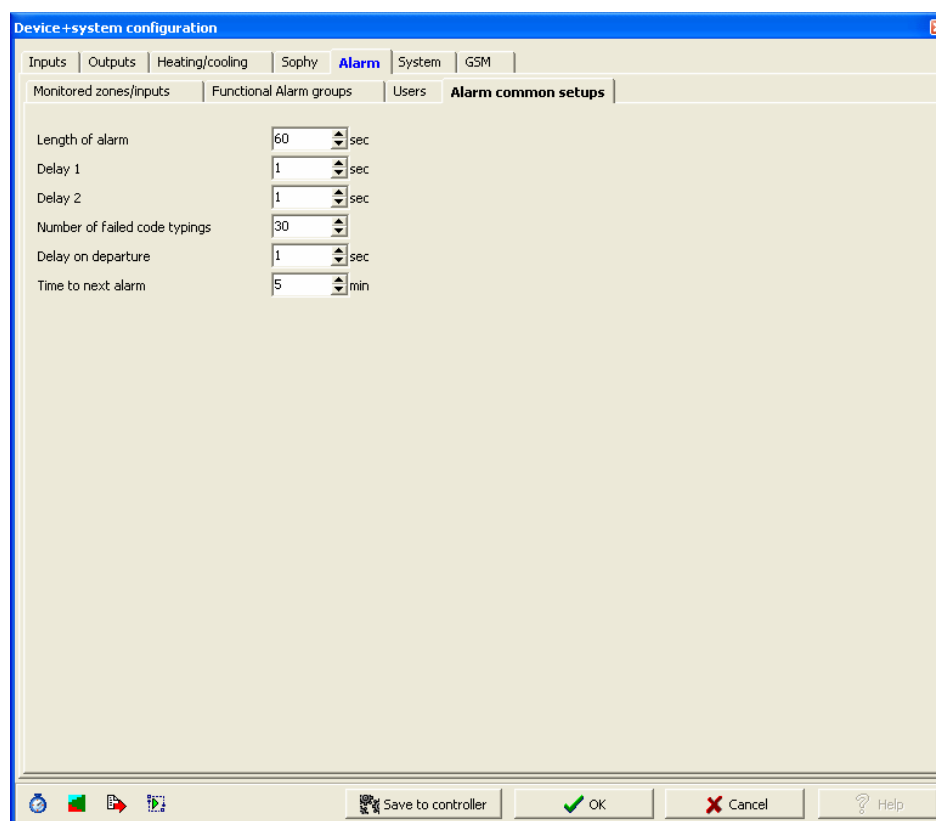
Picture 87



In the left window add or delete users by the buttons *Add user*“ and *Delete user*“. When you add a new user, the item *“User name”* will appear. Enter name in the window *“Setup users”*, box *“Name”*. In the window *“Enabled alarm groups”* we assign users control access of named and set groups. *“Access code”* is a PIN used to a user log in. Maximum number of signs is 8, minimum number is 1. If key2-01 in the application is equipped with a card reader, the window *“Card number”* will be used. You can type a number to the window, if you know a card number, or you can use the option *“Read card from keyboard”*, i.e. select *“card reader (select a keyboard if more than one are used)”*, click “square” icon and place the card o the key bellow LED indicators - the card number will be displayed in the box *“Card number”* automatically. The last option in the window is *“Login”* window. It represents setting up of actions performed on a user login to the security system. Pressing the icon *“Action/statement manager”*, the window *“Action/statement manager”* (see page 18, Pict. 31)“ will be opened – the window is a subject of Chapter 7 – Action/statement manager.

- *“Alarm common setup (Pict. 86)*. The subgroup serves for common setup of the security system.

Picture 88



There are the following setups:

- “Length of alarm” – time base 1 - 240 sec (according to standards the alert length shall be 30 sec. maximum),
- “Delay 1” (see page 48) – accessing time 1, time base 1 - 250 sec,
- “Delay 2” (see page 48) – accessing time 2, time base 1 - 250 sec,
- “Number of failed code typing” – selection in range 1 - 99,
- “Delay on departure” – leaving time, time base 1 - 250 sec,
- “Time to next alarm” – time from end of one alarm to another one, time base 5 - 10 min.

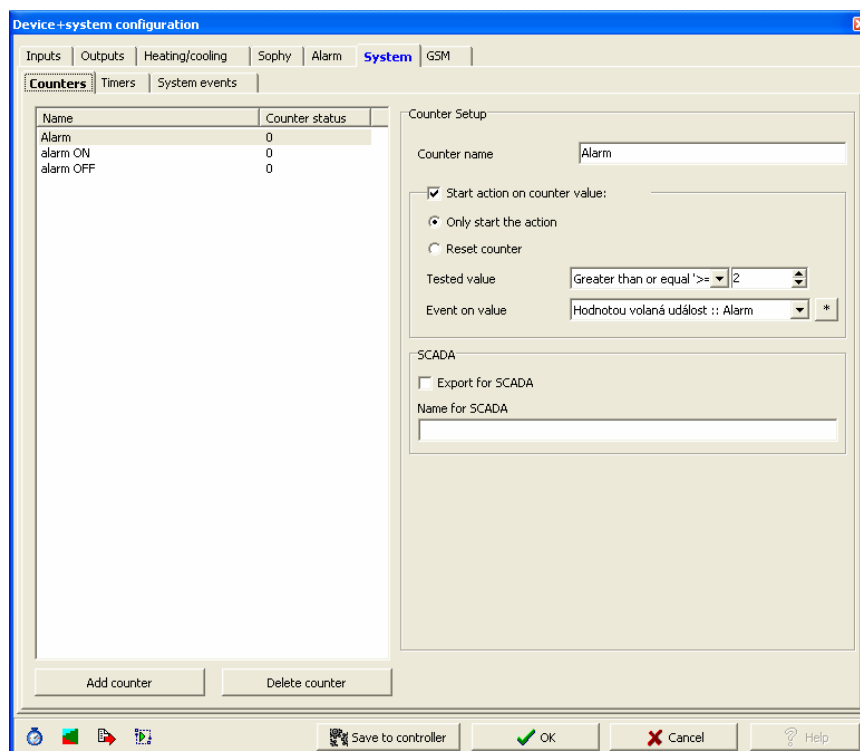
6.6. “Section (sheet) System (Pict. 89)”.

In the sheet you set special occasions of the system, define counters and readers using. The sheet is also divided into three subgroups.

- “Counters (Pict. 89)”. Here you can add or delete counters. It is possible to set up to 32 counters. Counter value range is 0 to 65535. The column „Name“ can be edited in the window “Counter name”. The column “Status” informs on an actual state of a counter, i.e. its value. If you want to each a value or do an action on exceeding the value, thick the option “Start action on counter value”. Thus the following options are activated:
 - “Only start the action”, i.e. defined action started by value will be done, whereas the counter keeps incrementing or decrementing,
 - “Reset counter”, “”, i.e. defined action started by value will be done and the counter will be reset (if you do not set value, the counter will be only reset),
 - “Tested value”, can be selected from range (0 - 65535) and the value can be compared by logic symbols:

- $\geq$ (higher than or equal),
- $>$ (higher than),
- $=$ (equal).
- “Event on value” is an action done on comparing and reaching tested value. The action is again defined by clicking the icon “*”, which opens the window “Action/statement manager (see page 18, Pict. 32), The window is dealt with in Chapter 7 – Action/statement manager, page 60.

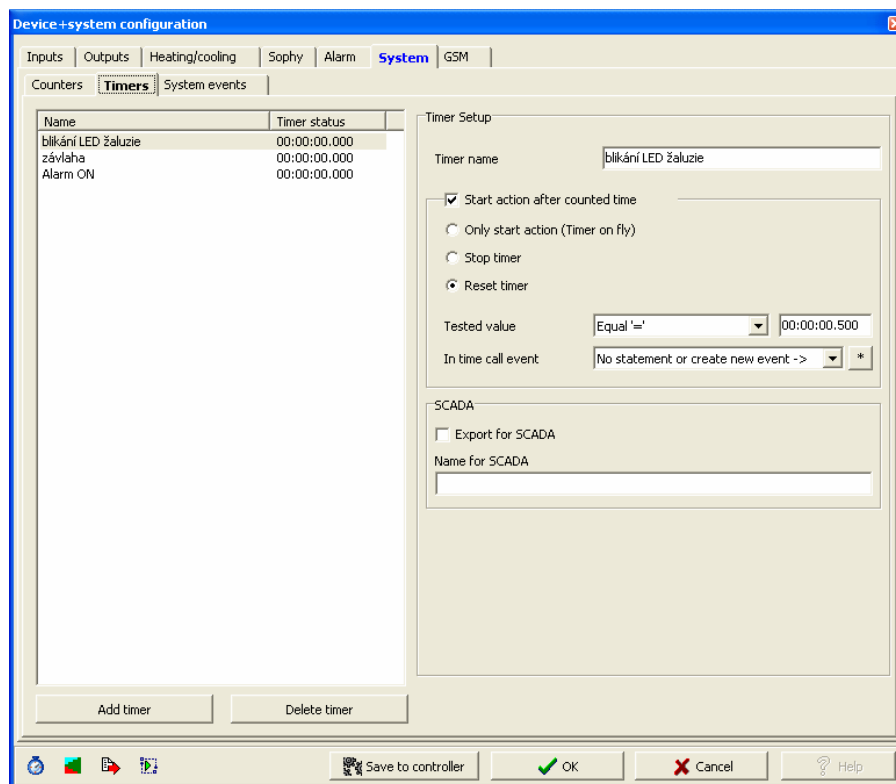
Picture 89



- “Timers (Pict. 86)”. Here you can add or delete timers. It is possible to set up to 32 timers. Maximum timing period is 24 hours. The column “Name” can be edited in the window “Timer name”. The column “Counter status” informs on an actual timer status i.e. its value. If you wish to do an action when a value is reached or exceeded, click the option “Start action after counted time”. Thus the following options are activated:
 - “Only start action” (timer is running), i.e. defined action will be done after time, the timer will be running,
 - “Stop timer”, i.e. defined action will be done after time, the timer will stop,
 - „Reset timer“, i.e. defined action will be done after time, the timer will be reset and it will be timing,
 - “Tested value” can be selected within time (1 msec - 24 hod) and the value can be compared by logical symbols:
 - $\geq$ (higher or equal),
 - $>$ (higher than),
 - $=$ (equal).
 - “In time call event” is an action done when the tested value is compared and reached. The action can be defined by clicking the icon “*”, which opens the window “Action/statement

manager (see page 18, Pict. 32), The window is dealt with in Chapter 7 – Action/statement manager.

Picture 90



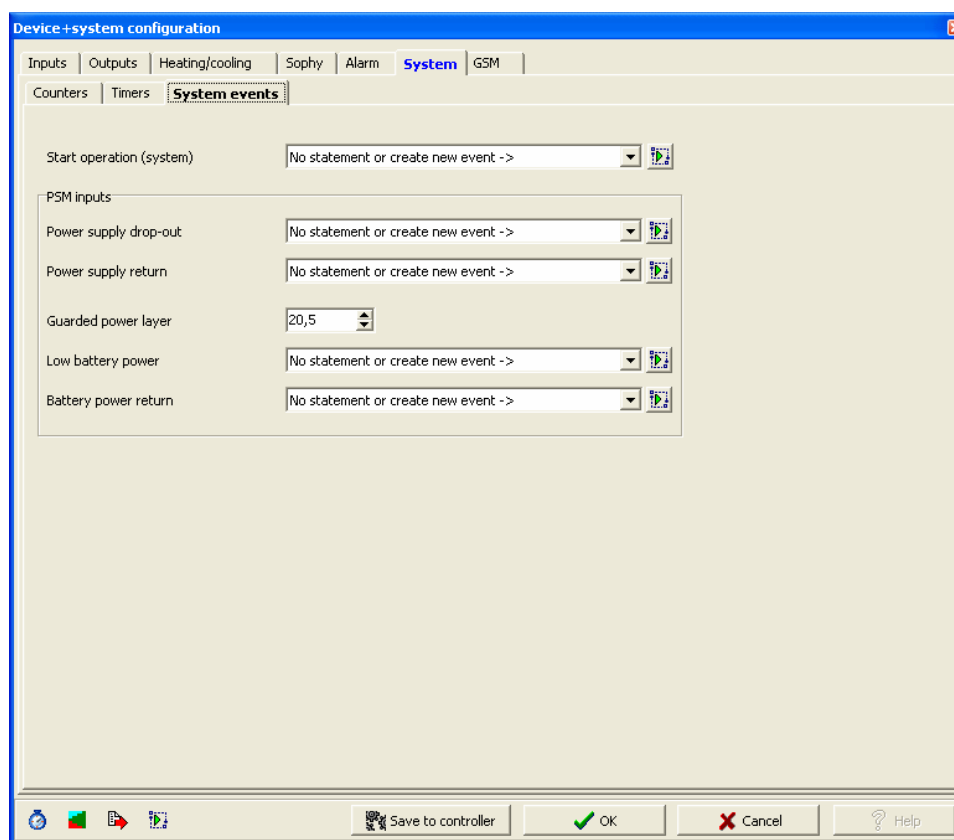
- “System events (Pict. 91)” sets up special system events such as:
 - “System start”, i.e. events performed after the system start or after mains connection, or after saving configuration to the system (see page 25),
 - „PSM inputs“. CPU disposes inputs PSM1 and PSM2, which are intended for monitoring of power supply 230V AC and status of backup accumulators 24V DC. Connection of the inputs is in the catalogue of Intelligent electric installation Inels. The inputs operate on the following principles:
 - „PSM1“ - monitoring mains supply voltage, monitored on 24V DC level (e.g. via a relay on 24V level). The input is double-value with a fixed decision level about 20V DC, information on a mains status is given to the system – mains failure can activate an event (SMS, consumption reduction – break of all relays, etc.),
 - „PSM2“ - monitoring batteries status, i.e. supply of the system 27V/24V, analogue input can forward also its own value of supply voltage (in V), output is a double-value information on weak AKU, adjustable decision level (implicitly about 20-21V). An event can be activated below this level (first of all signaling of discharged backup, complete failure might occur, - SMS, etc.).

With regards to IDM, you can define actions for:

- „PSM1“ – “Power supply drop out” and “Power supply return”. Again, clicking on the icon “Action/statement manager” the window “Action/statement manager” (see page 18, Pict. 32). The window is a subject of Chapter 7 - Action/statement manager, see page 60.
- „PSM2“ – You can appoint actions for “Low battery power” and “Battery power return”. Clicking on the icon “Action/statement manager” the window “Action/statement

manager“ (see page 18, Pict.. 32). The window is a subject of Chapter 7 - Action/statement manager, we can set decision level, i.e. “Guarded power layer“ between 10V - 30V.

Picture 91



6.7. “Section (sheet) GSM (Pict. 92)“.

The sheet serves for GSM modem setting. Again, the sheet is divided into several subgroups:

- “Phone numbers (Pict. 92)“ is a list of used phone numbers. You can assign a command to send SMS. In the list you can also set numbers from which SMS commands are allowed. which. You can insert up to 32 phone numbers. In the left window you can add or delete phone numbers by the buttons “Add phone number“ and “Delete phone number“. Enter numbers to the box “Number“ and an owner’s name to “Name“.
- “SMS out“ (Pict. 93)“ is a list of leaving SMS. You can insert up to 48 messages of maximum length 20 signs. In the left window you can add and delete SMS by the buttons “Add SMS“ and “Delete SMS“. Define SMS in the box “Text of SMS“.

Picture 92

Device+system configuration

Inputs | Outputs | Heating/cooling | Sophy | Alarm | System | **GSM**

Phone numbers | SMS out | SMS in | Active SMS | GSM Setup | GSM Monitor

Phone number	Analog Input Description
+ 420776884932	Jirka
+ 420776881320	Pavla
+ 420775371517	Jirka_sluzebni

Buttons: Add tel. number, Delete tel. number

Setup phone number

Number: + 420776884932

Description: Jirka

Action at the number call: No statement or create new event ->

Buttons: Save to controller, OK, Cancel, Help

Picture 93

Device+system configuration

Inputs | Outputs | Heating/cooling | Sophy | Alarm | System | **GSM**

Phone numbers | **SMS out** | SMS in | Active SMS | GSM Setup | GSM Monitor

text: Pokus

Buttons: Add SMS, Delete SMS

Setup sending message

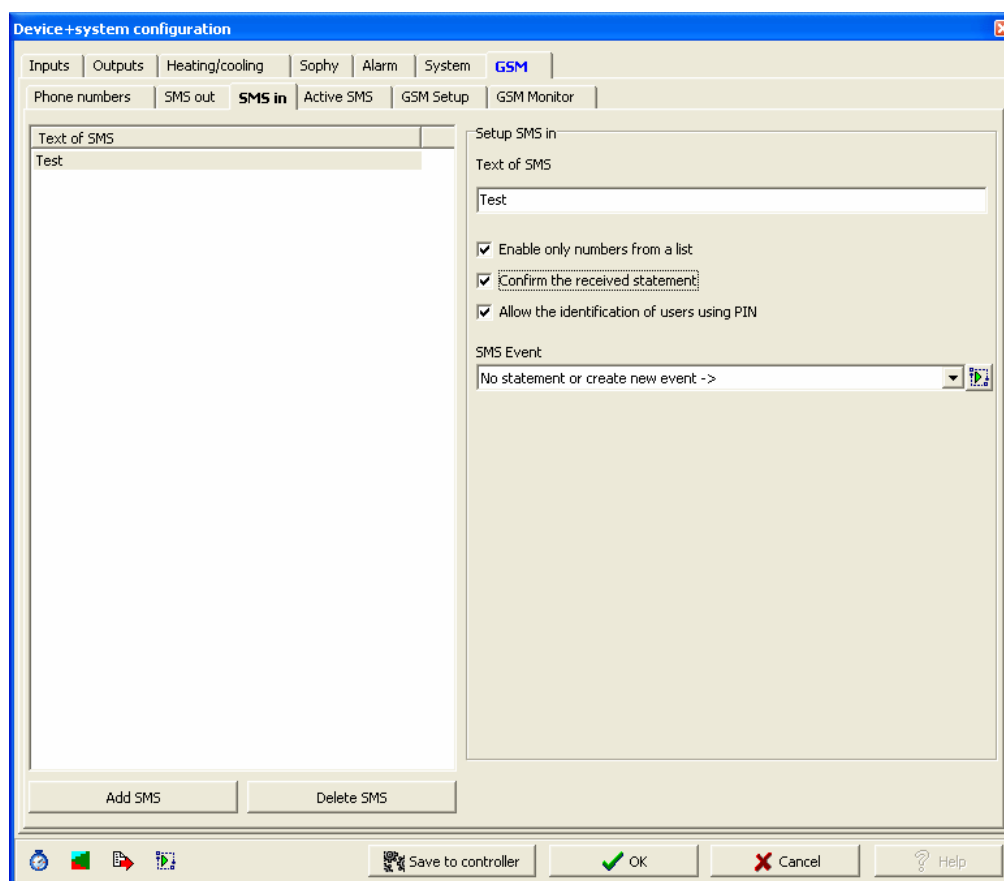
Text of SMS: Pokus

Buttons: Save to controller, OK, Cancel, Help

- “SMS in (Pict. 94)” is a list of coming SMS that are allowed to start an event. You can insert up to 32 SMS of maximum 20 signs. The system distinguishes a size of signs in a coming SMS. In the left window you can add or delete SMS by the buttons “Add SMS” and “Delete SMS”. Define SMS in the box “Text of SMS”. The option “Enable only numbers from the list” allows

commands only for numbers listed here. The option “*Confirm the received statement*” means that confirmation SMS about receiving and performing command will be sent. “Allow identification by PIN” is an option related to active SMS; it is necessary to insert access PIN from Alarm sheet. (there must be a gap between the PIN and SMS text). The option “SMS event” is used to define an action on incoming SMS. Clicking the icon “*Action/statement manager*” you will open the window “*Action/statement manager*” – the window is a subject of the chapter 7 – Action/statement manager.

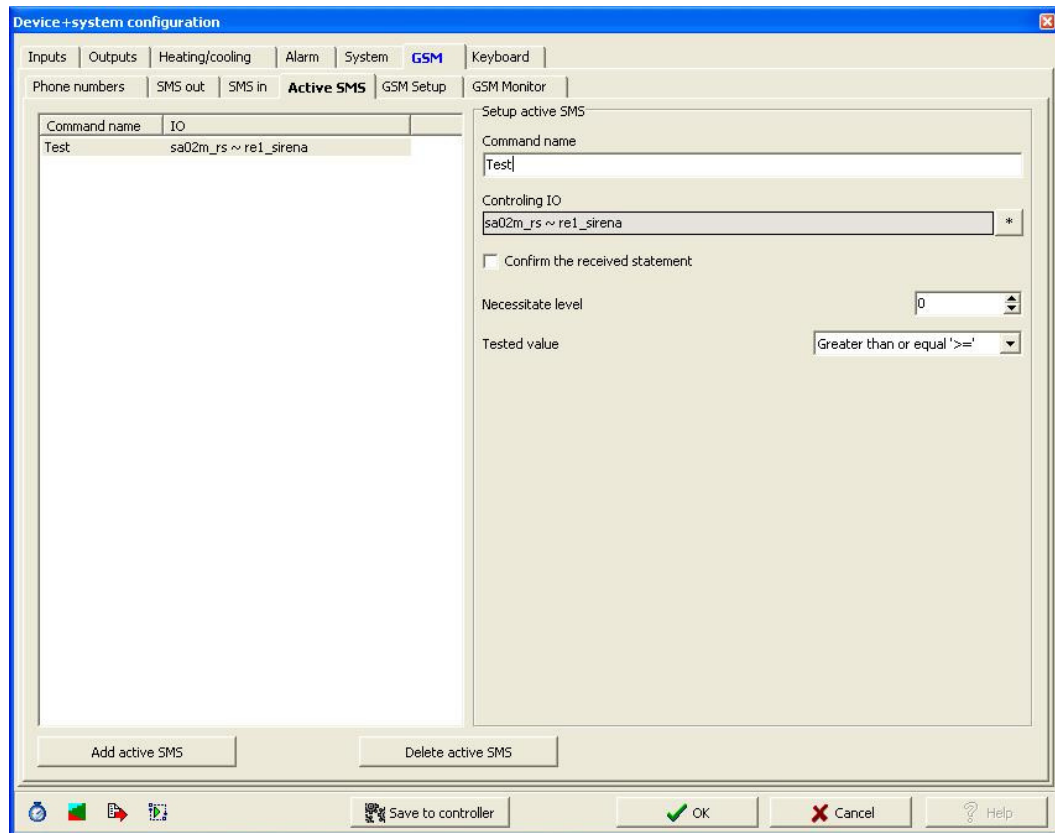
Picture 94



- *Active SMS (Pict. 95)* serves for setting active SMS; these are special SMS, which require access PIN from the “Alarm” sheet in front of the text. There must be a gap between the PIN and the text of SMS. The SMS serves for the output control; the output can be controlled by one command ON, OFF, TRIG and xx% (fluently). In the right window there is a list of SMS where you can find up to 32 messages of maximum length 20 signs. The system distinguishes a size of signs in an incoming SMS. “Text of SMS” can be edited in the box “Command name”. “*Controlling I/O*” is a defined i/o that can be chosen by the option “Controlled element (input/output)”; when you click the icon “*Action/statement manager*”, the “*Action/statement manager*” window will be opened; it is subject of chapter 7 – Action/statement manager, see page 66. The option “Confirm the received statement” will send a confirming SMS that a command has been accepted and performed. “Necessitate level” is an authorization level linked to an authorization level defined in the sheet “Alarms”; you will compare it in the box “Tested value” where you can choose the following logical

operands – is higher or equal ($\geq$), is higher ($>$), and is equal ($=$). The buttons „Add active SMS“ serves for adding and deleting active SMS.

Picture 95



- “Setup” (Pict. 96)“. Here set up operator gate for messages and PIN code. You can edit the number according to operators in your country.
- “Monitor (Pict. 97)“ The sheet is displayed only in a special initial mode that is a subject of 12 – Diagnostics and error remedy.

Picture 96

Device+system configuration

Inputs | Outputs | Heating/cooling | Sophy | Alarm | System | **GSM**

Phone numbers | SMS out | SMS in | Active SMS | **GSM Setup** | GSM Monitor

Gate of operator for SMS messages: +420 602 909 909

PIN code of SIM card: ****

Save to controller OK Cancel Help

Picture 97

Device+system configuration

Inputs | Outputs | Heating/cooling | Sophy | Alarm | System | **GSM**

Phone numbers | SMS out | SMS in | Active SMS | GSM Setup | **GSM Monitor**

Key	Value
READY	GSM gate isn't ready or busy
STATE	Vypnutí echování [ggso_Init]
ERROR	Bez chyby [gger_None]
SIGNAL	-1 %
BUFFER_IN	
BUFFER_OUT	ATE0□□
HELP	
RING	

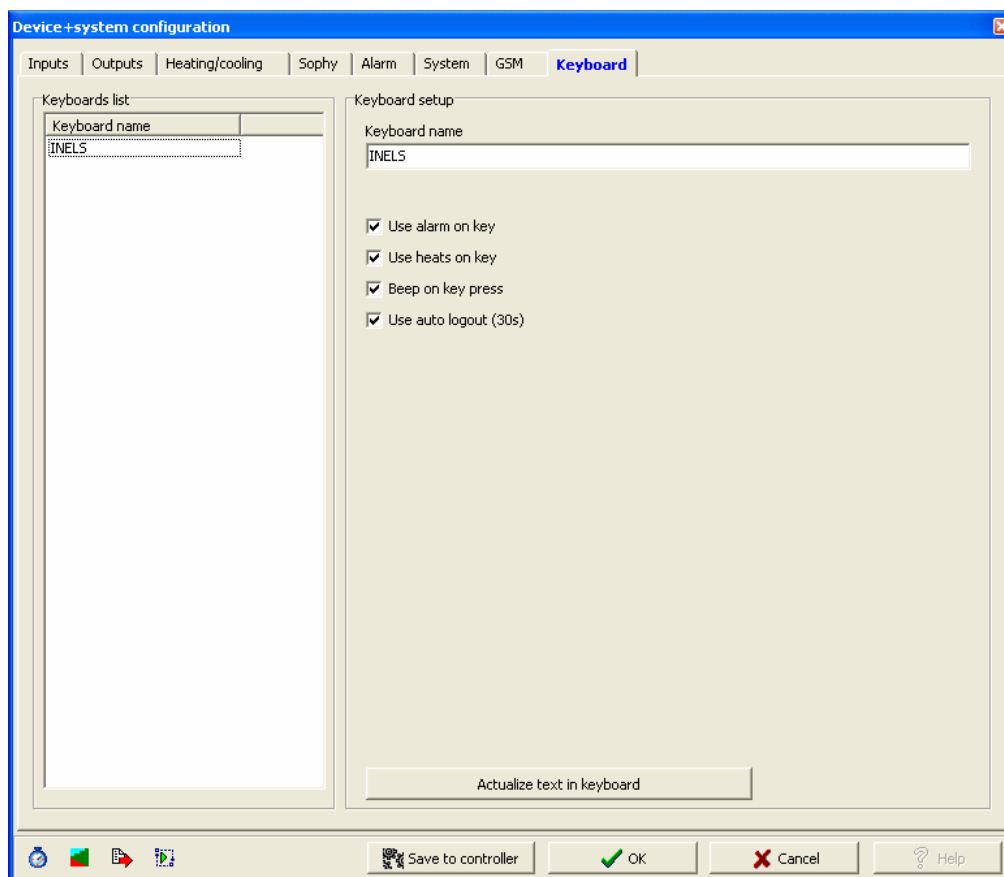
GRID-TXT Clear TXT Run

Save to controller OK Cancel Help

6.8. “Range (sheet) Keyboard (Pict 98)“.

The sheet serves for the keyboard key2-01 setting. The keyboard is used not only for the security system control, but also for heating circuit control.

Picture 98



In the “Keyboards list” there are keyboards connected to CIB bus – name is taken from the window “Action/statement manager. Ticking the options you will activate:

- “Use alarms on key” – if you security system data,
- “Use heats on key” if you want to define heating circuits,
- “Beep on key press” if you wish an acoustic signal of press,
- “Use auto logout (30s)” if you wish to log out automatically.

Clicking option “Update texts in keyboard” you will update texts from the sheet “Heating /Cooling (see Pict. 79)” and from the sheet “Alarms (see page 49 , Pict. 82)” and a keyboard name , that will be on the keyboard display (Pict. 99 and 100). Texts are localized in Czech and English. Keyboard menu structure is as follows:

1. Actual time / date (switch over by ENTER key)
2. Alarm + status of groups 1- 8 (menu alarm is activated by pressing NEXT key)
 - Log in
 - Selection of allowed groups
 - Group status
 - Start guarding
 - End guarding

- Restore
 - Lock of all allowed
 - Unlock of all allowed
 - Logout of user
3. Heating (menu activated by pressing NEXT key)
- Circuit selection
 - Actual mode
 - Actual temperature
 - Minimum setup
 - Depression setup
 - Normal setup
 - Comfort setup
 - Presentation setup (comfort till time notice)
 - Temporary comfort setup (1h)
 - Switched on time schedule

Next, you can also use a key as fast selection used for fast lock of an allowed 1 - 8. The fast selection keys are “# and group number”.

Picture 99



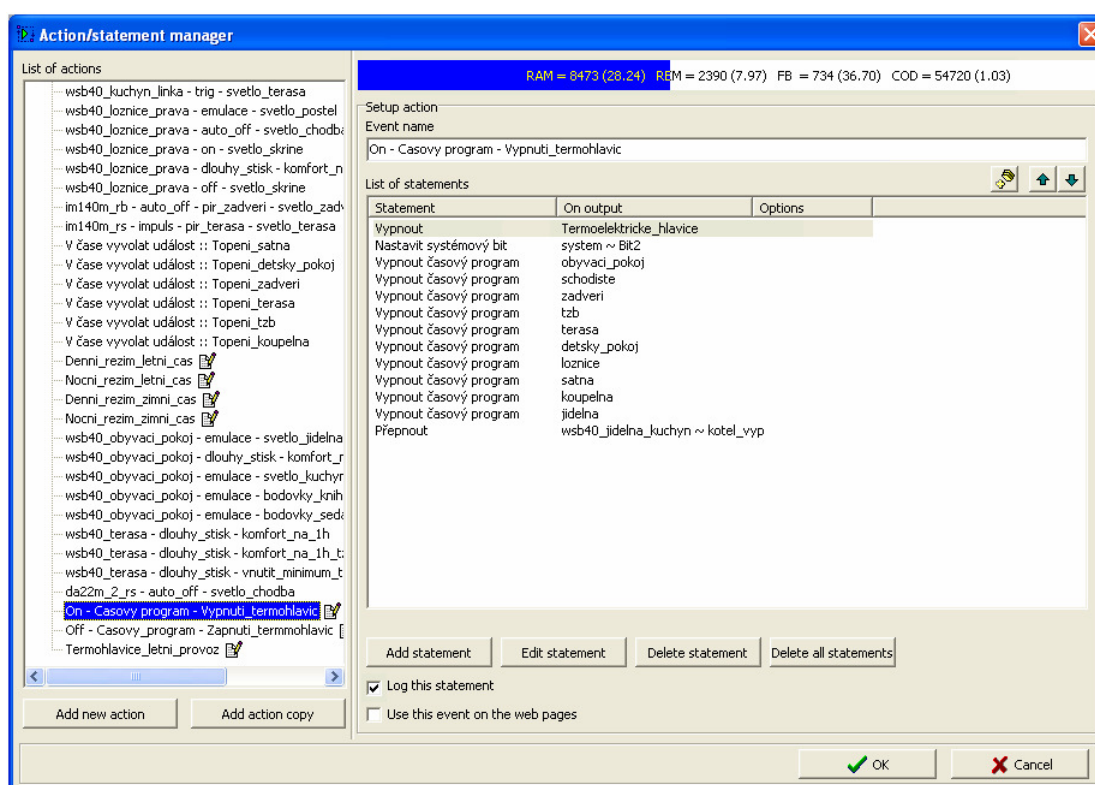
Picture 100



7. Action/statement manager

“Action/statement manager (Pict. 101)” is a manager defined on i/o by the icon “Action/statement manager” in the window “Configuration (see page 33, Pict. 63)” and selected sheets. The window “Action/command manager” can also be opened by “Fast selection icons” (see page 11, Picture 17)“.

Picture 101

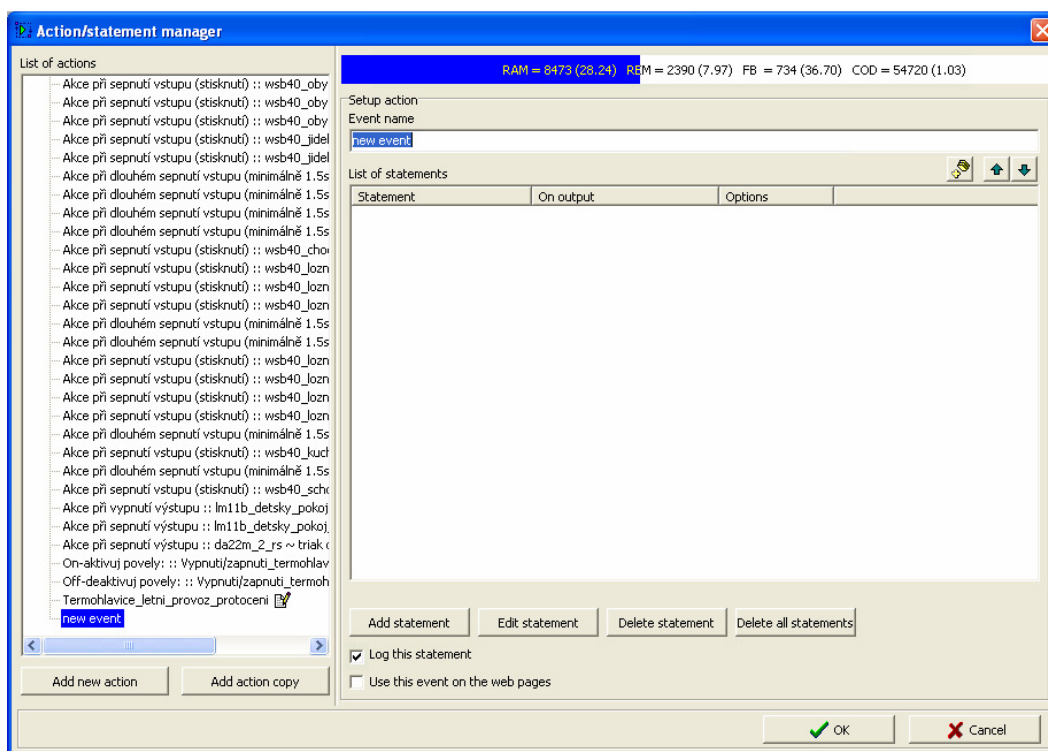


In the left window “List of actions” there are all actions/statements defined for individual i/o and other actions/statements defined in appropriate sheets of the window “Configuration (see page 33, Pict. 63)”. By the button “Add statement” you can add an event to the list. It will be displayed with “New event (Pict. 102)” attribute. By the button “Add action copy” you can copy a selected action, which will be displayed

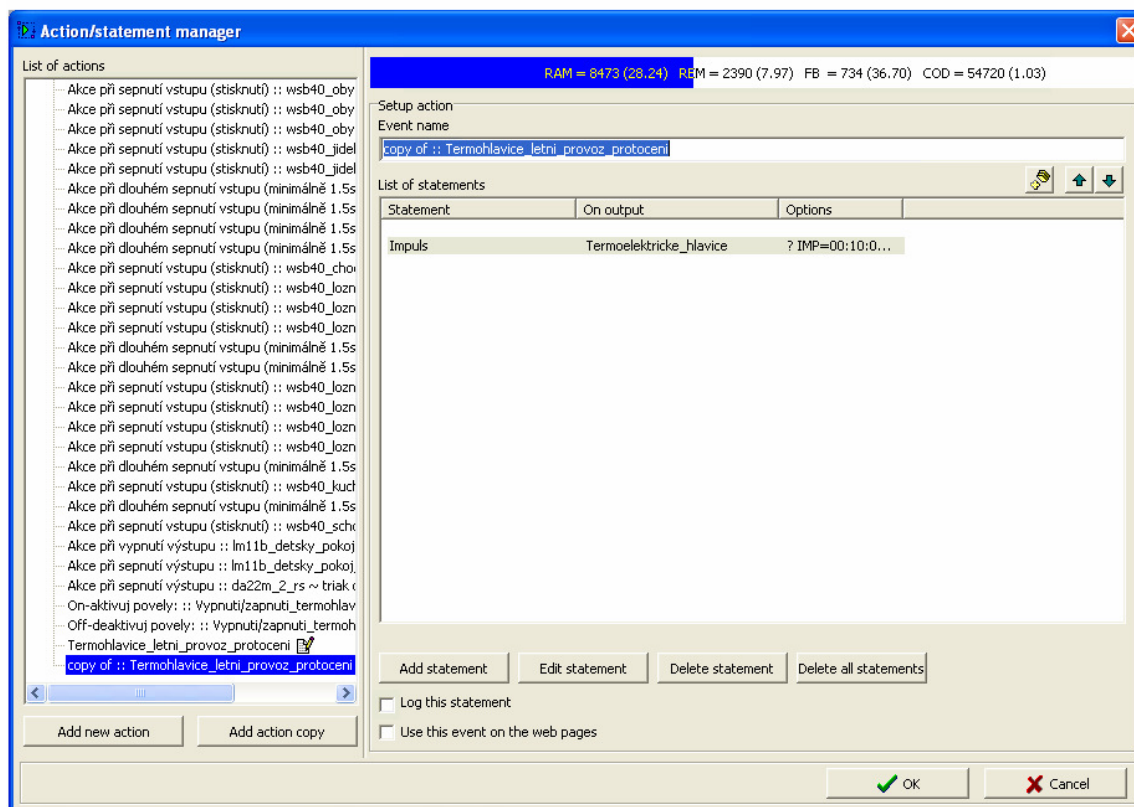
with attribute “copy of ...” (Pict. 103)“. If you click with the right mouse button on an event in the “List of actions“, the following offer will appear (Pict. 104):

- “Add new action “ is a filter of i/o actions defined automatically according to a sheet of the “Configuration” window (see page 33, Pict. 63)“. Of course you can rank the actions also to other categories. The offer contains (Pict. 105):
 - System action, i.e. actions of the “System” sheet (see page. 51, Pict. 85),
 - Time action, i.e. action “Time/week schedule manager (see page 20, Pict. 34)“ and “Time action manager (see page. 19, Pict. 33)“,
 - User action, see this chapter, page 71,
 - Alarm action, i.e. actions of “Alarm” sheet ,
 - Input action, i.e. actions of the sheet “Inputs“,
 - Output action i.e. actions of the sheet “Outputs“,
 - Sophy unit action, i.e. actions of the sheet “Sophy“,
 - Heating action, i.e. actions of the sheet “Heating/Cooling“ .

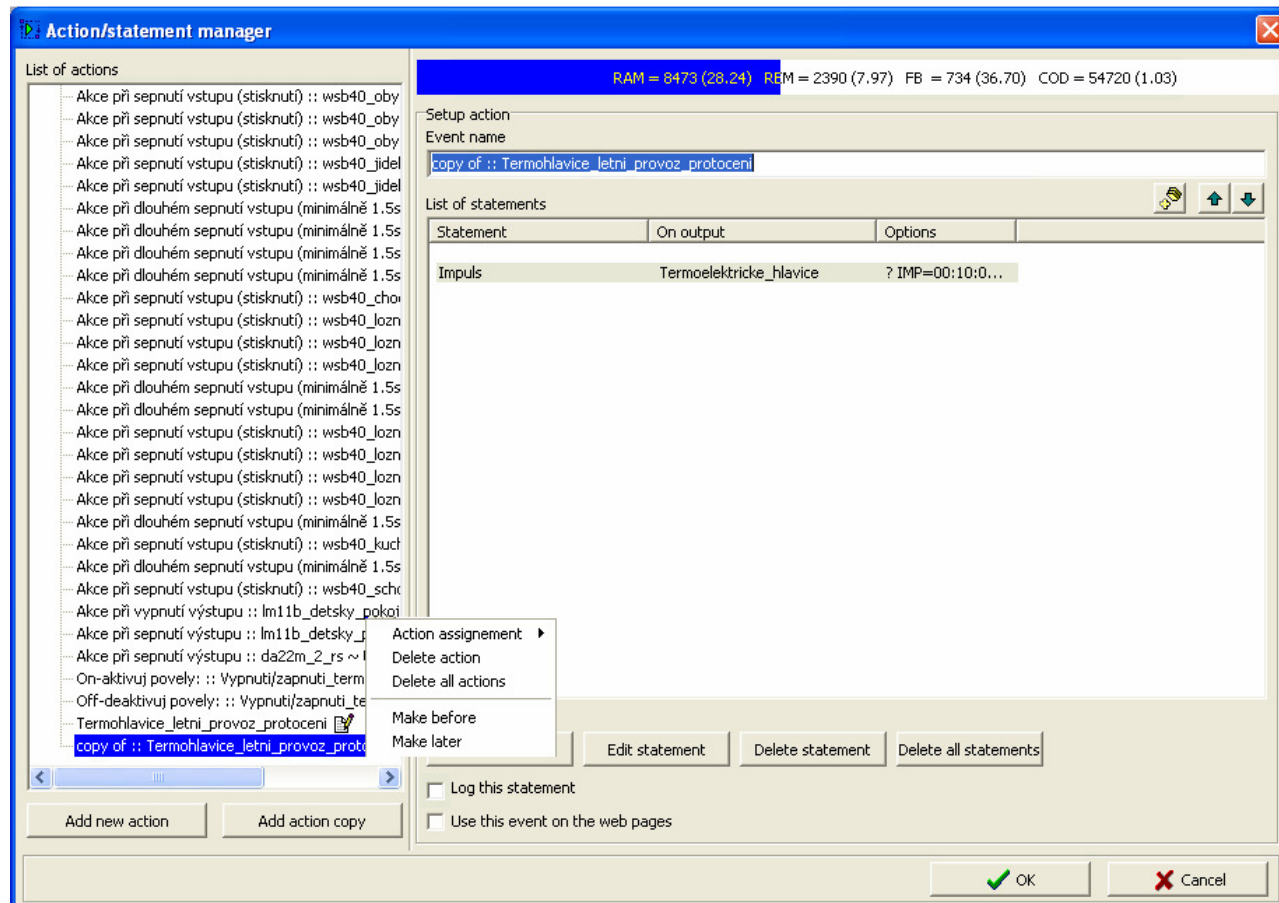
Picture 102



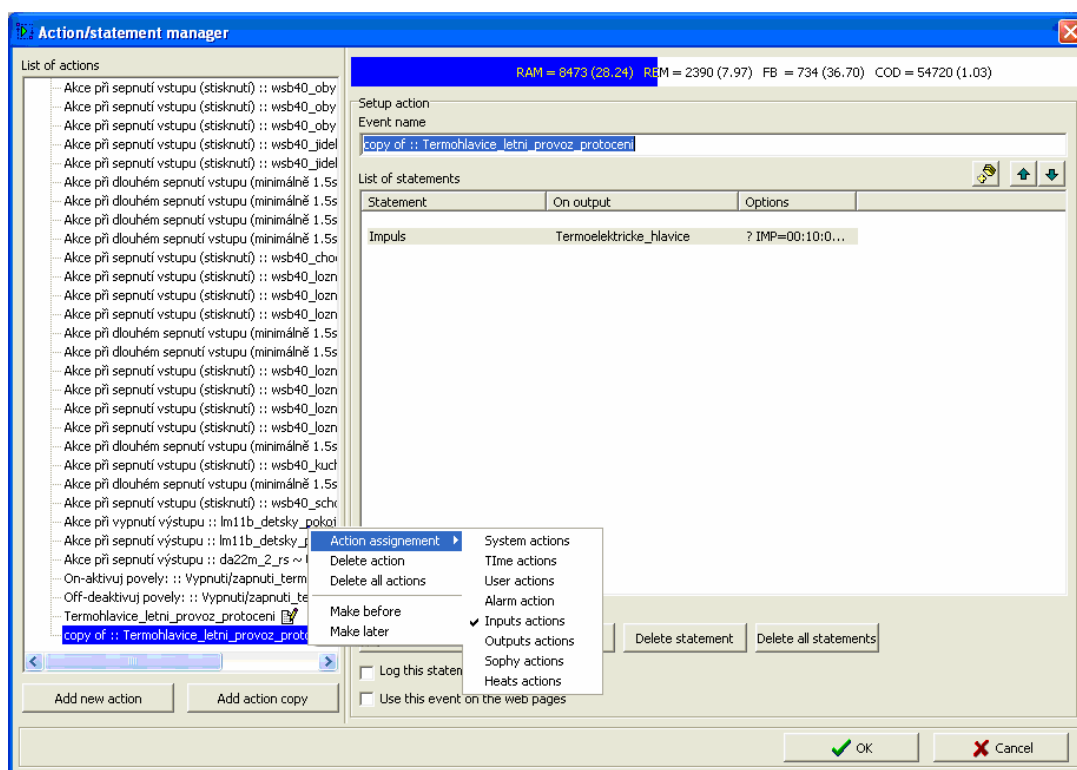
Picture 103



Picture 104



Picture 105



- “Delete action” is used to delete actions in the window “List of actions”,
- “Delete all actions” to delete all actions in the action tree in the window “List of actions”,
- “Make before” to shift selected actions in the action tree upward,
- “Make later” to shift selected actions downward.

On the right top you can see CPU memory indicator status. CPU sharing of „RAM, REM, FB and COD” is displayed only in a special mode, dealt with in Chapter 12 – Diagnostics and errors remedy.

“Event name” is a description, e.g. Pict. 105, overtaken from the window “Unit/device manager (see page 15, Pict. 26) and from the window “Configuration”. Obviously “Event name” is also overtaken from other sheets of the “Configuration” window, in which action is named and defined.

On the right top, as an “Event name” there are three icons available. The first is used to copy statements in the window “List of statements” for a selected event, i.e. “Double event” and the other icons serve for changing order of statements in the window “List of statements” upwards and downwards (icon arrows).

In the window “List of statements” there are available the buttons “Add statement, Edit statement, Delete statement and Delete statement”. In the column “Statement” a defined statement is displayed, see for which output it is applicable in the column “On output”. If you want to add a new statement, click the button “Add statement”, which will open the window “Setup the statement for event (see Pict. 106)”.

Picture 106

Setup the statement for event

Select unit and statement

☒ Hardware control
☐ User action

Setup parameters of statement

☐ Use trigger condition

Logic operation: Equal '='
Value: 0

OK Cancel

Generally, in the window you can define output unit statements, i.e. from the sheet “Outputs” There are the following units among the switching actors: sa2-01b, sa2-02b, sa2-02m, sa2-04m, dimming actors lm2-11b, da2-22m, LED indicators of bus buttons wsb2, LED indicators of key2-01 and LED indicators of the room thermoregulator iart2-01 and idrt2-01. When you click “*Select unit and statement*” you can select “*Action nested in unit*” and “*User action*”. Let’s describe in more details.

1. “*Event nested in a unit*”. Clicking the button “ * ” opens the window “*Select of control / controlled device*” (see Pict. 107).

Picture 107

Select of control/controlled device

Select units: SOPHY2, LM2-11B, WSB2-80, SA2-04M/Sn, SA2

Filter by text value:

Unit	Device	I/O name in device
SOPHY2	VoiceIN	RE1
LM2-11B	triak outputs	OUT1
WSB2-80	LED indicators	GREEN1
WSB2-80	LED indicators	RED1
WSB2-80	LED indicators	GREEN2
WSB2-80	LED indicators	RED2
WSB2-80	LED indicators	GREEN3
WSB2-80	LED indicators	RED3
WSB2-80	LED indicators	GREEN4
WSB2-80	LED indicators	RED4
SA2-04M/Sn	universal rele outputs	RE1
SA2-04M/Sn	universal rele outputs	RE2
SA2-04M/Sn	universal rele outputs	RE3
SA2-04M/Sn	universal rele outputs	RE4
SA2-02B/Sn	universal rele outputs	RE1
SA2-02B/Sn	universal rele outputs	RE2
DAC2-04M	triak outputs	OUT1
DAC2-04M	triak outputs	OUT2
DAC2-04M	triak outputs	OUT3
DAC2-04M	triak outputs	OUT4
SA2-02M/Sn	universal rele outputs	RE1
SA2-02M/Sn	universal rele outputs	RE2

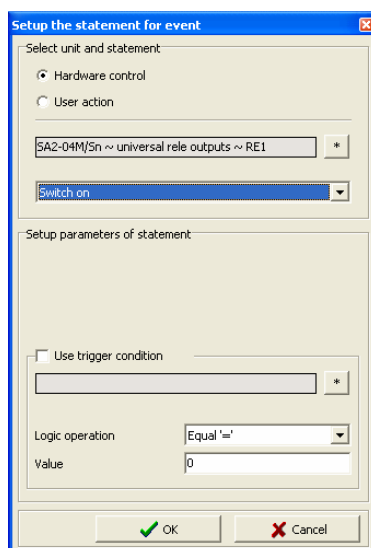
☐ Display also unused device

Clear OK Cancel

In the window you can select all output units connected via the CIB bus. For the description purposes we will use dividing into switching actors and dimming actors and describe statements that can be assigned.

- “Output units”, i.e. switching actors (sa2-01b, sa2-02b, sa2-02m and sa2-04m), led indicators of bus buttons wsb2, led indicators of room thermoregulator iart2-01, indicator of thermoregulator idrt2-01 and led indicator of the keyboard key2-01. If you select one of the devices above (in our case sa2-02m) and click “OK”, the window “Setup the statement for event (see Pict. 108)” with the device defined.

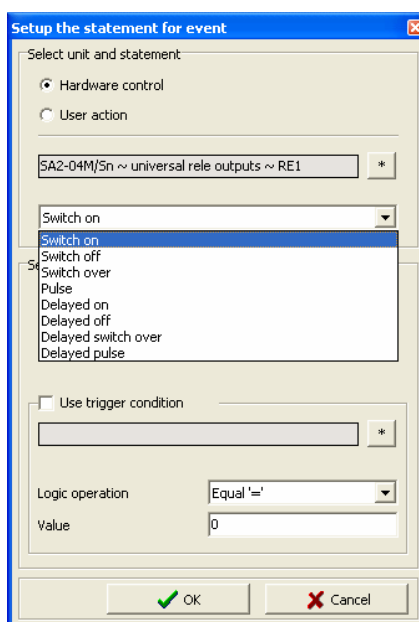
Picture 108



It is possible to assign the units the following statements (Pict. 109):

- “Use trigger condition” for a selected output of the unit (in our case sa2-02m, re1 named alarm in the window “System configuration”, sheet “Inputs”, subgroup “Digital outputs”).

Picture 109



- “Pulse” on a selected output of a unit (in our case sa2-02m, re1 named alarm in the window “System configuration”, sheet “Inputs”, subgroup “Digital outputs”). Selecting the statement,

the window *“Setup the statement for event (Picture 104)”*, i.e. time base for a pulse, 1 sec – 24 hours.

- *“Use trigger condition”* for a selected output of a unit (in our case sa2-02m, re1 named alarm in the window *“System configuration”, sheet “Inputs”, subgroup “Digital outputs, see page 36, picture 67)”*. If you select one of those statements, you will be offered a *“Setup the statement for event (Pict. 111)”* and *“Time delay”* that can be 1 sec - 24 hours.
- *“Delayed pulse”* on a selected output of the unit (in our case sa2-02m, re1 named alarm in the window *“System configuration”, sheet “Inputs”, subgroup “Digital outputs”*. If you select the statement, you will be offered the window *“Setup the statement for event (Pict. 111)”*, i.e. time base for a pulse that can be 1 sec - 24 hours and *“Time delay”* from 1 sec - 24 hours.
- *“Turn on/off thermostat”* is a command that can turn on/off time schedules of controlled heated circuits.

Picture 110

Setup the statement for event

Select unit and statement

☒ Hardware control
☐ User action

SA2-04M/5n ~ universal rele outputs ~ RE1 *

Pulse

Setup parameters of statement

Set pulse width [hh:mm:ss] 00:00:10.000

☐ Use trigger condition

Logic operation Equal '='

Value 0

OK Cancel

Picture 111

The dialog box is titled "Setup the statement for event". It has two main sections: "Select unit and statement" and "Setup parameters of statement".

In the "Select unit and statement" section, the "Hardware control" radio button is selected. Below it, the text "SA2-04M/5n ~ universal rele outputs ~ RE1" is displayed in a text box, followed by an asterisk. A dropdown menu shows "Delayed switch over" selected.

In the "Setup parameters of statement" section, the "Delay time" is set to "00:00:10.000". There is an unchecked checkbox for "Use trigger condition" with an empty text box and an asterisk below it. The "Logic operation" is set to "Equal '='", and the "Value" is set to "0".

At the bottom, there are "OK" and "Cancel" buttons.

Picture 112

The dialog box is titled "Setup the statement for event". It has two main sections: "Select unit and statement" and "Setup parameters of statement".

In the "Select unit and statement" section, the "Hardware control" radio button is selected. Below it, the text "SA2-04M/5n ~ universal rele outputs ~ RE1" is displayed in a text box, followed by an asterisk. A dropdown menu shows "Delayed pulse" selected.

In the "Setup parameters of statement" section, the "Set pulse width [hh:mm:ss]" is set to "00:00:10.000". The "Delay time" is also set to "00:00:10.000". There is an unchecked checkbox for "Use trigger condition" with an empty text box and an asterisk below it. The "Logic operation" is set to "Equal '='", and the "Value" is set to "0".

At the bottom, there are "OK" and "Cancel" buttons.

- "Input units", i.e. dimming actors lm2-11b and da2-22m. If you select one of the devices and confirm by "OK", the window "Setup the statement for event (see picture 113)" with the device defined.

Picture 113

Setup the statement for event

Select unit and statement

☒ Hardware control
☐ User action

DAC2-04M ~ triak outputs ~ OUT2 *

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Direct control input (one button control)

Setup parameters of statement

User output value: 0.0

☐ Use trigger condition

SOPHY2 ~ DI ~ IN 1 *

Logic operation: Equal '='

Value: 0.0

OK Cancel

You can assign the units the following statements (Pict. 114):

- *“Direct control input (one button control)”* statement primary intended for binary power inputs (IN) control of the units lm2-11b and da2-22m. It works as follows. Short

Picture 114

Setup the statement for event

Select unit and statement

☒ Hardware control
☐ User action

LM2-11B ~ triak outputs ~ OUT1 *

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Direct control input (one button control)

Direct control input (one button control)

- Up one step
- Down one step
- Up smoothly (with run up ramp)
- Down (with slowing down ramp)
- Up level value
- Down the level
- Stop level value change
- Set level value with one step
- Set level value slowing
- Switch-On, then automatic Off
- Delayed Off (Delay to leave)
- Switch over
- Set level value in steps
- Set continuously level value

Logic operation: Equal '='

Value: 0

OK Cancel

press only switches on/off lightning, considering light channel setup from the sheet *“Outputs, subgroup analogue outputs”*. If you hold a button and release (stops on selected intensity), you can control light channel intensity. If you turn off the light channel, which was

on e.g. 50% intensity, it will be switched on the same intensity level. You can use the same statement also for bus buttons wsb2.

- *"Up one step"* means switch on 0 - 100% (delay on/off) regardless times defined in the sheet *"Output, subgroup analog outputs"*.
- *"Up smoothly (with run up ramp)/Down (with slowing down ramp)"* means switch on off light channel 0 - 100% (delay on/off) with respect to times defined in the sheet *"Output, subgroup analog outputs"*.
- *"Up/down level value"* is an alternative of *up/down smoothly*. We recommend using it together with the next statement bellow.
- *"Stop level value change"* is a command used to stop intensity change on smooth switch on/off or increasing/decreasing intensity. You can combine with the previous command and thus control light intensity, i.e. long press at a button activation increases/decreases intensity and stops at a certain intensity of deactivation.
- *"Set level value with one step"* is used to switch on a light channel on a set level regardless times defined in the sheet *"Output, subgroup analog outputs"*. After selecting the command, you will be offered the window *"Setup the statement for event (Pict. 115)"*, where you select intensity.

Picture 115

Setup the statement for event

Select unit and statement

☒ Hardware control
☐ User action

LM2-11B ~ triak.outputs ~ OUT1 *

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Set level value with one step

Setup parameters of statement

User output value: 50

☐ Use trigger condition

Logic operation: Equal '='

Value: 0

OK Cancel

- *"Set continuously level value"* is a command to switch on the light channel on a preset intensity, taking into account delay on/off times defined in the sheet *"Outputs, analogue outputs group"* (see page 38, Pict. 70). If you select the statement, the window *"Set the statement for event (Pict 116)"* will appear, where you select an intensity level.

Picture 116

Setup the statement for event

Select unit and statement:

☒ Hardware control
☐ User action

LM2-11B ~ triak outputs ~ OUT1 *

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Set level value slowing

Setup parameters of statement:

User output value: 50

☐ Use trigger condition

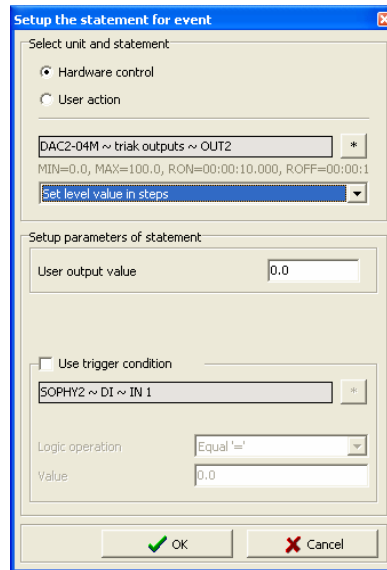
Logic operation: Equal '='

Value: 0

OK Cancel

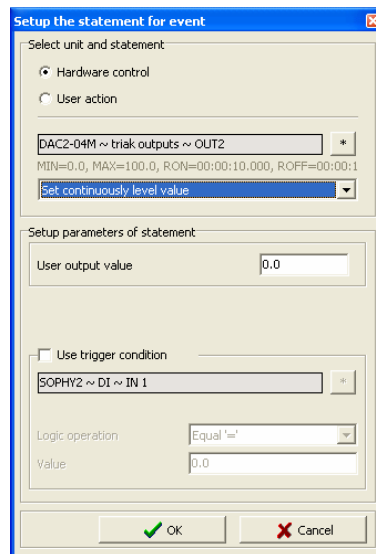
- “Switch on, then automatic off” will switch off the light channel after time defined in the sheet “Output, subgroup analog outputs”. It respects times defined in the sheet (delay on/off).
- “Delay off (delayed to leave)” will switch the light channel off after time defined in the sheet “Output, subgroup analog outputs” (see page 38, Pict. 70)“. It respects times defined in the sheet (delay on/off).
- “Switch over “is triggered switching the light channel over . It does not respect times defined in the sheet “Output, subgroup analog outputs”.
- “Set level value in steps by %“ causes increasing light intensity in steps to pre-set value, regardless times (delay on/off) defined in the sheet “Output, subgroup analog outputs”. Selection of the command will offer the window “Setup the statement for event“, where you set up a step value (Pict. 118).

Picture 117



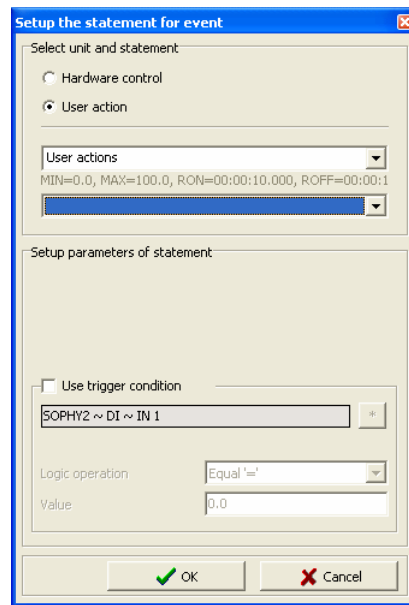
- “Set continuously level value” is a step increase to preset value with respect to times (delay on/off) defined in the sheet “Output, subgroup analog outputs” (see page 38, Pict. 70). “. Selecting the command will offer the window “Setup the statement for event”, where you set up a step value (Pict. 120).

Picture 118

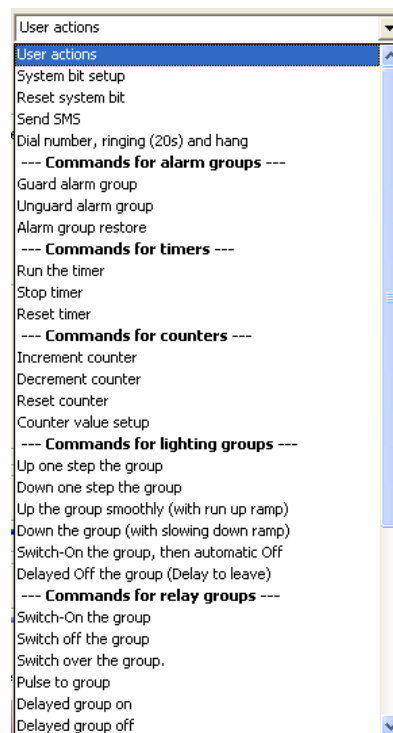


2. “User action”. If you tick the box in the window “Setup the statement for event (Pict 119)”, the window with the following statements will open (Pict 120).

Picture 119

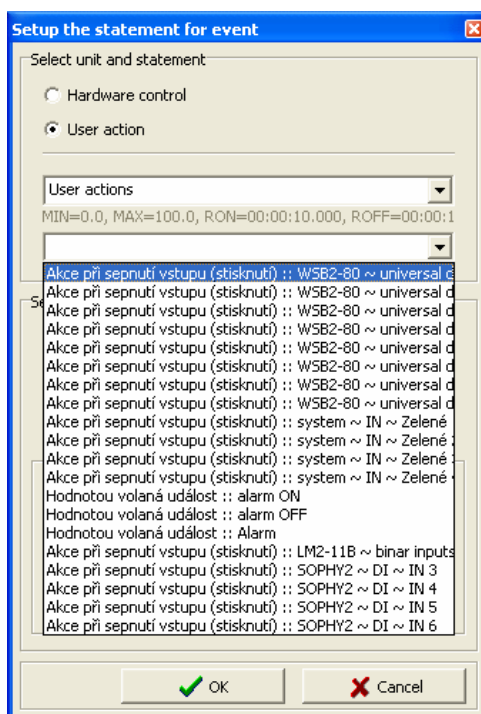


Picture 120



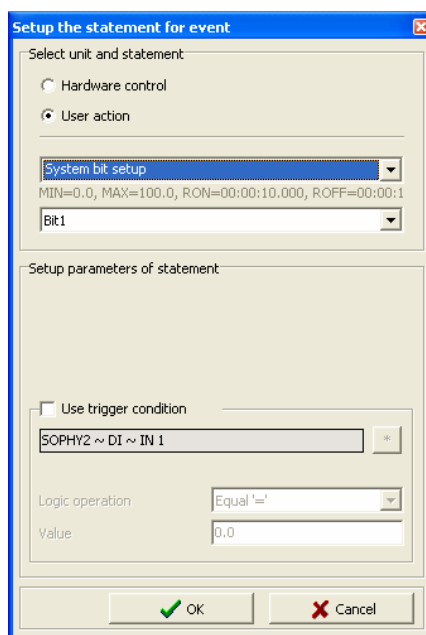
- a. "User action". The option opens the window "Setup the statement for event" (Pict. 113), where you can set already called event from the action list (Pict. 121) in the window "Action/statement manager" (see page 60, Pict. 96).

Picture 121



- b. "System bit setup". By the option you set up a selected system bit (inner variable) to logic status 1 (Pict. 1122). There are 32 system bits available.

Picture 122



- c. "Reset system bit". The option resets (deletes) a selected system bit (inner variable) to logic status 0. (Pict. 122).
- d. "Send SMS (Pict. 123)". The option enables sending SMS defined in the sheet "GSM". The messages are sent to numbers defined in the sheet „GSM“.

Picture 123

Setup the statement for event

Select unit and statement:

☐ Hardware control

☒ User action

Send SMS

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Pokus

Setup parameters of statement:

Phone number: Jirka

Jirka
Pavla
Jirka_sluzebni

☐ Use trigger condition

SOPHY2 ~ DI ~ IN 1

Logic operation: Equal '='

Value: 0.0

OK Cancel

- e. *“Dial a number, ring for 20 sec and stop, give a short ring (Pict. 124)”*. The option enables giving a short ring to a selected phone numbers, defined in “GSM” sheet.

Picture 124

Setup the statement for event

Select unit and statement:

☐ Hardware control

☒ User action

Dial number, ringing (20s) and hang

Jirka
Pavla

Setup parameters of statement:

☐ Use trigger condition

wsb40_chodba ~ universal dig. inputs ~ up1_svetlo_chodba/komfort_na

Logic operation: Equal '='

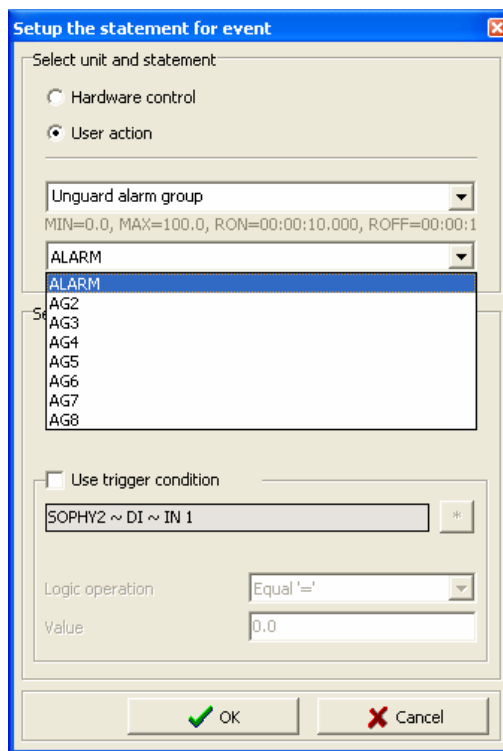
Value: 0.0

OK Cancel

- f. *“Commands for alarm groups (Pict. 125)”*. There are the following possibilities to set up an alarm group defined in the sheet „Alarms“:
- Turn on alarm group guarding,

- Turn off alarm group guarding,
- Group reset.

Picture 125



- g. "Commands for timers (Pict. 126)". There are the following possibilities to set up timers defined in the sheet "System" :
- Run timer (not reset),
 - Stop timer (stops, but not reset),
 - Reset timer (reset, but not stopped).
- h. "Commands for counters" (Pict. 127)". There are the following possibilities to set counters defined in the sheet "System":
- Increment counter (always +1),
 - Decrement counter (always -1),
 - Reset counter,
 - Counter value setup.
- i. "Commands for lighting groups" (Pict. 128)". There are the following possibilities to set lighting groups defined in the sheet "Outputs":
- Switch on/off the group one step up, i.e. switch on 0 - 100% regardless times (delay on/off) defined in the sheet "Outputs, subgroup Analogue outputs".
 - Switch on/off the group smoothly (with run up/down ramp), i.e. switch on a lighting group 0 - 100% with respect to times (delay on/off defined in the sheet "Outputs, subgroup Analogue outputs".

Picture 126

Setup the statement for event

Select unit and statement

☐ Hardware control

☒ User action

Run the timer

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

blikání LED žaluzie

blikání LED žaluzie

závlaha

Alarm ON

Value 00:00:01.000

☐ Use trigger condition

SOPHY2 ~ DI ~ IN 1 *

Logic operation Equal '='

Value 0.0

OK Cancel

Picture 127

Setup the statement for event

Select unit and statement

☐ Hardware control

☒ User action

Counter value setup

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Alarm

Alarm

alarm ON

alarm OFF

Value 1000

☐ Use trigger condition

SOPHY2 ~ DI ~ IN 1 *

Logic operation Equal '='

Value 0.0

OK Cancel

Picture 128

Setup the statement for event

Select unit and statement

☐ Hardware control

☒ User action

Up one step the group

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Vše analog

Vše analog

Setup parameters of statement

User output value: 0.0

☐ Use trigger condition

SOPHY2 ~ DI ~ IN 1

Logic operation: Equal

Value: 0.0

OK Cancel

- Switch on the group with automatic switch off, i.e. when switched on, the group will switch off after time defined in the sheet *“Outputs, subgroup Analogue outputs”*. Defined times (delay on/off) are respected.
 - Delay off the group (delay to leave), i.e. when the button is activated, a lighting group will switch off with a delay defined in the sheet *“Outputs, subgroup Analogue outputs”*. Times defined in the sheet are respected (delay on/off).
- j. *“Commands for relay groups (Pict. 129)”*. There are the following options to set digital output groups defined in the sheet *“Outputs”*:
- Switch on/off the group,
 - Switch over the group (trig),
 - Pulse to the group (time base 1 sec - 24 hours will appear),
 - Delay on/off/ switch over the group (time base 1 sec - 24 hours will appear),
 - Delayed pulse to group (time base for pulse and delay 1 sec - 24 hours will appear).
- k. *“Commands for heating” (Pict. 130)*. There are the following possibilities to set a mode (detailed description of modes is a subject of Chapter 8) of heating circuits defined in the sheet *“Heating/Cooling”*:

Picture 129

Setup the statement for event

Select unit and statement:

☐ Hardware control

☒ User action

Switch-On the group

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Vše skokově

Vše skokově

Setup parameters of statement:

☒ Use trigger condition

SOPHY2 ~ DI ~ IN 1

Logic operation: Equal '='

Value: 0.0

OK Cancel

Picture 130

Setup the statement for event

Select unit and statement:

☐ Hardware control

☒ User action

Presentation mode

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

standart

Setup parameters of statement:

☒ Use trigger condition

SOPHY2 ~ DI ~ IN 1

Logic operation: Equal '='

Value: 0.0

OK Cancel

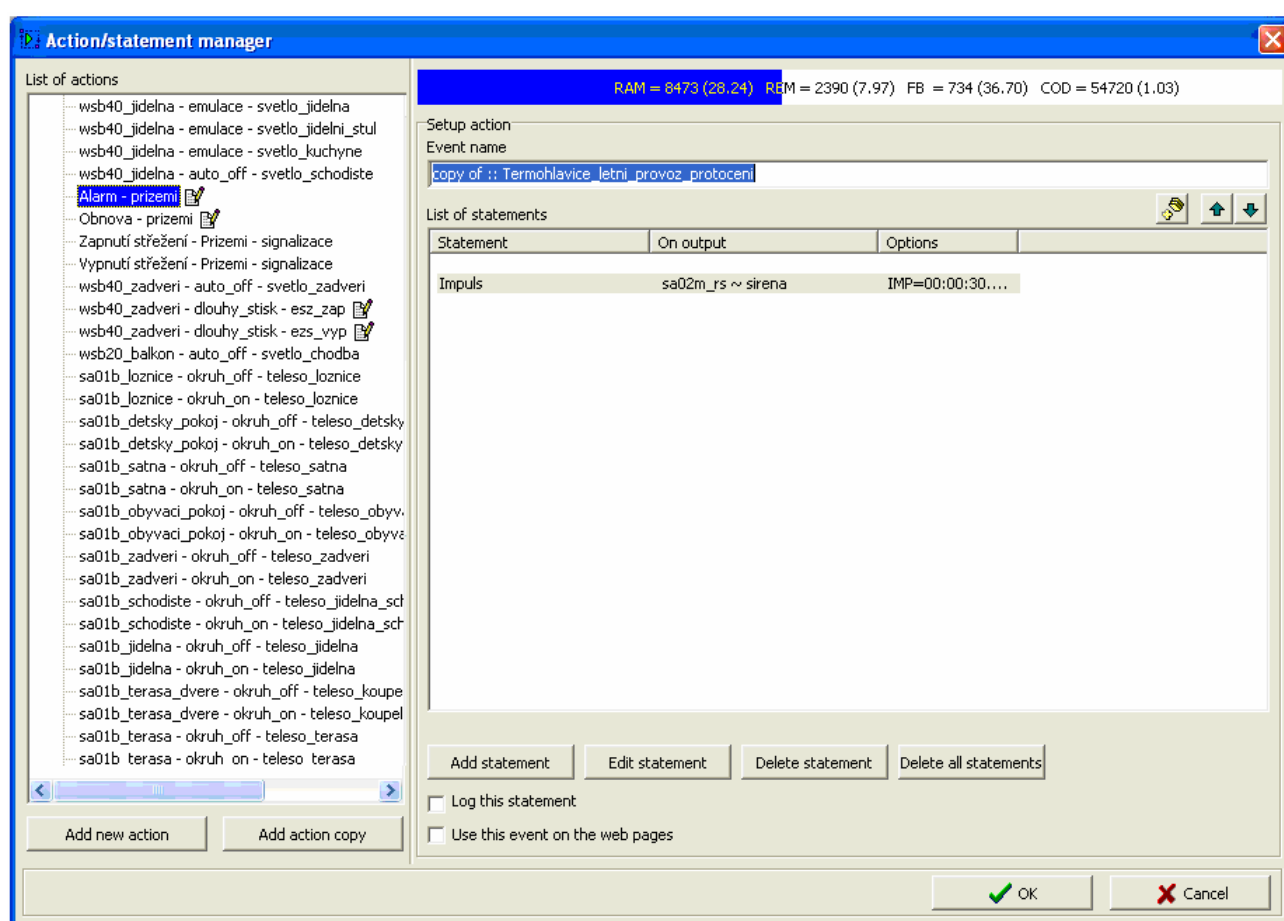
- Presentation till change, i.e. comfort mode till time stamp,
- Switch on temporary comfort (1 hour),
- Impose minimum,
- Impose depression,
- Impose normal,
- Impose comfort,
- Use time schedule, i.e. switch over e.g. from imposed mode back to time schedule,

- Switch over, i.e. from time schedule to presentation mode (comfort mode till next change in time schedule)
- Switch on/off time schedule, i.e. permanent switch on/off time schedule.

Each statement in the window “Setup the statement for event” can be combined with so call “start condition”, i.e. using logic operations. Actually you can use 1 logic condition for a defined statement. Logic conditions are described in chapter 11 – Logic conditions (instructions) in IDM software, see page 93.

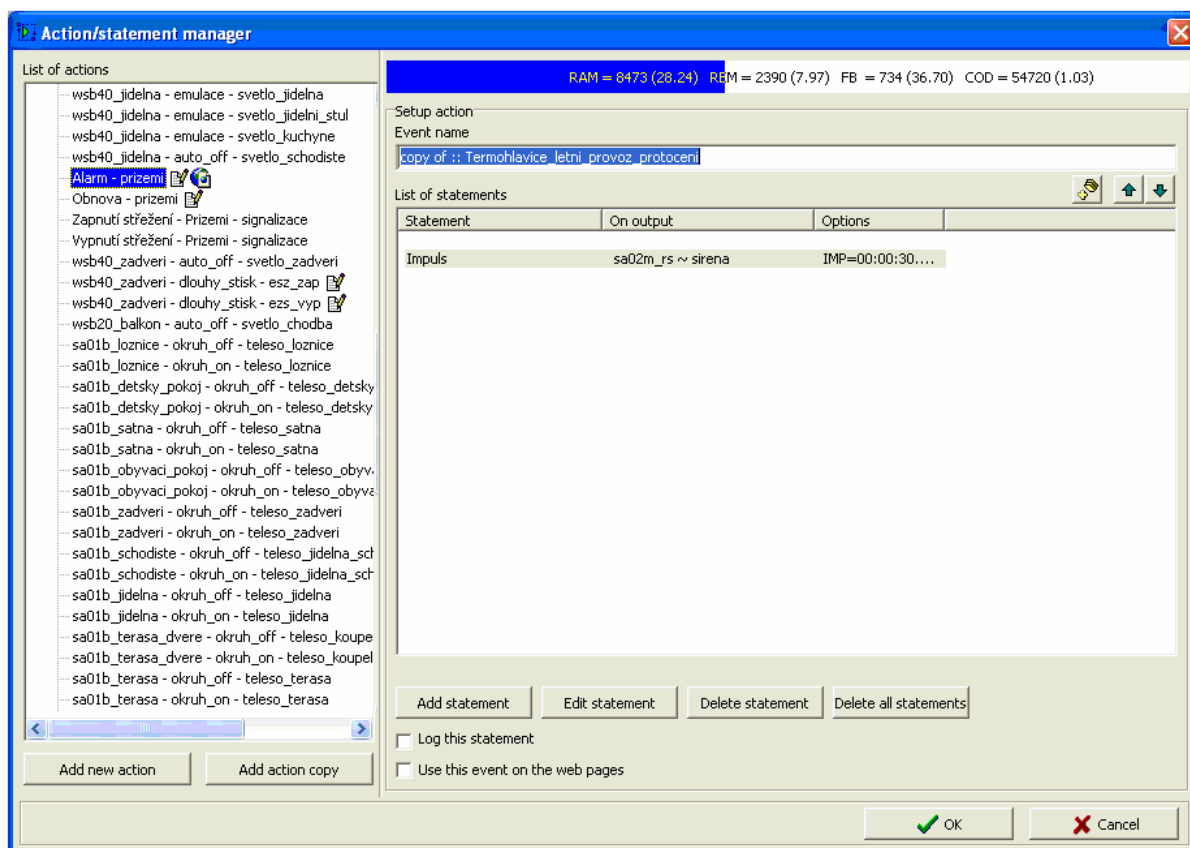
In the window “Action/statement manager” you can select actions (events) that will be saved (logged) in CPU memory with a possibility to export the saved data. Choose the option by ticking the box “Log the statement (Pict. 131)”. Such marked event is indicated by “writing” icon.

Picture 131



Another possibility in the window “Action/statement manager” is the option to select actions (events) that can be controlled via web server. The option is activated by ticking the box “Use the event on the web pages” (Pict. 132). The icon of web sites will indicate the event.

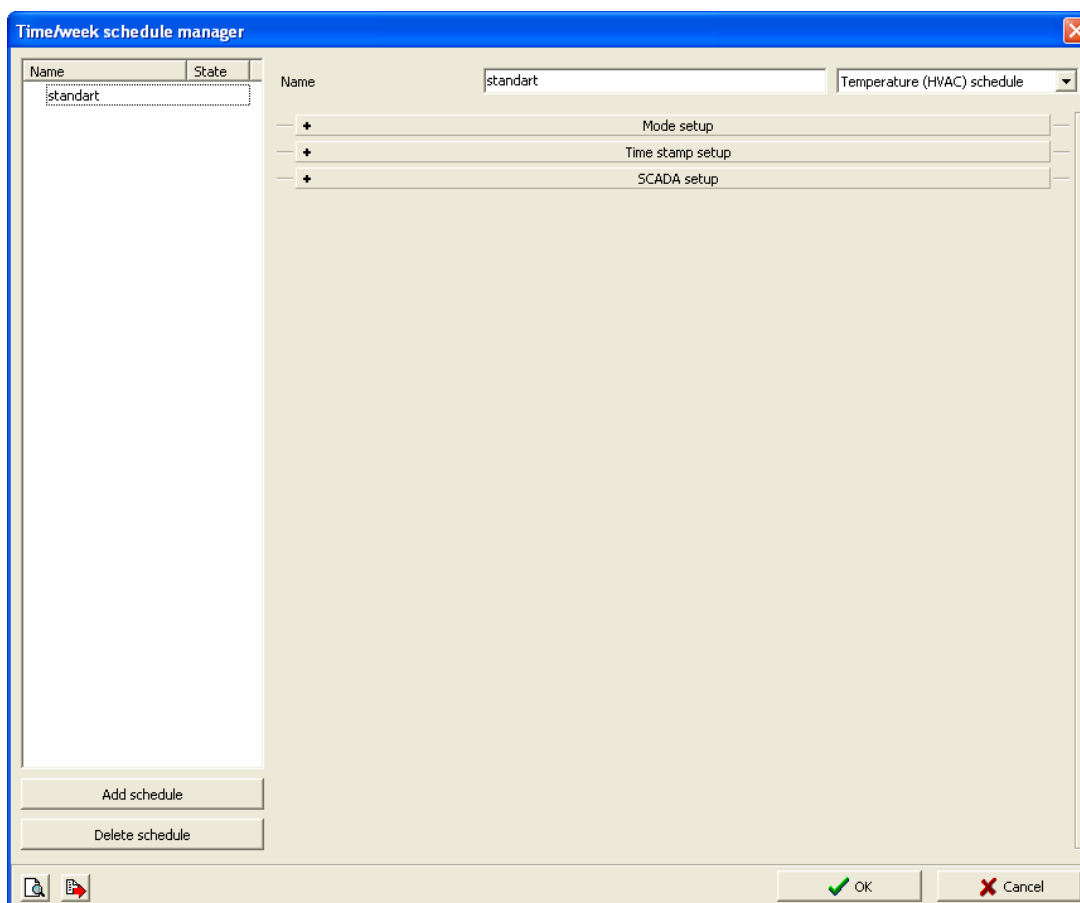
Picture 132



8. Time/week schedules manager

“Time/week schedules manager” (Pict. 133) is linked to the sheet *“Heating/Cooling”*, where it is activated by the button *“Week schedule setup”*. You can also open the window *“Time/week schedules manager”* by fast selection icons.

Picture 133



as the name of the window indicates, it can be divided to time schedules and week schedules, which will be described further.

1. Week schedules (Pict. 133).

The schedules are bound with the sheet *“Heating/cooling”*, therefore the option *“Heating/Cooling”* is displayed in the right list box. In the right window you can add or delete a heating circuit by the buttons *“Add”* and *“Delete”*. You can define its name by the box *“Name”*. Status means an actual mode of a circuit. There are the following modes:

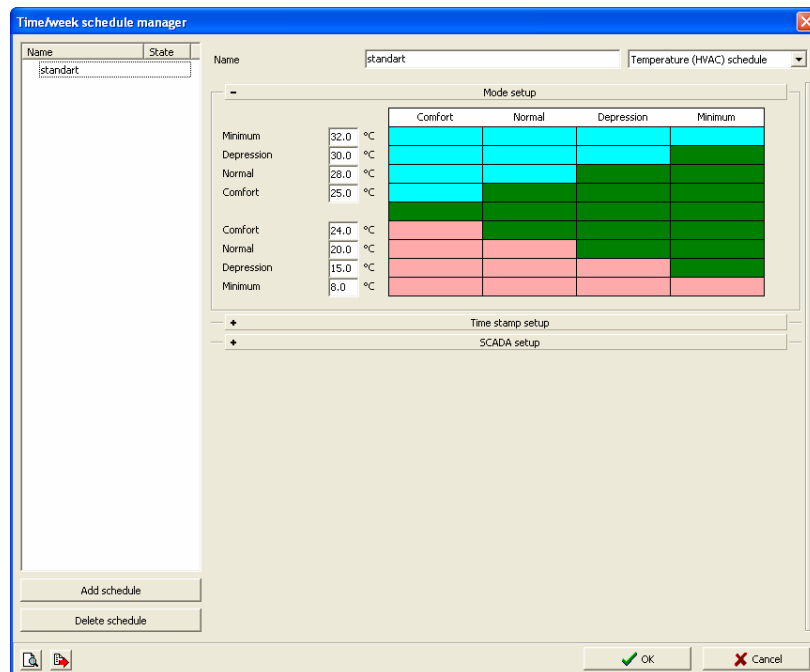
- *Comfort*. It is an operation mode for an occupied room operating with set comfort temperatures for heating and cooling. Required temperatures are set up by a configuration program in the range $+5^{\circ}\text{C}$ - $+100^{\circ}\text{C}$ for heating and cooling in steps of 0.1°C . In IRC system the mode is signaled by in a zone of operation data in COMFORT variable. The comfort mode is activated by:
 - Week time schedule,

- Room thermoregulator in a room with the comfort button (for 1 hour) or presentation button. When the mode is activated by the comfort button, it is finished after setup time. When it is activated by the presentation button, it is finished on the nearest scheduled mode change.
- Response to persons' presence by PIR motion detector,
- Imposed mode setup from IRC system.
- *Normal*. It is an operation mode that does not correspond with an empty room status. It is supposed to switch over fast to the comfort mode in case of person's presence. Required temperature is set by configuration program in the range + 5°C - + 100°C for heating and cooling in steps of 0.1 °C. In IRC system is the mode indicated in a zone of operation data in NORMAL variable. The normal mode is activated by:
 - Week time schedule,
 - Imposed mode setup from IRC system.
- *Depression*. It is an operation mode corresponding an empty room, and it is not supposed to be occupied soon (e.g. at night, rarely attended rooms, etc.). When the switch over to the comfort mode happens, you must expect longer time until the temperature rises. Required temperature is set by configuration program in the range + 5°C - + 100°C for heating and cooling in steps of 0.1 °C. In IRC system is the mode indicated in a zone of operation data in DEPRESSION variable. The depression mode is activated by:
 - Week time schedule,
 - Imposed mode setup from IRC system.
- *Minimum*. It is an operation mode corresponding with a room that is permanently empty. In the mode, heating/cooling is closed and only so called "antifreeze" function to protect heating medium is activated. If the temperature in the room declines below set temperature, heating actuator will be opened. Cooling function is analogical. The mode will be activated from any mode, if an opened window is detected by a window contact. Required temperature is set by configuration program in the range + 5°C - + 100°C for heating and cooling in steps of 0.1 °C. In IRC system is the mode indicated in a zone of operation data in MINIMUM variable. The depression mode is activated by:
 - Week time schedule,
 - Imposed mode setup from IRC system,
 - Detection of an opened window by a window contact.

There are three roll off menu available: "Mode setup", "Time stamps setup" and "SCADA setup" (see Chapter 13, page. 109):

- "Mode setup" (Pict. 134):

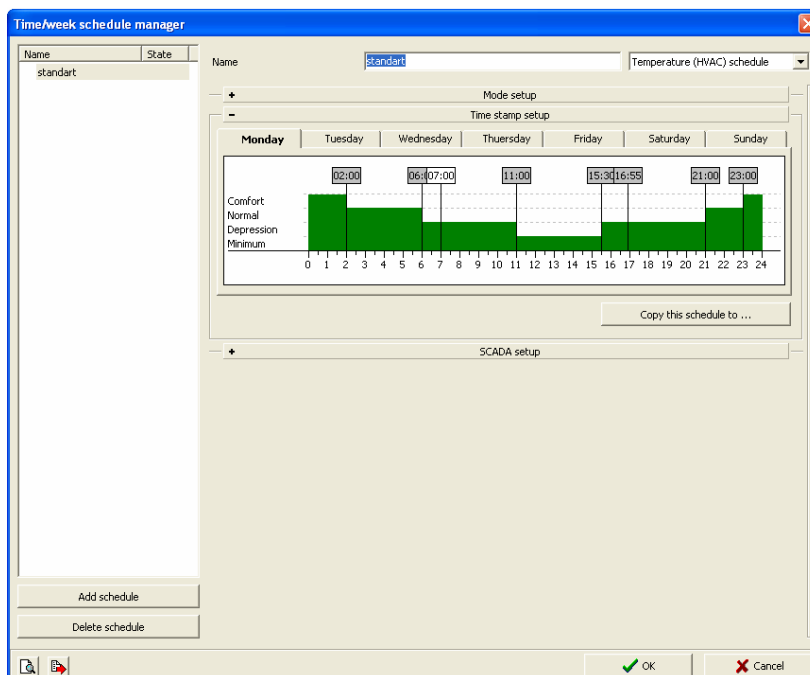
Picture 134



The window of the offer displays modes setup (see Pict. 127). Green area represents range of set temperature regulation. Blue area is “Cooling”, red are in “Heating”. You can set an appropriate (required) temperature in the range + 5 °C - + 100 °C for each mode described above.

- “Time stamps setup” (Pict. 134)

Picture 134

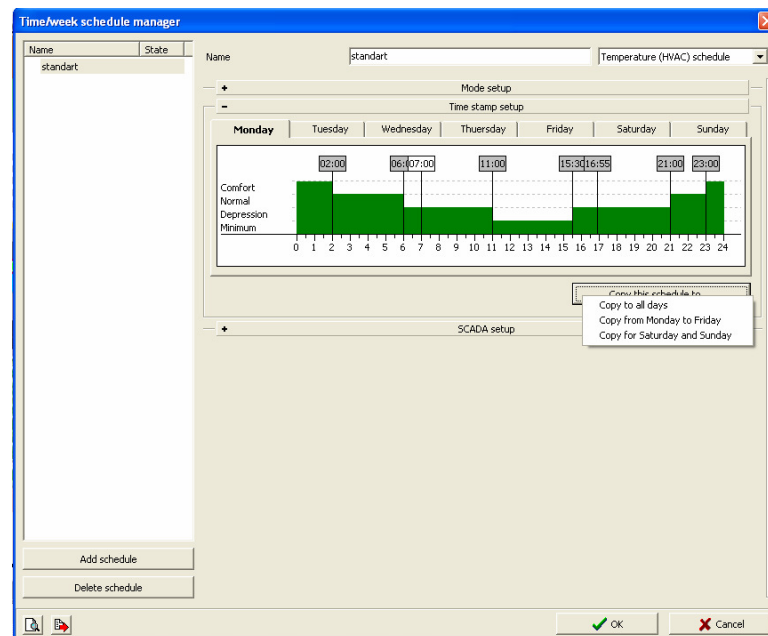


The offer displays time stamps setup (see Pict. 134). Time stamps can be shifted by the mouse pointer (arrows will be displayed) within time axis or by editing time base – the editing activated

by double-click. By the option “Copy time schedule to (Pict. 136)” you can copy setup of selected circuit to:

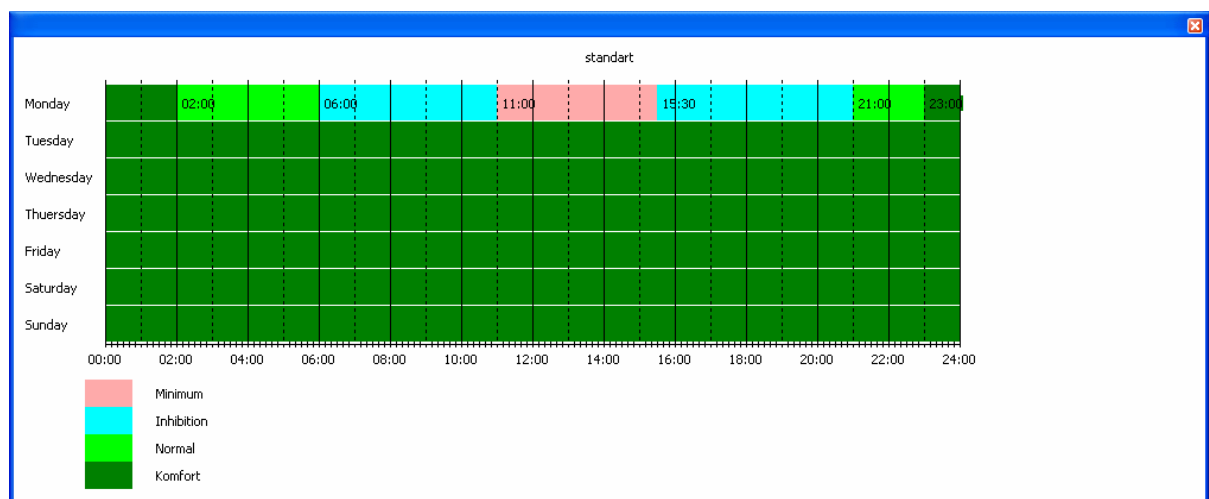
- All days,
- Monday to Friday,
- Saturday and Sunday.

Picture 136



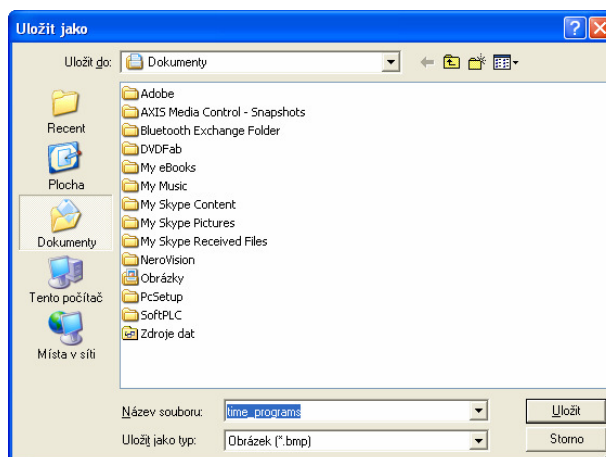
The first icon on the left at the bottom is used for graphic displaying of mode setup and time stamps setup of a selected heating (see Pict. 137).

Picture 137



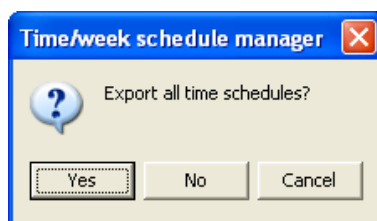
The second icon on the left at the bottom serves for exporting time schedules *bmp file. Clicking will open a window to save the file (Pict. 138).

Picture 139



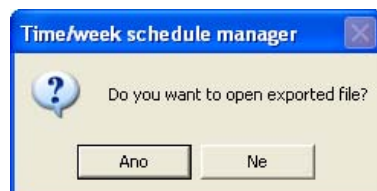
After selecting saving route, a question will appear, if you want to save all time/week schedules or only the selected schedule (Pict. 140).

Picture 140



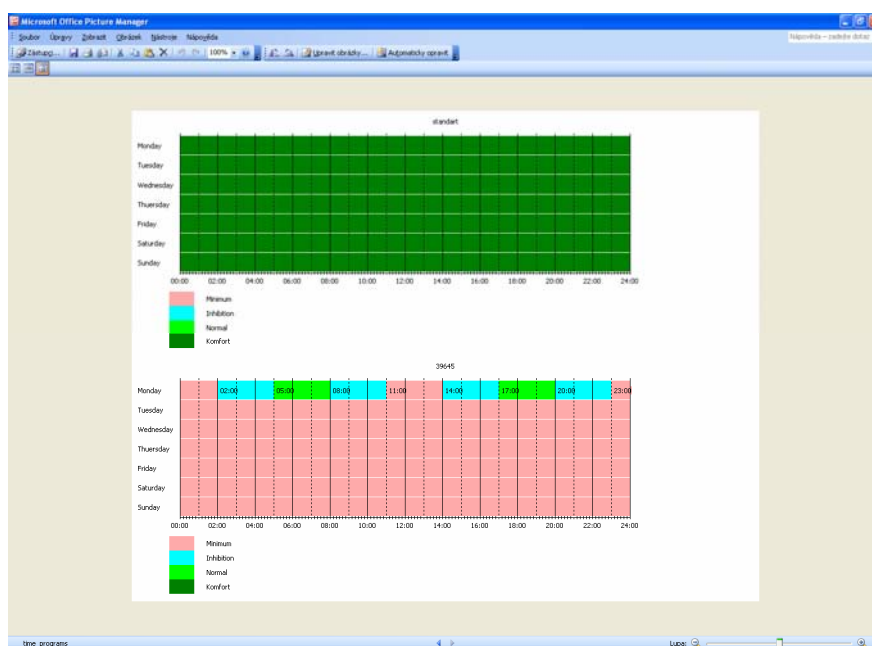
When you select “yes / no” option, you will be asked if you want to open the exported file (Pict. 141).

Picture 141



We have selected export of all time schedules. The exported file has the following form (Pict. 142).

Picture 142

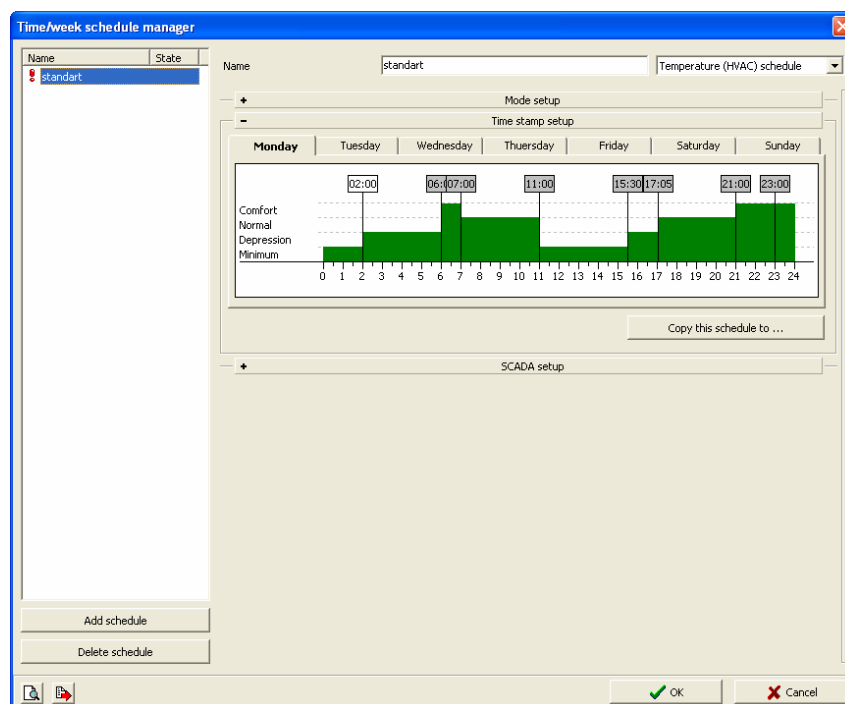


2. Time schedules

In time schedules there is a possibility to use *“Double status program”* or *“Continuous time sector”*. *“Double status program”* switches on/off schedules timed by us. There are two menus available:

- *“Program event setup (Pict. 143)”*, where we define commands on start of time program

Picture 143

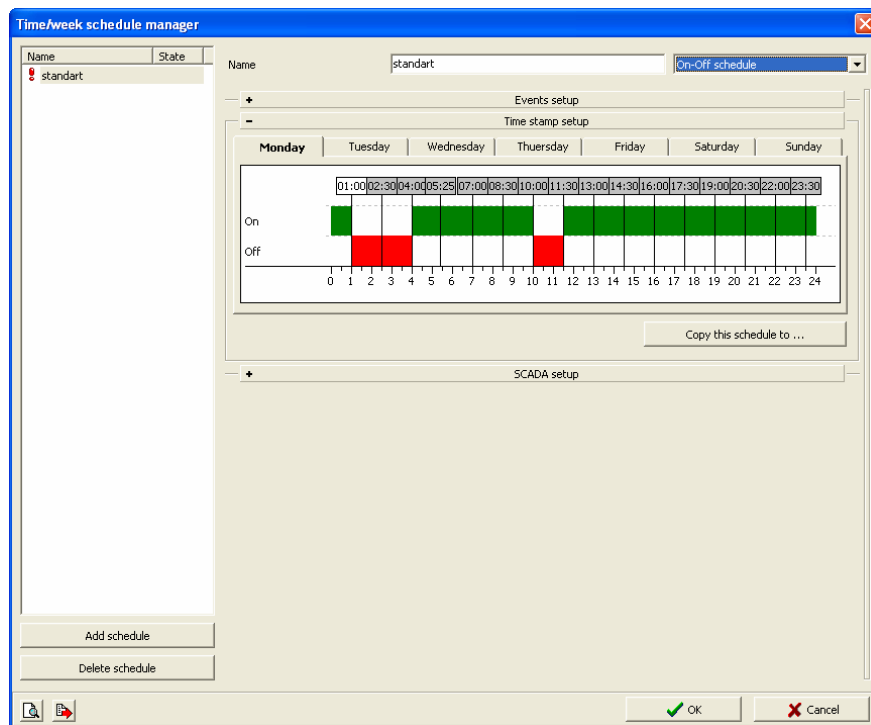


- *“On – activate commands”* and at the end of program - *„Off-deactivate commands”*. Clicking on the icon *“Action/statement manager”* you will open the window *“Action/statement manager”* (see page 60), where you can define the actions.
- *“Time stamps setup” (Pict 144)”*. When you open the offer, time stamps setup will be displayed. Time stamps can be changed when you shift them by the mouse pointer (arrows appear) or

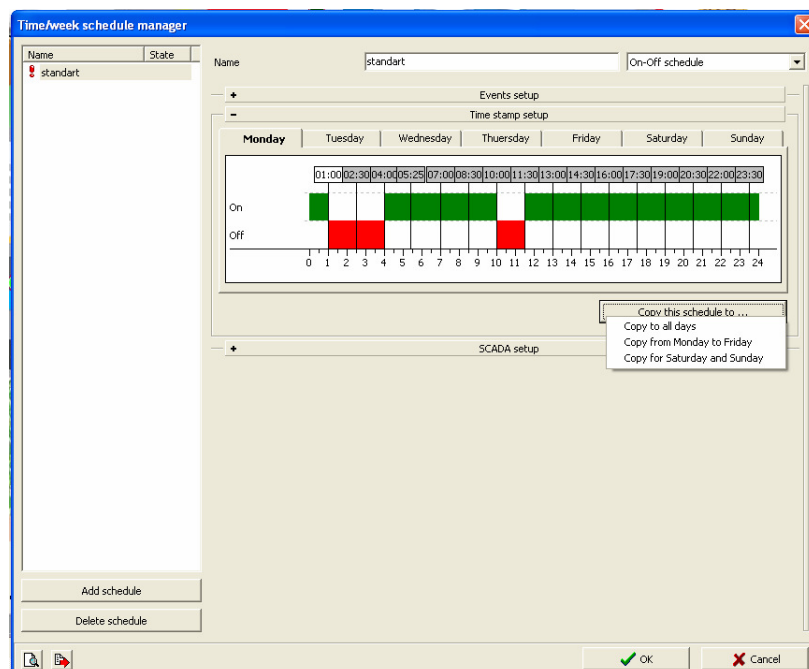
directly by editing time base – editing activated by double click. By the option “Copy this schedule to...” (Pict. 145) you can copy setup to:

- All days,
- Monday to Friday,
- Saturday and Sunday.

Picture 144



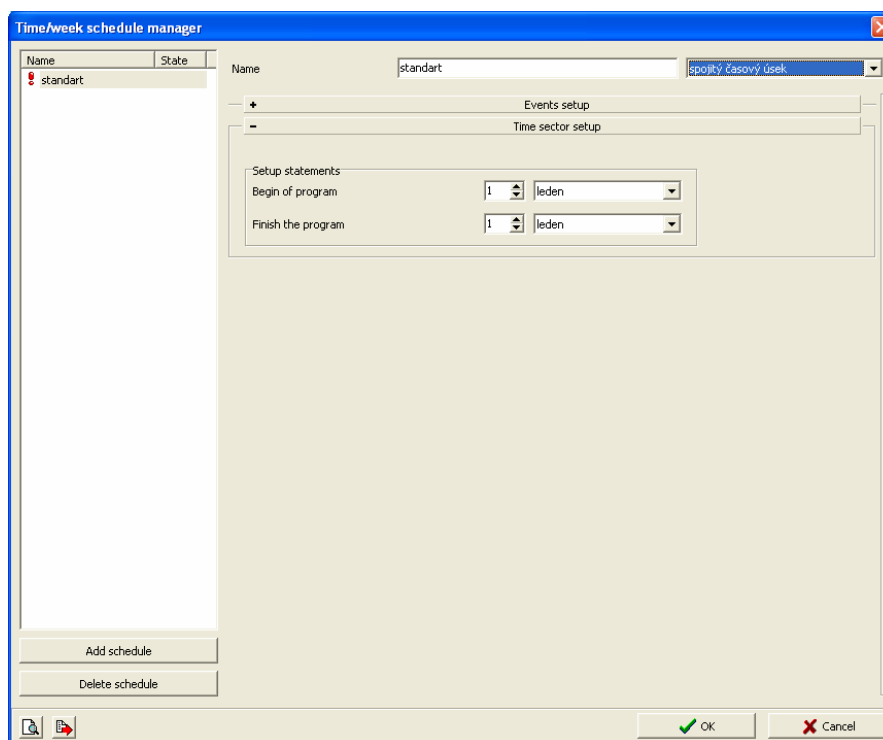
Picture 145



“Continuous time sector” switches on/off time scheduled in a selected time sector. Again, there are two roll off menus:

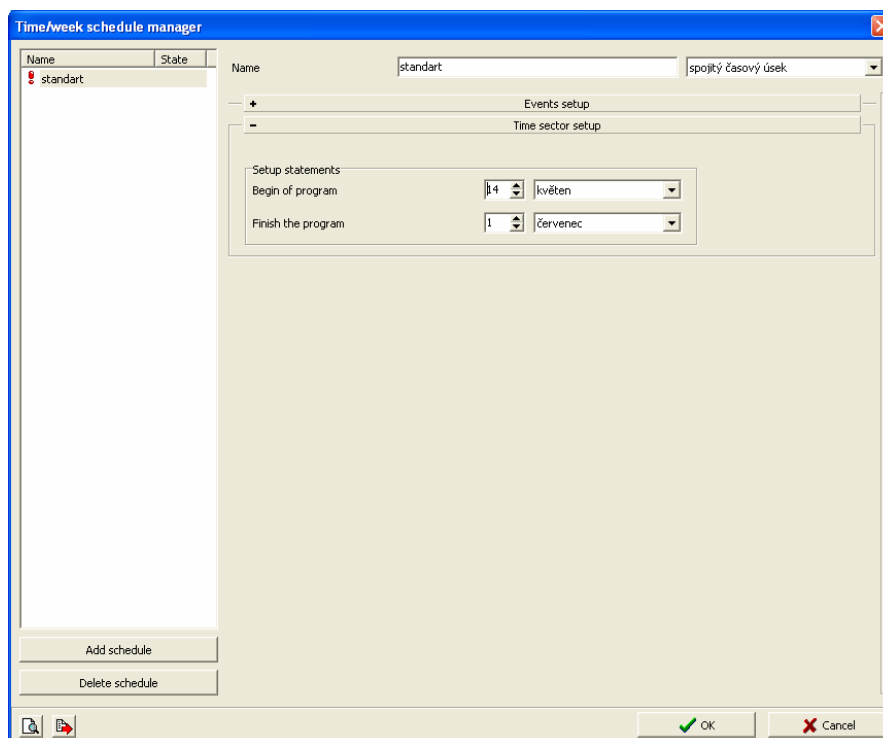
- “Events setup” (Pict. 146), here you define statements on time sector start (switch on)

Picture 146



- “On-activate statements” and at the end of time sector – “Off-deactivate commands”. Click the icon “Action/statement manager” to open the window “Action/statement manager (see page. 60), where you define the actions.
- “Time sector setup” (Pict. 147), where you define time sector of continuous time schedule – “Begin of program” and “Finish the program”.

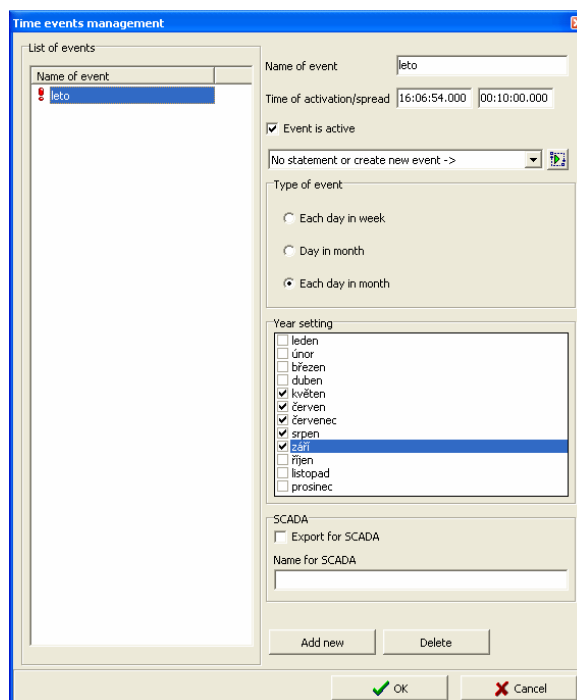
Picture 147



9. Time events manager

Time events manager serves for full setup and management of time events. It is opened by fast selection icons (see page 11, Pict. 17). It is not possible to edit defined events in this window. To create a new time event or edit already created one, you must open the “Time events manager” from the window “System configuration” (see page 35), by the first icon “Time events manager”¹⁴ (bottom on left). Clicking the icon, the window “Time events management” (Pict. 148) will open

Picture 148

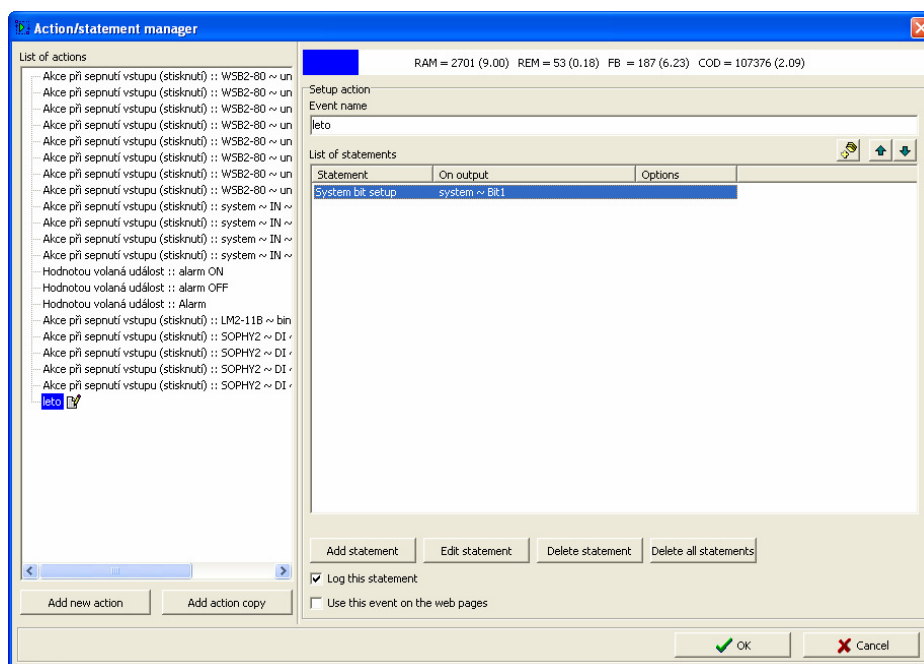


In “List of events” you can see time events that have already been created. Whereas a new time events will be created by the option “Add new event”. The option “Delete” will delete selected time events. The name of a time event is defined the box “Name of event”. By the option “Time of activation/spread” define time of time event start (activation time) and also spread defining a time sector, when time event will be performed at random (you can use in order to simulate persons presence in a building). If you tick the box “Event is active”, you will activate a selected event. Otherwise the time event is not active. Clicking “Action/statement manager”¹⁵, you will open the window “Action/statement manager”, where action/statement can be defined (see Pict. 141). “Type of event” means time when the selected time event shall be performed, following activation time that has been setup. You can choose:

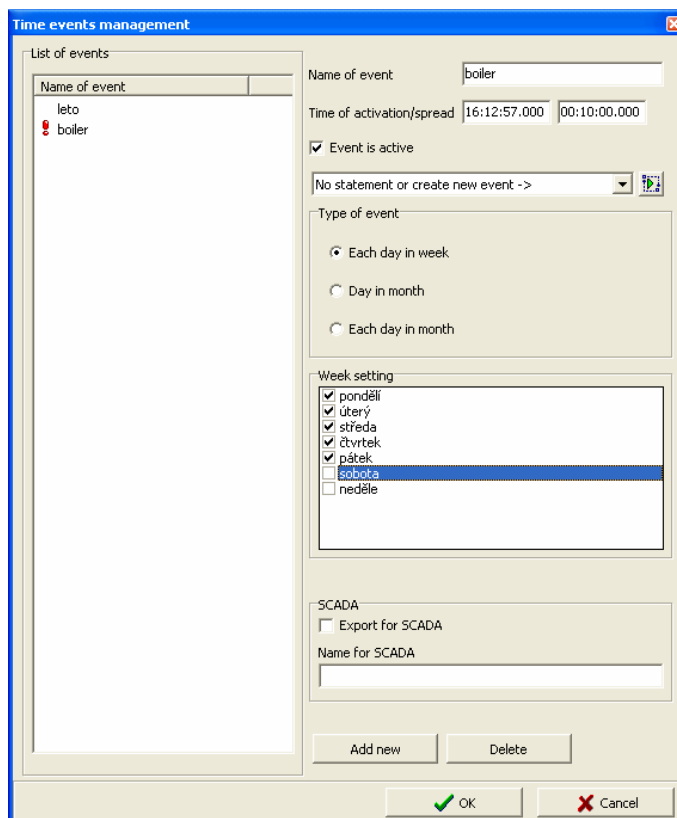
- Each day in week (Pict. 150),
- Day in month (Pict. 151),
- Each day in month (Pict. 152).

By clicking “OK” you will confirm and save changes, by “Cancel” changes will not be saved.

Picture 149



Picture 150



Picture 151

Time events management

List of events

Name of event
test

Name of event: test

Time of activation/spread: 16:06:54.000 00:10:00.000

☒ Event is active

No statement or create new event ->

Type of event

☐ Each day in week
☒ Day in month
☐ Each day in month

Setting

☐ 1	☐ 11	☐ 21	☐ 31
☐ 2	☐ 12	☐ 22	
☒ 3	☐ 13	☐ 23	
☐ 4	☐ 14	☐ 24	
☐ 5	☒ 15	☐ 25	
☐ 6	☐ 16	☐ 26	
☐ 7	☐ 17	☐ 27	
☐ 8	☐ 18	☐ 28	
☐ 9	☐ 19	☒ 29	
☐ 10	☐ 20	☐ 30	

SCADA

☐ Export for SCADA

Name for SCADA

Add new Delete

OK Cancel

Picture 152

Time events management

List of events

Name of event
Denni_rezim_zimni_cas
Nocni_rezim_zimni_cas
Nocni_rezim_letni_cas
Denni_rezim_letni_cas
Svetlo_vchod_off
Cerpadlo_kotel

Name of event: Denni_rezim_zimni_cas

Time of activation/spread: 07:00:00.000 00:00:00.000

☒ Event is active

denni_rezim_zimni_cas

Type of event

☐ Each day in week
☐ Day in month
☒ Each day in month

Year setting

☒ leden
☒ unor
☒ březen
☐ duben
☐ květen
☐ červen
☐ červenec
☐ srpen
☐ září
☒ říjen
☒ listopad
☒ prosinec

SCADA

☒ Export for SCADA

Name for SCADA

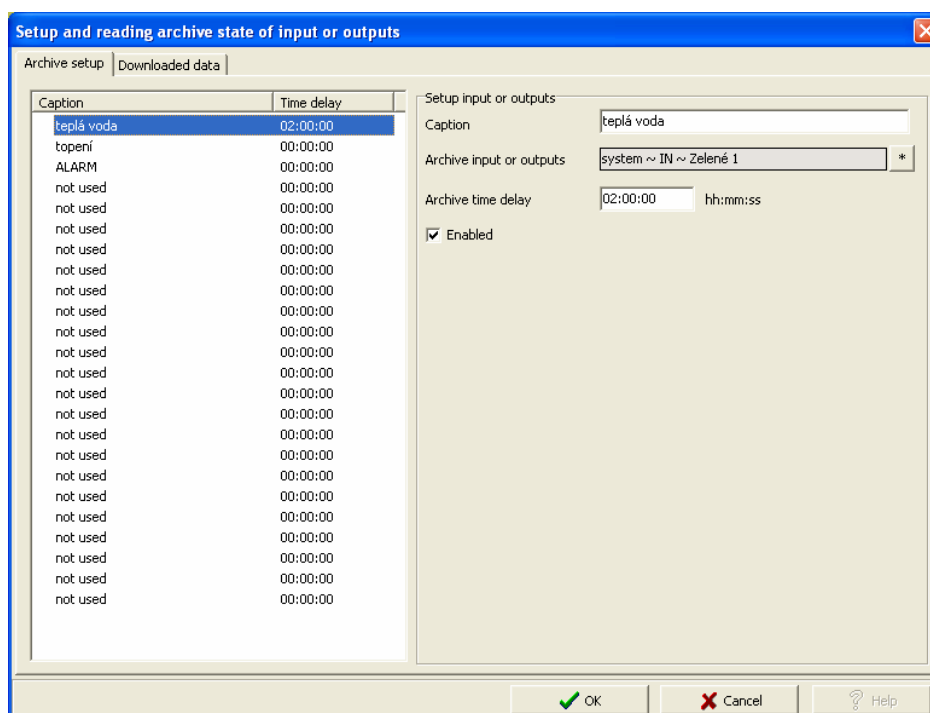
Add new Delete

OK Cancel

10. Archive of inputs/outputs (i/o)

The archive of i/o function serves for saving states of selected i/o. Run the function from the main menu on the bar by the fast selection icon 16 (str. 11, Pict. 17). By clicking the icon, you will open the window "Setup and reading archive state of input or output" (Pict. 144). You can archive up to 24 i/o, max. records number for all i/o is 10000 logs, i/o can be changed or completed, when memory capacity is full data will be replaced from the oldest log (oldest first)

Picture 153

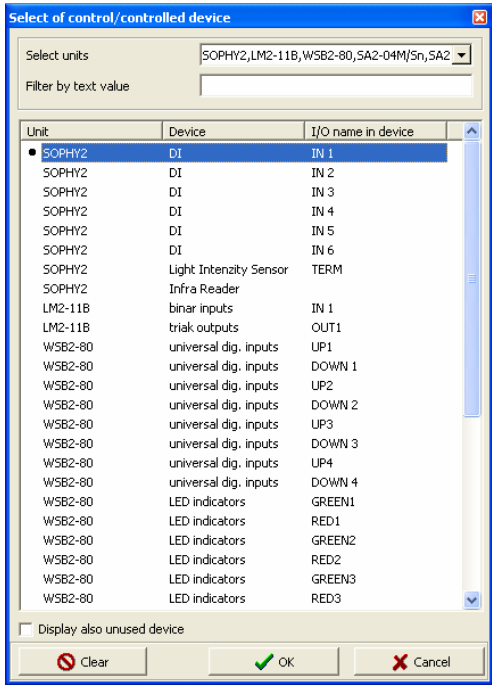


The window is divided into two sheets:

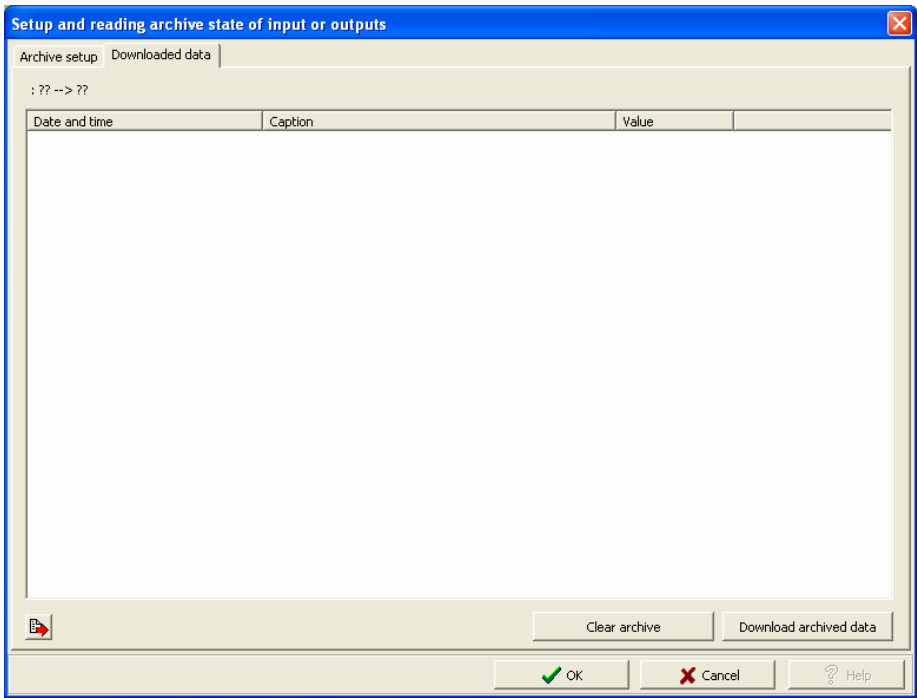
- "Archive setup", where you define the archive setup. In the left window there is a list of all i/o, whereas its description is set in the box "Caption". "Delay" contains time of enquires on i/e state, whereas time base is 1 sec - 24 hours. The delay is set in the box "Archive time delay". Tick the box "Enabled" to make the archiving active. The last option to be defined is "Archive input or output", where you select a required i/o by clicking "*" icon, which opens the window "Select of control/controlled device" (Pict. 154). In the window select required i/o for archiving.
- "Downloaded data" (Pict. 155). Archived data are downloaded in the sheet and then they can be exported to *txt or *csv format by the icon Data export¹⁷. At the top on the left there is time sector, when the archiving was started to another time sector. By clicking "Download archived data" you will

download data from CPU memory. (Pict. 156). The button “Delete archive“ deletes saved data from CPU memory.

Picture 154



Picture 155



Picture 156

Setup and reading archive state of input or outputs

Archive setup | Downloaded data

: ?? --> ??

Date and time	Caption	Value
6.02.2008 12:49:04.789	teplomer_obyvací_pokoj	20.760000
6.02.2008 12:49:04.789	teplomer_zadverí	16.799999
6.02.2008 12:49:04.789	teplomer_koupelna	20.750000
6.02.2008 12:49:04.789	teplomer_terasa	17.040001
6.02.2008 12:49:04.789	teplomer_tzb	10.420000
6.02.2008 12:49:04.789	teplomer_loznice	20.180000
6.02.2008 12:49:04.789	teplomer_detský_pokoj	19.980000
6.02.2008 12:49:04.789	teplomer_satna	19.910000
6.02.2008 13:49:04.769	teplomer_schodiste	20.510000
6.02.2008 13:49:04.769	teplomer_jidelna	20.309999
6.02.2008 13:49:04.769	teplomer_obyvací_pokoj	20.740000
6.02.2008 13:49:04.769	teplomer_zadverí	16.799999
6.02.2008 13:49:04.769	teplomer_koupelna	20.670000
6.02.2008 13:49:04.769	teplomer_terasa	17.049999
6.02.2008 13:49:04.769	teplomer_tzb	10.560000
6.02.2008 13:49:04.769	teplomer_loznice	20.139999
6.02.2008 13:49:04.769	teplomer_detský_pokoj	19.930000
6.02.2008 13:49:04.769	teplomer_satna	19.820000
6.02.2008 14:49:04.769	teplomer_schodiste	20.459999
6.02.2008 14:49:04.769	teplomer_jidelna	20.170000
6.02.2008 14:49:04.769	teplomer_obyvací_pokoj	20.639999
6.02.2008 14:49:04.769	teplomer_zadverí	17.150000
6.02.2008 14:49:04.769	teplomer_koupelna	20.629999
6.02.2008 14:49:04.769	teplomer_terasa	17.150000
6.02.2008 14:49:04.769	teplomer_tzb	10.360000
6.02.2008 14:49:04.769	teplomer_loznice	19.959999
6.02.2008 14:49:04.769	teplomer_detský_pokoj	19.750000
6.02.2008 14:49:04.769	teplomer_satna	19.690001

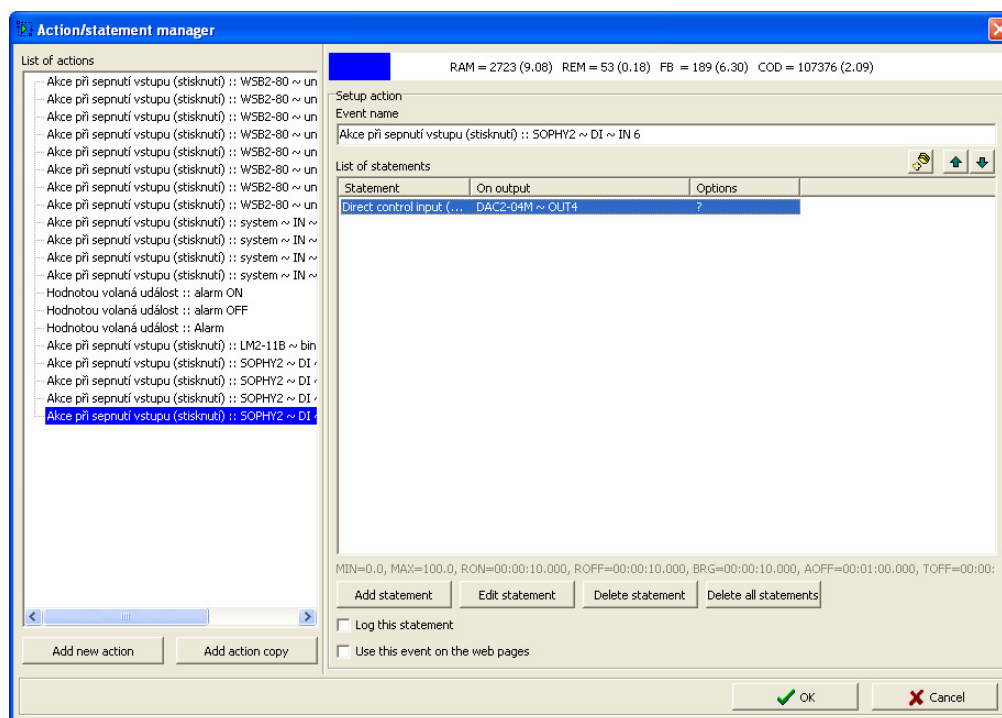
Clear archive | Download archived data

OK | Cancel | Help

11. Logic conditions (instruction) in IDM software

IDM software disposes logic conditions (instructions) that can be used when programming intelligent electric installation Inels. Logic conditions (instructions) are defined when setting up actions/statements in “*Action/statement manager*”. If you use a logic condition (instruction), there will be “?” mark in the column “*Options*” in the window “*Action/statement manager*” (Pict. 157).

Picture 157



To show an example, we choose “*Edit statement*” option. The window “*Setup the statement for event*” will open, where you can see setup trigger condition. In Picture 149 you can see, that the statement will be performed only if inner variable (bit 1) = 1.

Before we describe logic conditions (instructions), it is important to mention “*Inner system variable, i.e. bit*”. Bit is an inner variable that can take two values in CPU memory:

- logic 0,
- logic 1.

System bits are set up and reset in the window “*Setup the statement for event / User action /System bit setup – system bit reset (Pict. 159)*”. In Pict. 160 you can see that the action system bit 1 has value 1. We can say that system bits are widely used for programming applications. However, their using is individual, as well as using logic operations; it means using depends on programmer’s creativity.

Picture 158

Setup the statement for event

Select unit and statement

☒ Hardware control
☐ User action

DAC2-04M ~ triak outputs ~ OUT4 *

MIN=0.0, MAX=100.0, RON=00:00:10.000, ROFF=00:00:1

Direct control input (one button control)

Setup parameters of statement

User output value 0.0

☒ Use trigger condition

SOPHY2 ~ DI ~ IN 1 *

Logic operation Equal '='

Value 1.0

OK Cancel

Picture 159

Setup the statement for event

Select unit and statement

☐ Hardware control
☒ User action

User actions

User actions

System bit setup

Reset system bit

Send SMS

Dial number, ringing (20s) and hang

--- **Commands for alarm groups** ---

Guard alarm group

Unguard alarm group

Alarm group restore

--- **Commands for timers** ---

Run the timer

Stop timer

Reset timer

--- **Commands for counters** ---

Increment counter

Decrement counter

Reset counter

Counter value setup

--- **Commands for lighting groups** ---

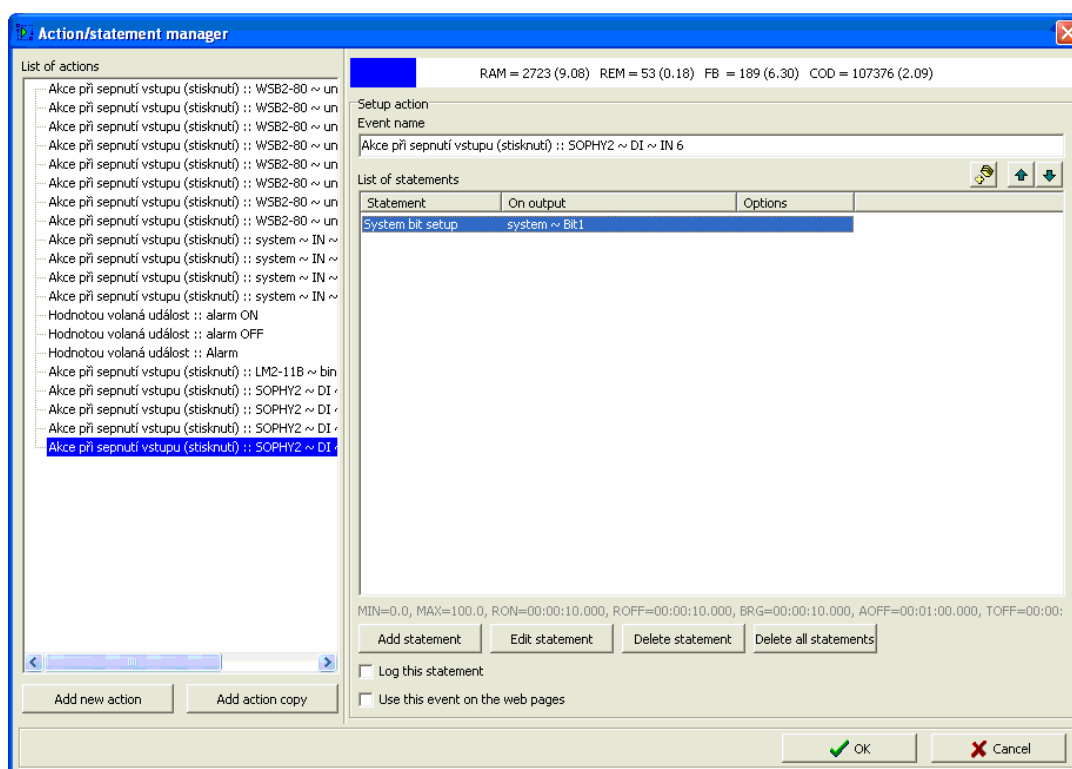
Up one step the group

Down one step the group

Up the group smoothly (with run up ramp)

Down the group smoothly (with slowing down ramp)

Picture 160



As a result of comparing values, you can create trigger conditions using logic functions:

- is equal =,
- is not equal < > ,
- is greater > ,
- is greater or equal ≥ ,
- is smaller than < ,
- is smaller or equal ≤ ,
- AND (logic product) - after checking two bytes and their bits the following operations will be performed:
 - If 1st bit is 0 and 2nd bit is 0, result is 0,
 - If 1st bit is 0 and 2nd bit is 1, result is 0,
 - If 1st bit is 1 and 2nd bit is 0, result is 0,
 - If 1st bit is 1 and 2nd bit is 1, result is 1.

It is clearer in the following chart:

1 st bit	2 nd bit	Result
0	0	0
0	1	0
1	0	0
1	1	1

- OR (logic sum) - after checking two bytes and their bits the following operations will be performed:
 - If 1st bit is 0 and 2nd bit is 0, result is 0,
 - If 1st bit is 0 and 2nd bit is 1, result is 1,
 - If 1st bit is 1 and 2nd bit is 0, result is 1,

- If 1st bit is 1 and 2nd bit is 1, result is 1.

Again see the chart:

1 st bit	2 nd bit	Result
0	0	0
0	1	1
1	0	1
1	1	1

We must also describe values (status) that i/o, counters, and timers can reach and that you can use for definition of logic conditions (instructions).

The values are:

- Digital input - off = logic 0 / on = logic 1,
- Digital output - off = logic 0 / on = logic 1,
- Temperature – number (value) in °C,
- Alarm groups - deactive security system (“unlocked”) = logic 0 / active (“locked”) = logic 1
- Counter - value,
- Timer - number (value) in msec.

As we have already stated, logic condition (instruction) is defined directly by the statement on action in the window “*Setup the statement for event*” (Pict. 161).

Picture 161

If you want to use logic condition (instruction), tick the box “*Use trigger condition*”. Next, click the icon “*” and open the window “*Select of control / controlled device*” (Picture 162), where you can select a required i/o, counter, timer, or alarm group to meet trigger condition. “*System*” items of inner system variables (bits), counters, timers, alarm groups and digital inputs for CPU. Other i/o (Pict. 163) are displayed with description from “*Select of control/controlled device*” and from the window “*System configuration*”.

Picture 162

Select of control/controlled device

Select units: SOPHY2,LM2-11B,WSB2-80,SA2-04M/Sn,SA2

Filter by text value:

Unit	Device	I/O name in device
system	user bits	Bit1
system	user bits	Bit2
system	user bits	Bit3
system	user bits	Bit4
system	user bits	Bit5
system	user bits	Bit6
system	user bits	Bit7
system	user bits	Bit8
system	user bits	Bit9
system	user bits	Bit10
system	user bits	Bit11
system	user bits	Bit12
system	user bits	Bit13
system	user bits	Bit14
system	user bits	Bit15
system	user bits	Bit16
system	user bits	Bit17
system	user bits	Bit18
system	user bits	Bit19
system	user bits	Bit20
system	user bits	Bit21
system	user bits	Bit22
system	user bits	Bit23
system	user bits	Bit24

☐ Display also unused device

Clear OK Cancel

Picture 163

Select of control/controlled device

Select units: SOPHY2,LM2-11B,WSB2-80,SA2-04M/Sn,SA2

Filter by text value:

Unit	Device	I/O name in device
WSB2-80	universal dig. inputs	DOWN 3
WSB2-80	universal dig. inputs	UP4
WSB2-80	universal dig. inputs	DOWN 4
WSB2-80	LED indicators	GREEN1
WSB2-80	LED indicators	RED1
WSB2-80	LED indicators	GREEN2
WSB2-80	LED indicators	RED2
WSB2-80	LED indicators	GREEN3
WSB2-80	LED indicators	RED3
WSB2-80	LED indicators	GREEN4
WSB2-80	LED indicators	RED4
WSB2-80	thermo sensor	TERM
SA2-04M/Sn	universal rele outputs	RE1
SA2-04M/Sn	universal rele outputs	RE2
SA2-04M/Sn	universal rele outputs	RE3
SA2-04M/Sn	universal rele outputs	RE4
SA2-02B/Sn	universal rele outputs	RE1
SA2-02B/Sn	universal rele outputs	RE2
DAC2-04M	triak outputs	OUT1
DAC2-04M	triak outputs	OUT2
DAC2-04M	triak outputs	OUT3
DAC2-04M	triak outputs	OUT4
SA2-02M/Sn	universal rele outputs	RE1
SA2-02M/Sn	universal rele outputs	RE2

☐ Display also unused device

Clear OK Cancel

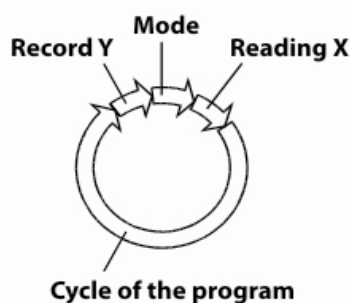
You can use the other logic conditions (instructions) to define counters and timers, whereas the setting is done “System configuration, the sheet System“. Detailed description has been described.

12. Error diagnostics and their remedy

Diagnostics system CPU is a part of standard SW and HW equipment, which aim is to provide error-free and exactly defined CPU function in any situation. In case of CPU, first of all must diagnostics system avoid emergency state in a technology connected to CPU. Another task of diagnostics system is to facilitate service personnel, or to user to fix caused failures. Diagnostics system is in operation from connecting CPU to supply and its operation is independent on user. Generally we can say that the diagnostics system monitors permanently important parts and functions of CPU and in the moment of failure it provides its treatment and informs on the failure. Thus safety controlling is provided and also a possibility of a prompt correction in case of CPU failure. Another function of diagnostics system is to warn a user about incidental defective handling or procedures when servicing CPU, which makes CPU using easier and more effective.

For a correct diagnostics it is necessary to know CPU utility program principle, which is as follows. Control algorithm of CPU is written as a sequence of instructions in application program. CPU gradually reads instructions from the memory, performs appropriate operation with data in scratch pad memory and receiver, eventually it carries out changeovers in the instruction sequence. When all instructions of required algorithm have been done, CPU updates output variables for output peripheral modules and updates status from input peripheral modules to scratch pad memory. The process repeats and is called cycle of the program (Pict. 164). One-shot input variables status update during all program cycle eliminates a possibility of hazardous states occurrence when an algorithm is being solved (input variables cannot be changed during calculation).

Picture 164



Cycle of application program solution:

- reading X - rewriting values of input modules CPU to X sector in scratch pad memory
- record Y - rewriting values calculated by the program to Y sector to output modules CPU
- mode - preparing of CPU unit to solve another program cycle

12.1 Conditions for correct function of CPU diagnostics

The basic condition for error-free function of CPU and correct diagnostics performance is the correct function of CPU supply and its peripheral units.

12.2. Error indication

CPU disposes an error receiver containing last 8 errors announced by diagnostics of the whole CPU. The errors in the receiver are 4 bytes long. A content of the error container can be read by Mosaic

development environment. The last serious error that caused interruption of CPU performance is displayed on the central unit display in the following form:

E-80-09-0000

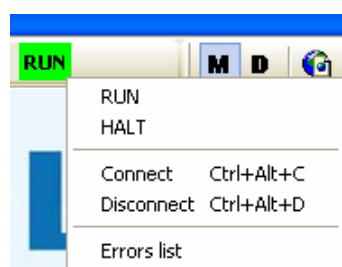
E - followed by an error code in hexadecimal form (digits 0 - F). 0-09-0000 – error code.

Errors beginning with figure 9 display central unit failure code longer by two digits.

E-95-00-014212

Errors in the receiver usually concern CPU programming and peripheral modules status. For a fast orientation, numbers of errors and their description can be found straight in IDM, clicking on the icon **RUN**, the item "Error list" (Pict. 156). If you select the option, the errors list in "**PDF" format will open.

Picture 165



Error dividing according to relevancy:

Failures appearing in CPU can be divided according to their relevancy to two groups:

- *Major errors disabling error-free performance* - LED diodes ERR and RUN is on, CPU converts to HALT mode and blocks all outputs, the last error is on the display.
- *Other errors not influencing controlling* - LED diode ERR is not on, LED diode RUN is flashing, CPU stays in RUN mode, error mode is written to register S48 to S51 and it is available for the application program to be worked out. It is possible to use also interrupting P43 opened when such an error appears.

12.3. Major errors

In case of major errors, first the diagnostics system blocks outputs, interrupts performance of the user's program and identifies the failure. Information on the error is either on the display (last error) or it can be read from the error receiver superior to the system (PC). The error indication can be cancelled by a command from the superior system or when you turn on and off CPU supply.

12.4. Survey of errors saved to the main error receiver of the central unit

Used abbreviations:

cc – communication channel number

kk – error code

pc – address of an instruction where the error is (program counter)

pp – position in frame

r – frame number

t t – chart T number

Number codes are in hexadecimal form.

System errors:

02 cc 1200 address error
 02 cc 15hh byte failure hh
 02 cc 16ss wrong parameters of communication service ss
 02 cc 1809 security error
 07 00 0000 error during remanet zone inspection
 08 00 0000 first limit of monitored cycle exceeded

User's program errors:

10 00 0000 dividing by zero
 13 00 0000 chart instruction over the pad exceeded its range
 14 00 0000 source block defined out of range
 15 00 0000 target block defined out of range
 20 00 pcpc user's program failure detected during maintained inspection

Errors at on-line change:

70 05 0000 defective map length of new user program
 70 06 0000 false security sign (CRC) of new user program in RAM
 70 07 0000 false security sign (CRC) of the whole new program in RAM
 70 09 0000 program is translated for a different line of CU
 70 0B 0000 EEPROM programming failed
 70 24 0000 list of on-line changes is missing
 70 25 0000 list of on-line changes has false CRC
 70 31 r r pp initialization chart is missing
 70 43 r r pp false frame address, higher than maximum
 70 64 r r pp false sw of peripheral module
 73 cc 3701 false length of initialization chart of series channel
 73 cc 3702 auxiliary chart does not exist
 73 cc 3801 false speed in series channel initialization chart
 73 cc 3802 false staion address
 73 cc 3803 false number of net participants or date blocks
 73 cc 3804 number of net participants exceeds number of lines
 73 cc 4204 series channel is not in required mode
 73 cc 4206 maximum volume of transferred data exceeded within net or within a participant
 73 cc 4207 series channel impossible to assign – permanently occupied by another module
 73 cc 4208 forbidden mode of communication channel

Errors in user's program saving:

80 01 0000 false map length of user's program in EEPROM
 80 02 0000 false security sign (CRC) of user program map in EEPROM
 80 03 0000 false security sign (CRC) of the whole program in EEPROM
 80 04 0000 no user program in EEPROM
 80 05 0000 false map length of user program in RAM
 80 06 0000 false security sign (CRC) of user's program map in RAM
 80 07 0000 false security sign (CRC) of the whole program in RAM
 80 08 0000 editation interference to user program while EEPROM connected

80 09 0000 program translated for different line of central units

80 0A 0000 attempt to program EEPROM in off status

80 0B 0000 EEPROM programming failed

CPU HW errors:

80 0C 0000 rela time RTC circuit failure

80 1B t t t t false configuration of T chart

80 44 0001 false identification – record reading failed

80 44 0002 false identification – no record

80 44 0003 false identification – false record length

80 44 0004 false identification – false record data

Communication channels service errors:

83 cc 3701 false length of series channel initialization chart

83 cc 3702 no auxiliary chart

83 cc 3801 false speed in initialization chart of series channel

83 cc 3802 false station address

83 cc 3803 false number of net participants or date blocks

83 cc 3804 number of net participants exceeds number of lines

83 cc 3810 forbidden local port number

83 cc 3811 unknown Ethernet interference report

83 cc 4204 series channel in not in required mode

83 cc 4206 maximum volume of transferred data exceeded within net or within a participant

83 cc 4207 series channel impossible to assign

83 cc 4208 forbidden mode of communication channel

Programming errors:

90 00 pcpcpc overflow of release addresses receiver

90 40 pcpcpc underflow of release addresses receiver

90 80 pcpcpc nonzero release addresses receiver after process end

91 00 pcpcpc label is not declared

91 40 pcpcpc label number greater than maximum value

91 80 pcpcpc T chart is not declared

91 C0 pcpcpc unknown instruction code

92 00 pcpcpc space of field or chain exceeded

92 40 pcpcpc space of pad exceed during indirect addressing

92 80 pcpcpc BP instruction nesting failure

92 C0 pcpcpc BP service process is not programmed

93 00 pcpcpc user program failure detected during maintained inspection

93 40 pcpcpc DP impossible to set up – pad space exceeded

93 80 pcpcpc SP impossible to set up - system stack space exceeded

93 C0 pcpcpc FP impossible to set up - system stack space exceeded

94 80 pcpcpc unsupported function block

95 00 pcpcpc maximum cycle time exceeded

95 40 pcpcpc maximum time of interruption process exceeded

Errors in peripheral system:

Ar pp 1200 address error

Ar pp 15hh hh service byte failure

Ar pp 16ss false ss communication service parameters

Ar pp 1705 receive zone overflow

Ar pp 1809 security failure

Ar pp 3100 initialization not performed

Ar pp 3101 missing initialization chart

Ar pp 3401 maximum variable size exceeded

Ar pp 3402 false address in pad

Ar pp 3700 false length of initialization chart in module

Ar pp 3701 false length of declared initialization chart in module

Ar pp 3805 false number of communication channel

Ar pp 3806 false mode of communication channel

Ar pp 3807 false activated variable combination

Ar pp 3808 false activated variable length

Ar pp 3809 unsupported type of analogue channel

Ar pp 3813 unsupported type of data conversion

Ar pp 4301 no existing module

Ar pp 4302 type of module is not correct - initialization intended for another type

Ar pp 4303 false frame address, higher than maximum acceptable

Ar pp 4304 module with unknown service

Ar pp 4401 module identification reading failure – record reading impossible

Ar pp 4402 module identification reading failure – no record

Ar pp 4403 module identification reading failure – false record length

Ar pp 4404 module identification reading failure – false record

Ar pp 4502 HW module configuration failure – no data for configuration

Ar pp 4503 HW module configuration failure – no data for configuration

Ar pp 4504 HW module configuration failure - false configuration data

Ar pp 50ss module is not responding to communication service ss

Ar pp 5103 initialization unfinished

Ar pp 52ss bus is not responding to communication service ss

Ar pp 53ss bus is busy after communication service ss

Ar pp 54ss module response to communication service contains false data

Ar pp 5501 unknown mode of data exchange

Ar pp 6000 communication with central unit interrupted

Ar pp 6001 peripheral module is not receiving data

Ar pp 6201 HALT mode data transfer impossible

Ar pp 6202 bus service is not available

Ar pp 6203 bus service is not available – HW module failure

Ar pp 6204 unknown service of the bus

Ar pp 6401 false SW of peripheral module

Ar pp 7005 low supply voltage of peripheral module

Ar pp kkkk further errors reported by peripheral module are described in the module documentation.

FF kk kkkk system failure of central unit (kk – any number assigning type of error).

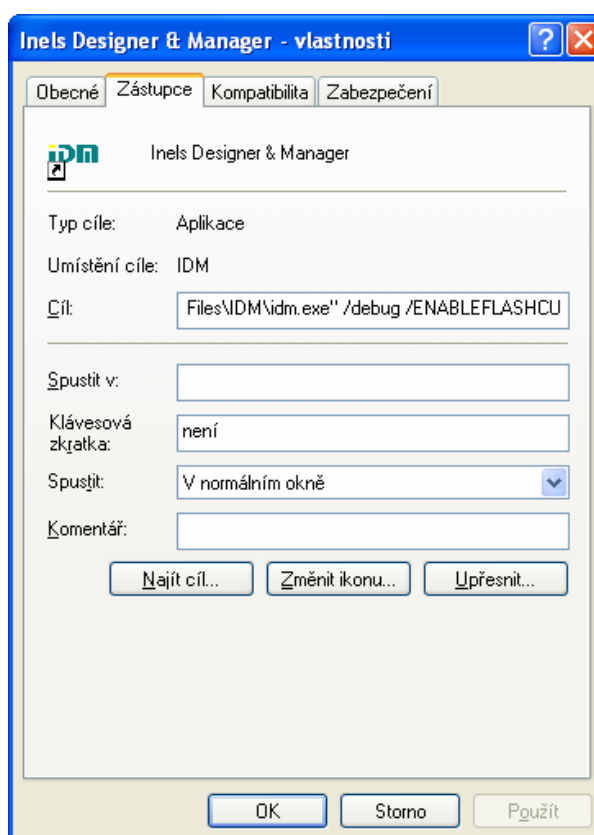
12.5. Trigger parameters for service interference

IDM software can be started by special trigger parameters that enable service actions to the administrator of the application and display special system information. The trigger parameters are the following:

- ENABLEFLASHCU
- debug

To activate special functions it is necessary to define the parameters in the **stand-in** for IDM triggering (Pict.s 166).

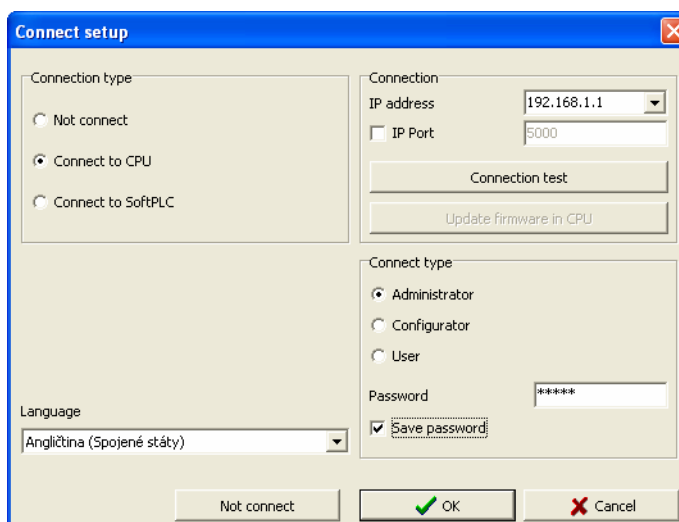
Picture 166



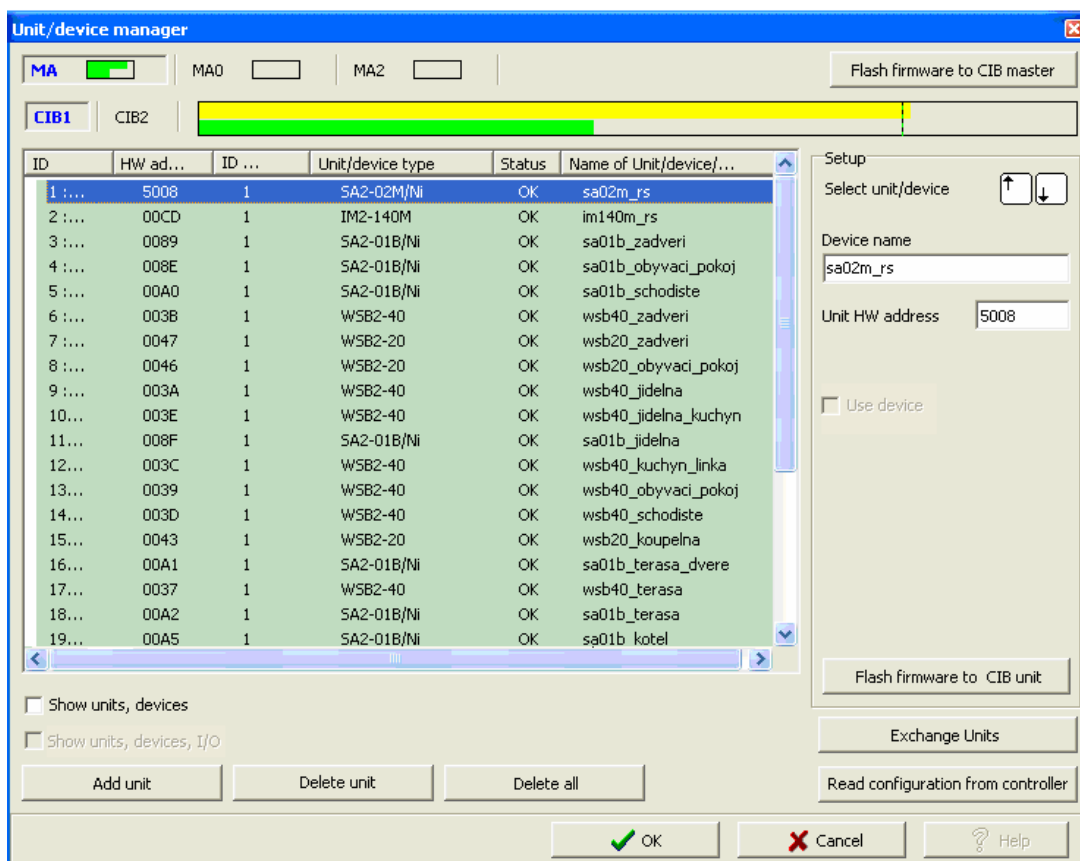
1. **ENABLEFLASHCU**. If you trigger IDM by the parameter, you have an access to upload firmware to CPU¹⁸ (firmware CPU is practical operation system) and also access to upload firmware to internal and external masters of CIB bus and access to upload firmware to peripheral units. The parameter is shown by activation of buttons designated to upload firmware. The buttons are in the window *“Connect setup”– Update firmware in CPU, Pict. 167*, and also in the window *“Unit/device manager – Flash firmware to CIB - unit / master”, Pict. 168*.

¹⁸ Upload fw to CPU cannot be performed through distant access.

Picture 167



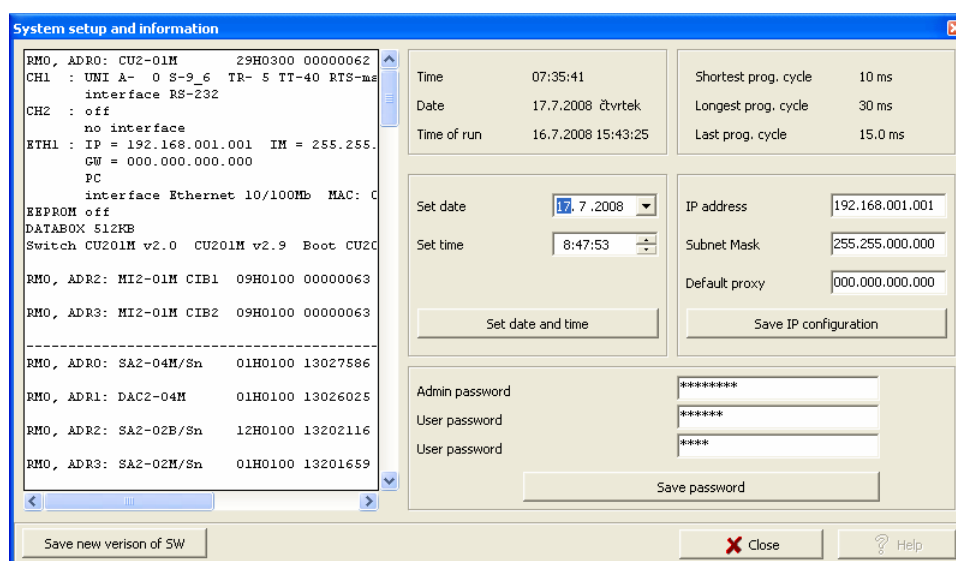
Picture 168



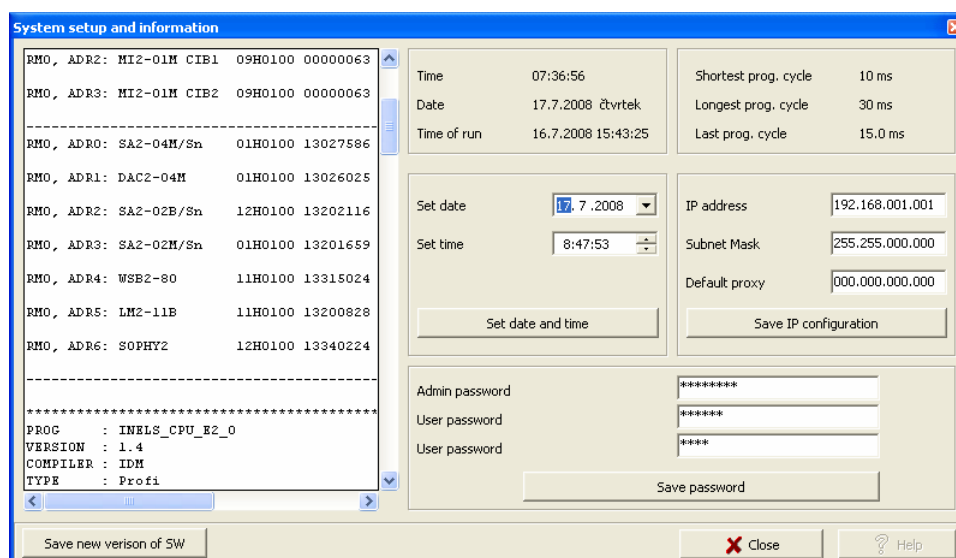
2. *Debug.* If you trigger IDM by the parameter, system information is displayed in two IDM windows. The first is the window “System setup and information”, Pict. 169. In the left part of the window you can see (instead of CPU picture) system CPU information (firmware version, hardware version, production code), CH1 (CHx) mode of series communication channel, RS-232 is information on mounted piggyback, connection to Ethernet, active memory (EEPROM on) for the user program backup and DATABOX memory capacity (memory for legged events). Next, you can see information on internal master and external masters, if they are connected (firmware and hardware version, production code). Then there is information on all units connected with the system via CIB (again, you can see type, firmware and hardware version,

production code), Pict. 170.

Picture 169



Picture 170



When you move down by the scroll bar, there is information on IDM software and full CPU history, Pict. 163. Also, the trigger parameter displays system information “Monitor” window that is activated by the fast selection icon¹⁹ on the bar, Pict. 171.

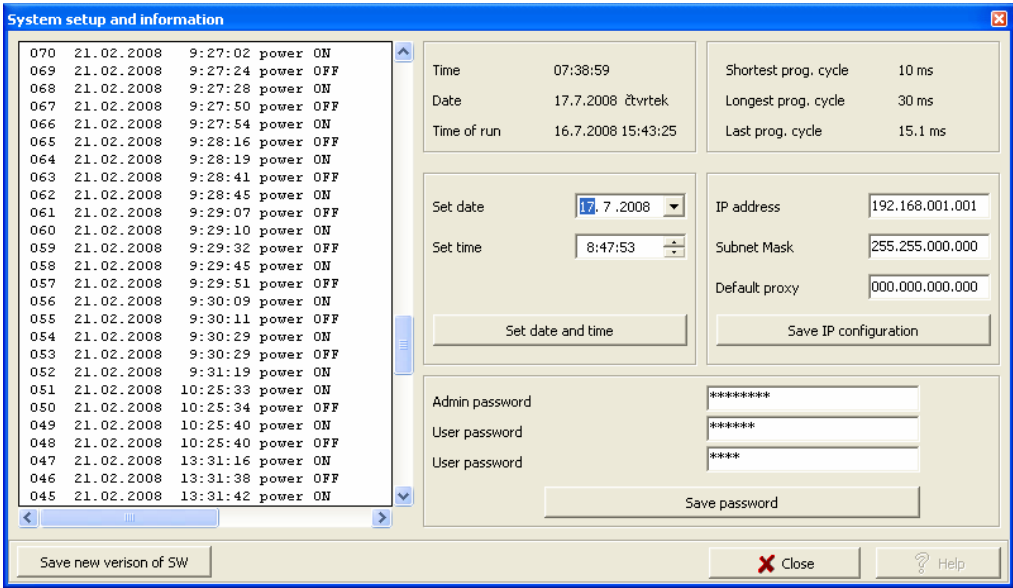
Picture 171



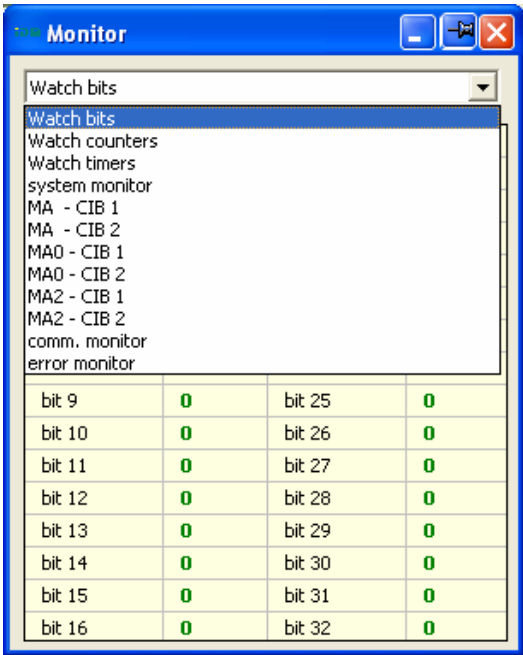
By clicking the icon you will open the window, Pict. 164, where the items *system monitor* are relevant for the parameter - *MA - CIB1*, *MA - CIB2*, *MA0 - CIB1*, *MA0 - CIB2* and *MA1 - CIB1*, *MA1 - CIB2*. *System monitor* displays the following information, Pict. 165. *S0* – attributes of arithmetical operation result, *S1* - attributes of arithmetical operation result, *S2* – attributes of the system status (set by the system program according to its state in the cycle revolution). *S2* – a status of service



Picture 172

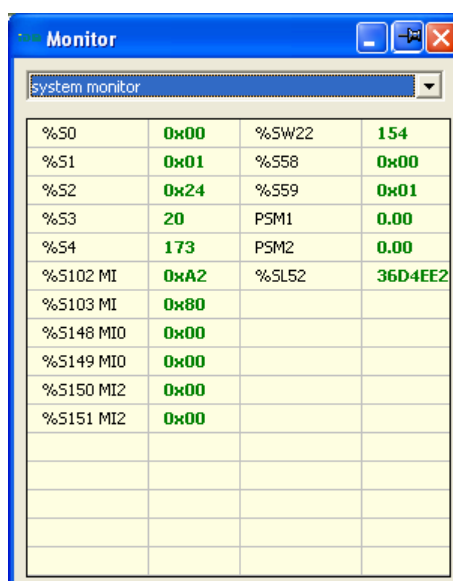


Picture 173



input SP – external trigger plc, S3 – last cycle time in 10 ms (binary figure with 10 ms unit (range 0 - 2,55 s) states time of last cycle of user program), S4 – cycle counter (binary figure which is reset when the system is restarted and is increased by 1 with each revolution, SW22 – time of last cycle in 100 μ s (binary figure with 100 μ s unit (range 0 - 6,5535 s) states time of last cycle of user program, it is more accurate figure of S3 register),

Picture 174



system monitor			
%S0	0x00	%SW22	154
%S1	0x01	%S58	0x00
%S2	0x24	%S59	0x01
%S3	20	PSM1	0.00
%S4	173	PSM2	0.00
%S102 MI	0xA2	%SL52	36D4EE2
%S103 MI	0x80		
%S148 MIO	0x00		
%S149 MIO	0x00		
%S150 MI2	0x00		
%S151 MI2	0x00		

S58 – binary inputs to CPU (binary inputs controlled directly from CPU, i.e. 4 binary inputs to CPU), *S59* – binary outputs (binary outputs controlled directly by CPU, i.e. one binary output to CPU), *PSM1* – input status PSM1, *PSM2* – input status PSM2, *SL52* – counter of milliseconds units, type uint SL52; enables more accurate time control; individual bits can be used as sources of time units; following your needs you can use any byte or word, *Sxxx MIxx* – status of external (internal) master of the CIB bus (connected, configured, and on communication). *MA - CIB1* and *MA - CIB2* (internal master of the CIB bus) display information on units connected to the CIB bus branches and also following information, Pict. 166. *1st column* – communication status, *2nd column* – error counter, *3rd column* - *LA* – logic address, *FA* – physical address (hardware address from the factory), *C* – type of unit, *ID* – unique internal number and description. The same information is displayed by *MA0 - CIB1*, *MA0 - CIB2* and *MA2 - CIB1*, *MA2 - CIB2*, if these external masters of the CIB bus are used in the system (connected).

Picture 175



MA - CIB 1					
0x90	0xEB	LA:0x00	FA:0x16DD	C:SOPHY2	ID:0x00
0x90	0xEB	LA:0x01	FA:0x16EB	C:LM2-11B	ID:0x00
0x90	0xEB	LA:0x02	FA:0x0F17	C:WSB2-80	ID:0x00
0x90	0xEB	LA:0x03	FA:0x0635	C:SA2-04M/5n	ID:0x00
0x90	0xEB	LA:0x04	FA:0x0B82	C:SA2-02B/5n	ID:0x00
0x90	0xEB	LA:0x05	FA:0x079D	C:DAC2-04M	ID:0x00
0x90	0xEB	LA:0x06	FA:0x0E00	C:SA2-02M/5n	ID:0x00
0x87	0x00	LA:0x01	FA:0x00CD	C:IM2-140M	ID:0x00
0x87	0x00	LA:0x02	FA:0x0089	C:SA2-01B/Ni	ID:0x00
0x87	0x00	LA:0x03	FA:0x008E	C:SA2-01B/Ni	ID:0x00
0x87	0x00	LA:0x04	FA:0x00A0	C:SA2-01B/Ni	ID:0x00
0x87	0x00	LA:0x05	FA:0x003B	C:WSB2-40	ID:0x00
0x87	0x00	LA:0x06	FA:0x0047	C:WSB2-20	ID:0x00
0x87	0x00	LA:0x07	FA:0x0046	C:WSB2-20	ID:0x00
0x87	0x01	LA:0x08	FA:0x003A	C:WSB2-40	ID:0x00
0x87	0x00	LA:0x09	FA:0x003E	C:WSB2-40	ID:0x00

13. Export of variables for visualization - SCADA/HMI system Reliance

Reliance is SCADA/HMI system intended for monitoring and control of industrial processes. Data are collected on-line directly from the controlling system, archived to databases and presented to end users as visual windows, charts, and diagrams. Reliance system can be bound with other enterprise information systems (MES, ERP, etc).

It is possible to approach the visualization either from an Intranet, or from the Internet or mobile communication appliances, (e.g. PDA). Everything can be guarded by access rights – entitled users can set up process parameters through the Reliance system and thus control selected technological sectors.

The main advantages are:

- Rapid development of visualization (RAD),
- Intuitive, clear and up-to-date development environment,
- Large library of 3D graphic symbols,
- Basic functions are not programmed, only parameterized,
- Special functions can be programmed in VBScript language,
- Support of application with more languages,
- Easy access from the Internet and mobile appliances,
- The one version of application for all types of modules and any number of counters (servers, operator work stations, etc.),
- Automatic project update from the central disposal site,
- Easy to extend the visualization,
- Wide range of application from a single PC up to applications client-server,
- Support of inserting controlling elements ActiveX to the visualization,
- Support of IP cameras Axis and Vivotek,
- Detailed project diagnostics,
- Direct access to SQL databases,
- Support and using standard SQL, OPC, DDE, SOAP, XML, http, COM/DCOM, Unicode,
- Possibility of enterprise systems integration,
- Postmort – process history record in real time,
- Remote administration of the application,
- Full environment – no further fees for additional modules,
- Fast technical support of good quality.

13.1. Reliance Design

Reliance Design is a development environment for creating and editing visualization project. Desktop version is designed for one computer; Enterprise version is intended to develop set applications with a possibility of visualization export for web clients and mobile appliances clients.

13.2. Runtime modules Reliance

Runtime module is software for triggering visualization at an end user. Among general features rang:

- Acquiring data from communication drivers (native drivers, OPC and DDE servers),
- Acquiring data from alarms and other runtime modules via net connection,
- Generating and executing alarms,
- Data and alarms archiving,
- Redundancy support,
- Script performance, working out recipes,
- Saving Postmort records,
- Sending e-mails and SMS messages.
- DDE server.

Reliance Control, Reliance View

- Displaying visualization with up-to date date,
- Controlling through visualization²⁰,
- Display and quit (conformation) of up-to-date alarms,
- Display and print of historic alarms,
- Display and print of historic data in a form of diagrams and output reports,
- Running application diagnostics (detects causes of a failure, e.g. in communication),
- Switching between languages while the application is running.

Reliance Server

- Data server for other runtime modules,
- Data server for web clients and mobile appliances clients,
- Run as service (Windows Service),
- Possibility to exchange data with 3rd parties applications via SOAP report,
- Build-in web server contained,
- Generating reports according to clients' requirements.

Reliance Control Server

- Connects all functions of modules Reliance Control and Reliance Server

Reliance Web Client

Reliance Web client is software used to trigger visualization at distant users via the Internet.

- Web client based on Java platform (JRE 6.0 / Swing),
- Independent on an operation system (supporting Windows, Linux, Unix, Mac OS X etc.),
- Independent on a web browser (supporting IE, Mozilla Firefox, Opera, Conqueror etc.),
- Display of visualization with up-to-date data,
- Controlling via SCADA SW,
- Display and quitting (confirmation) of up-to-date alarms,
- Display of historic alarms,
- Display of historic data in a form of diagrams and output reports.

Reliance Mobile Client

Reliance Mobile Client is software for running the visualization on mobile appliances (PDA etc.).

²⁰ only Reliance Control

It is intended for operation systems Windows CE and Microsoft .NET Compact Framework 2.0.

Its function is the same as Reliance Web Client

Reliance Remote Administrator

Reliance Remote Administrator is software for the remote administration of running application.

Communication drivers

Software providing communication with HW appliances (PLC or other appliances for automatization).

The following drivers are available, e.g. Teco, AmiT, Modbus, Allen-Bradley, Sauter EY2400, Johnson Controls, Rittmeyer wsr3000, Dio3000, Elgas, OPC.

13.3. Export of variables via Inels designer & manager software

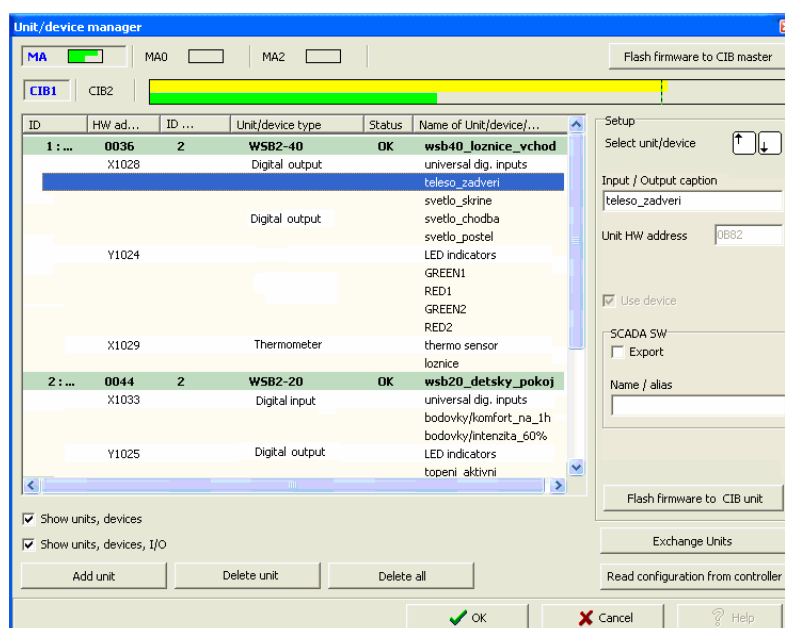
IDM software enables export of variables (inputs/outputs, time programs, inner variables, counters, and timers), through which you can create SCADA SW of Reliance system. We will describe bellow how to export.

Inputs/outputs export

Input/output export can be done in two ways, whereas each input/output represents one data point²¹.

The first way is export from the window “Unit/device manager” (Pict. 176), where you can select input/output that you intend to use for SCADA, or you can change its name²², by the option “SCADA SW / Export / Name / alias”.

Picture 176



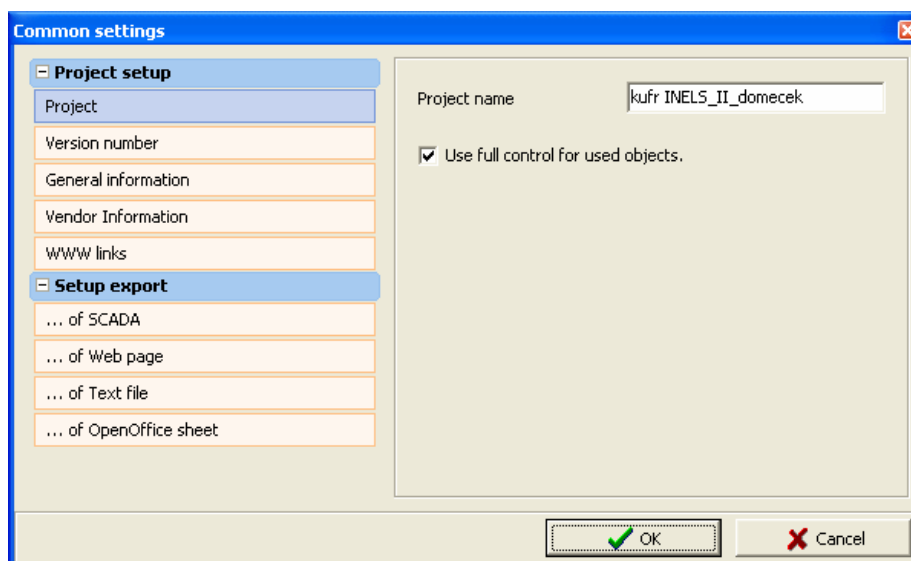
When you select required inputs/outputs, it is necessary to save the configuration to CPU, which results in creating file with variables export. The files are saved into pre-defined file, defined in the window “Common settings / SCADA (Pict 177)”. There are also other options for variables export. If you tick “Export only marked IO”, only i/o selected in the window “Unit/device manager” on the previous page will be exported. Extended export of binary inputs represents export of binary inputs with counter. “Announce change in export files” is an option that monitors a possible shift of variable addresses in

²¹ Total number of data points used to make SCADA in Reliance determines required licence for runtime module.

²² If you do not use the option *Name / alias*, export will be done with description from the Unit/device manager and description of input/output from „System configuration“ window.

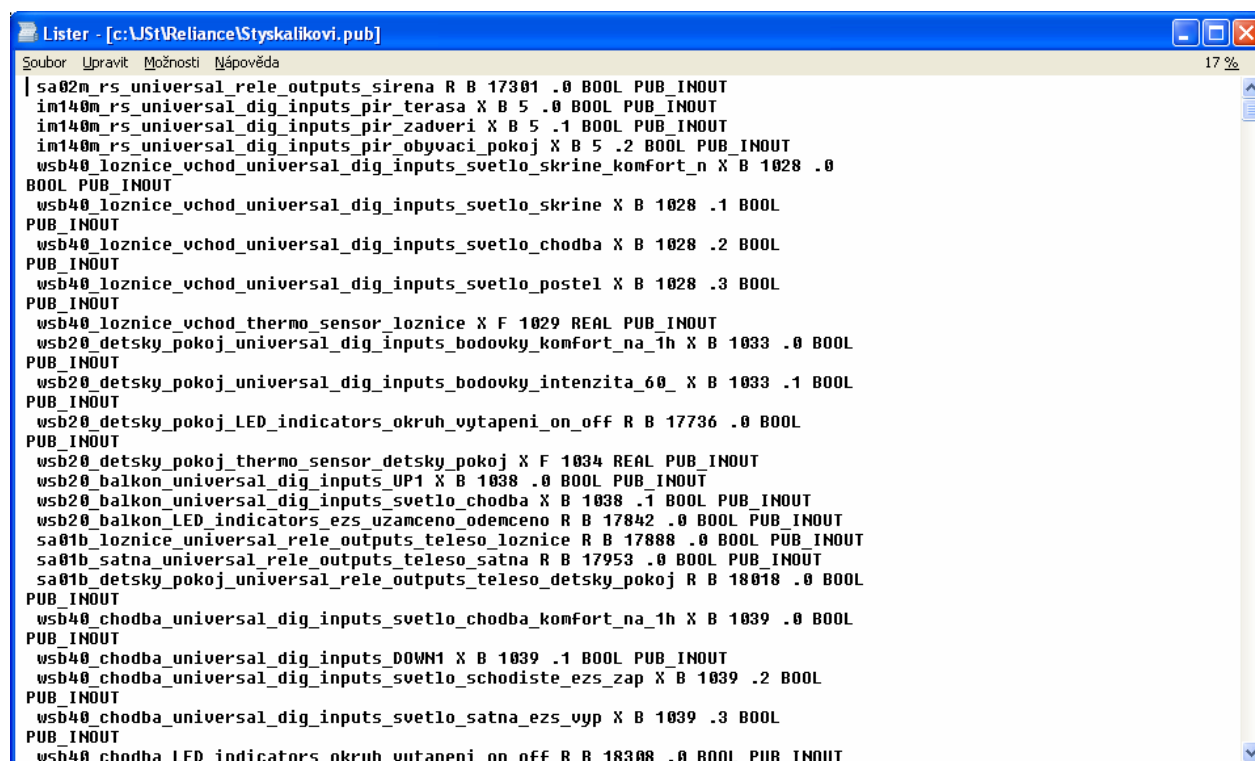
memory register which can appear when memory is configured. “Export mapping of user actions” is an option for exporting user actions, e.g. statements for relay groups, lighting groups, etc.

Picture 177



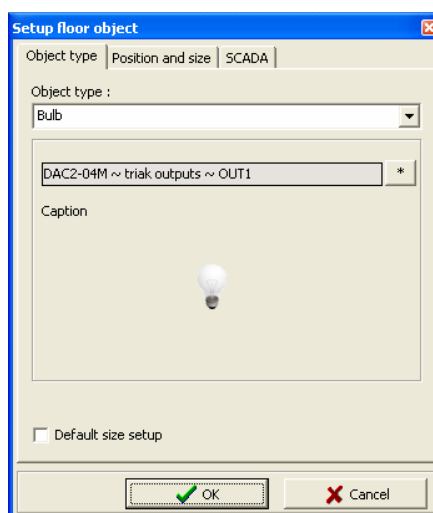
The files you created have suffixes “*pub or *exp”. The file with suffix *pub is used for import to Reliance. The files have the following structure, see Pict. 178.

Picture 178

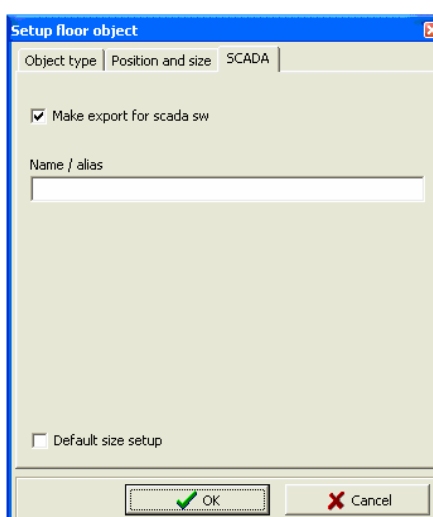


The other way to export inputs/outputs can be used when creating project in IDM mode “Designer”. When entering and defining objects to the project, in the window “Setup floor object (Pict. 179)” the sheet “SCADA “ is offered. If you open the sheet, the option “Make export for SCASA SW / Name / alias (Pict. 180)” will appear. The rest of procedure is equal to the first way of export (saving configuration to CPU and making exported files).

Picture 179



Picture 180



Time schedules export

Export time schedules from the window *"Time/week schedule manager (Pict. 181)"*, the option *"Export program setup"*. There are three basic options. It is possible to export week schedule for heating/cooling and double status time schedule (Pict. 182):

Export program setting, i.e. time stamp and mode setup (represents 1 data point)²³,

Export program control, i.e. it is possible to impose modes - minimum, depression, normal and comfort including presentation, temporary comfort and switch back to time schedule (represents 7 data points - 4 imposed modes - minimum, depression, normal, comfort - 4 points / presentation 1 data point / temporary comfort 1 data point / switch back to time schedule 1 data point)²⁴,

Export program status, i.e. program status preview (represents 9 data points - 4 modes - minimum, depression, normal and comfort / actual required temperature of heating 1 data point / actual cooling temperature 1 data point / in case of imposed mode 1 data point / in case of presentation 1 data point / in case of temporary comfort 1 data point)²⁵.

²³ valid also for double status time schedule

²⁴ in double status time schedule there are altogether 3 data points (switch off of imposed modes - 1 data point, program ON 1 data point, program OFF 1 data point).

²⁵ In double status time schedule 1 data point (imposed mode on)

Picture 181

Picture 182

Time events export

Export time events from the window "Time events manager (Pict. 183), the option SCADA / Name for SCADA.

Picture 183

Time events management

List of events

Name of event
zima

Name of event: zima

Time of activation/spread: 09:32:37.000 00:10:00.000

☒ Event is active

No statement or create new event ->

Type of event

☐ Each day in week
☐ Day in month
☒ Each day in month

Year setting

☒ leden
☒ únor
☒ březen
☐ duben
☐ květen
☐ červen
☐ červenec
☐ srpen
☐ září
☒ říjen
☒ listopad
☒ prosinec

SCADA

☒ Export for SCADA

Name for SCADA

Add new Delete OK Cancel

Counters and timers export

Export counters and timers from the window "Device + system configuration, System – counters and timers, the option SCADA / Name for SCADA (Pict. 184 and Pict. 185).

Picture 184

Device+system configuration

Inputs Outputs Heating/cooling Sophy Alarm **System** GSM

Counters Timers System events

Name	Counter status
Alarm	0
alarm ON	0
alarm OFF	0

Counter Setup

Counter name: Alarm

☒ Start action on counter value:

☒ Only start the action
☐ Reset counter

Tested value: Greater than or equal '>=' 2

Event on value: Hodnotou volaná událost :: Alarm *

SCADA

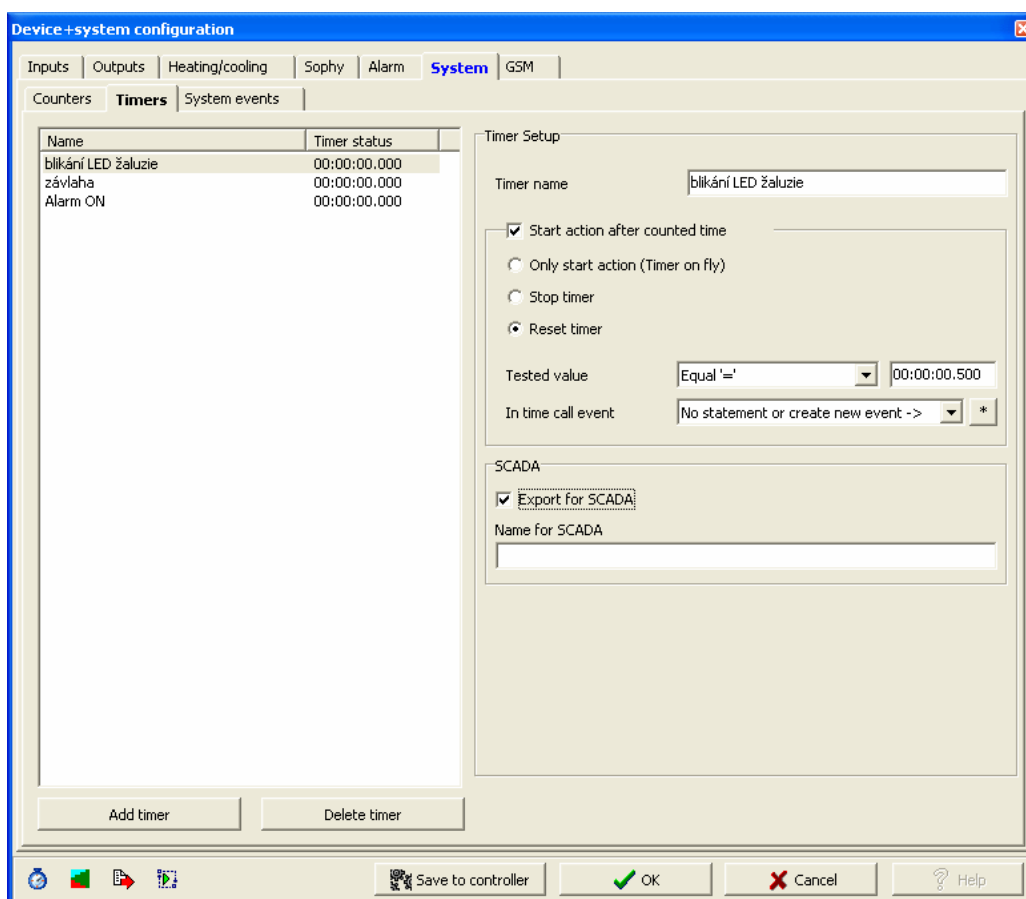
☒ Export for SCADA

Name for SCADA

Add counter Delete counter

Save to controller OK Cancel Help

Picture 185



Export of events for SCADA

A special option of export for SCADA. It is direct direct export of events from the window "Unit/device manager". The exported events can be "dialed" directly from SCADA software. The action can be exported by the option "Export for SCADA".

Picture 186

