

Control software

DegaConfig



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Quality Management Systems
Système de Qualité
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Screen resolution minimum 1024x768

Processor minimum 1,3GHz

RAM minimum 1GB

Windows XP, Windows 7

.NET framework 4.0

Serial interface or converter USB/RS232 (RS485) + connection cable

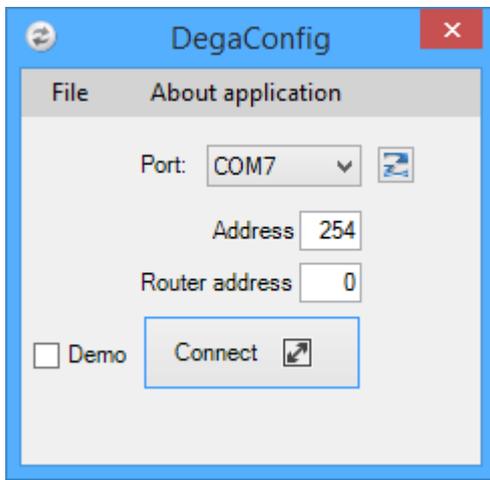
Application launch

The relevant device is connected to the PC via cable RS485 or RS232 (only DEGA UPAll - the choice is made by the jumper on the board). **After that, the device can be connected to the power supply.**

The application is launched using the DegaConfig shortcut on the desktop or in the Windows Start menu, where it can be found in the group DegaConfig.

In order for the program to function properly, it is necessary to import a list of serial numbers of devices that can be calibrated. The import is performed via the File - Import serial numbers menu. Select the * .dat file, which stores the information about serial numbers.

Once the program has been launched, select the communication port, on which the device is located. You can either directly select the name of the serial interface port, or the name created by the driver of the USB/COM converter. If only a single device is connected to the bus, the address should remain set to 254, otherwise it is necessary to set the address of the device that you wish to configure.

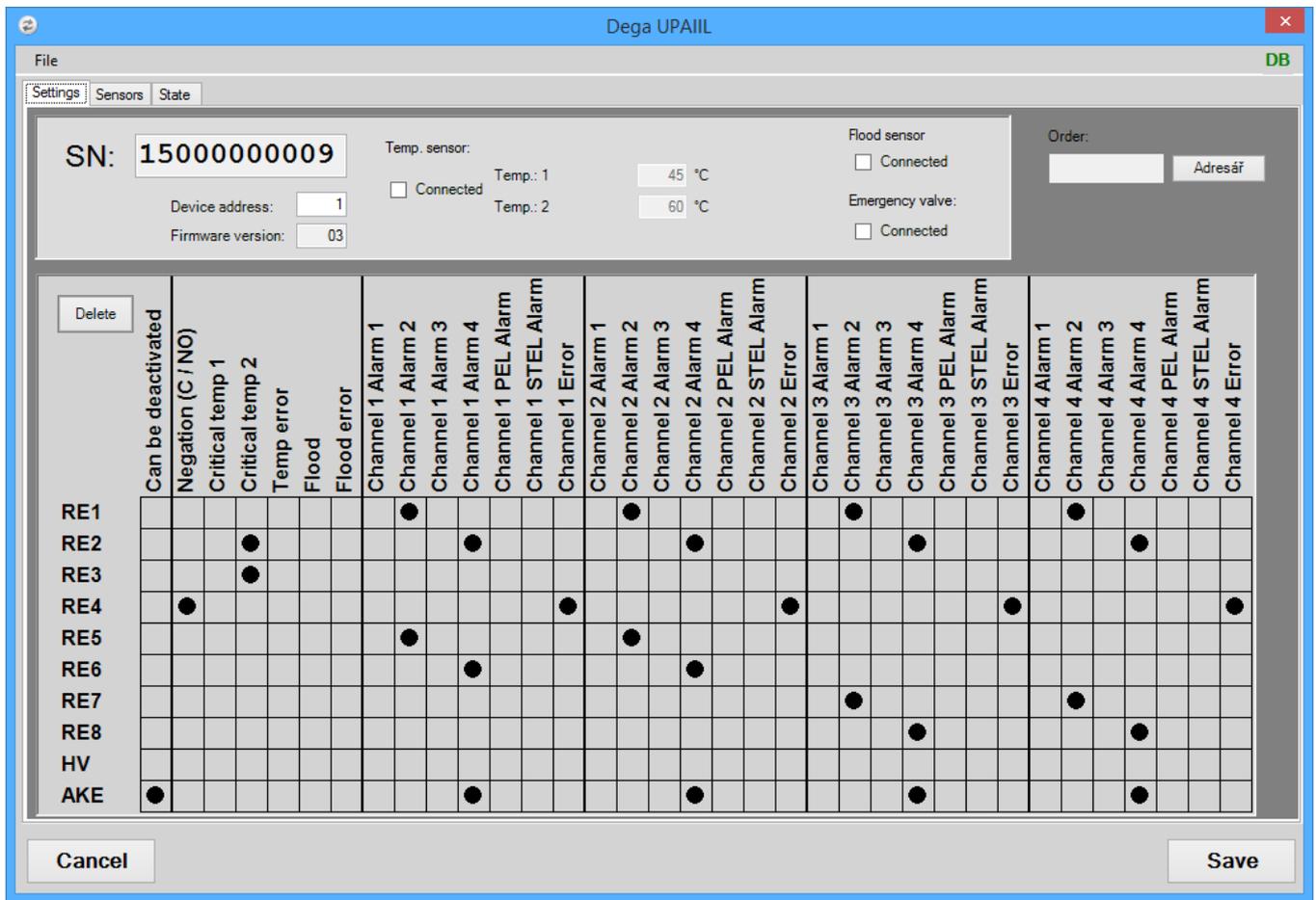


Next, enter the configuration by clicking the 'Connect' button.

Configuration of the DEGA UPA II gas controller

When setting a new UPA II, a pop-up message is displayed, informing that a valid serial number must be entered - otherwise the gas controller configuration will not be saved in the device.

1. *The "Settings" panel*



SN - sets the serial number of the gas controller. If it has already been set up and you need to change it, it is necessary to delete the processor and upload a new program.

The address of the device – is entered in the case of cooperation of the DEGA UPA II with a superior system. Otherwise, write any number between 1-253.

Temp. sensor – if used, set the temperature between 45°C a 60°C

Flood sensor - tick if used

Emergency valve – tick if used

Table of outputs (Tic Tac Toe)

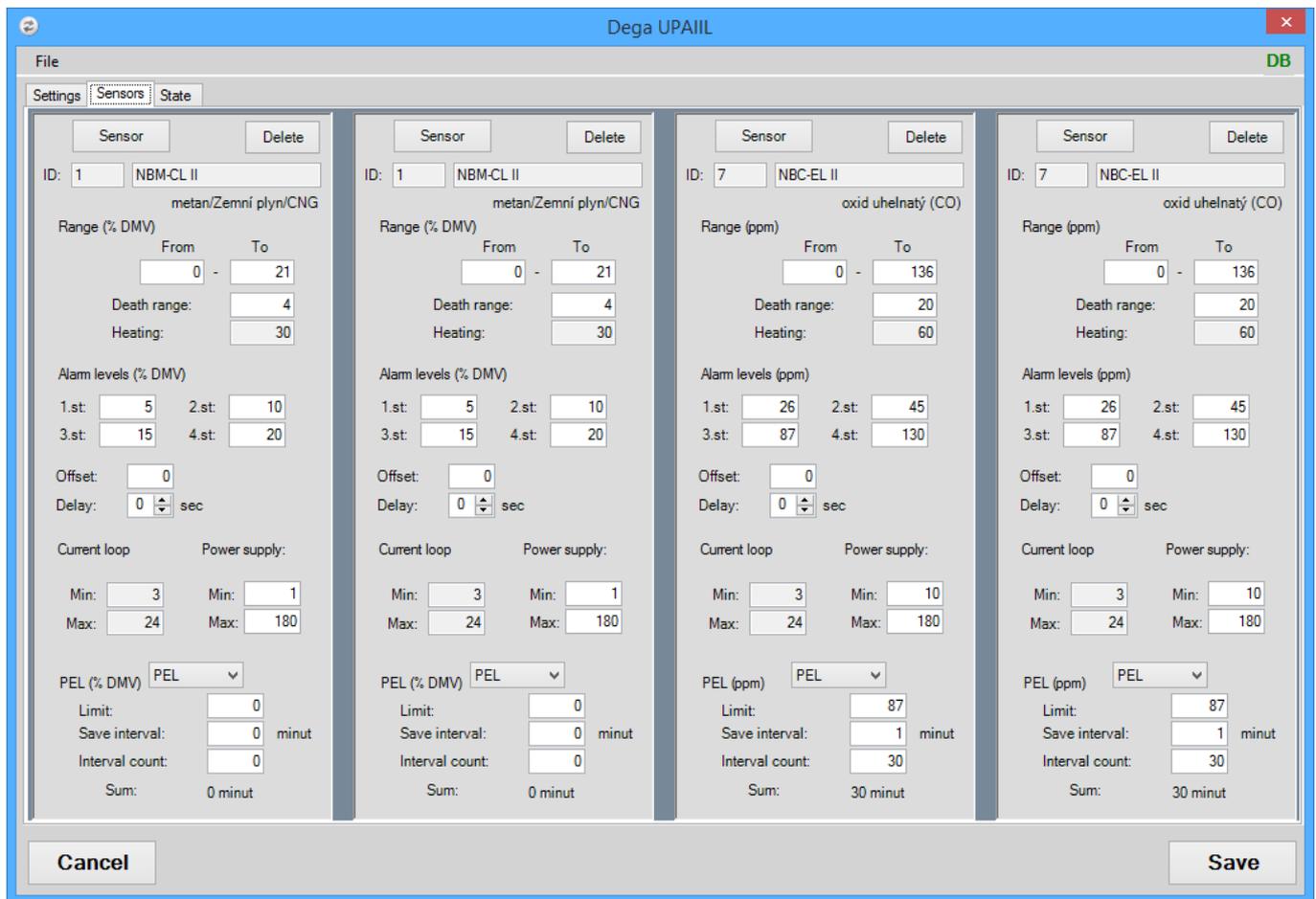
The individual outputs can be read vertically and the events horizontally.

Can be deactivated – after pressing the quit button, the relevant output switches to idle mode

Negation (C/NO) – this means that the output relay is in the idle mode C/NO (can be used for example in the case of a glitch)

If the event Grade 1 ALARM is ticked, the relevant output will also be switched on in the case of a Grade 2-4 ALARM. The same applies to critical temperature.

1. The "Sensors" panel



Press the Channel button to select the desired sensor from the menu – the list of sensors can be filtered by sensor and by environment.

Range - enter a from-to range, in which the measurement will take place (from equals 4 mA, to equals 20 mA)

Death range - until the measured value exceeds this number, the display will show zero (alarm of a grade lower than 1 must be set)

Heating – the sensor incandescence time after launch

Alarm levels - settings of the individual alarm levels

Offset – only used for oxygen - set value 21 (normal oxygen content in the atmosphere)

The alarms for oxygen are set as differences from the idle mode; the alarm is switched on when this difference is exceeded. Thus, for example, if you wish for oxygen to be activated at 18%, enter the number 3 into the relevant alarm item ($21 - 18 = 3$). At the same time, the alarm is also activated if oxygen rises above 24% ($21 + 3 = 24$)

Delay - how long after the exceeding of the alarm the outputs are activated

Supply current – the scope of power supply currents, which are to be understood as a functional sensor

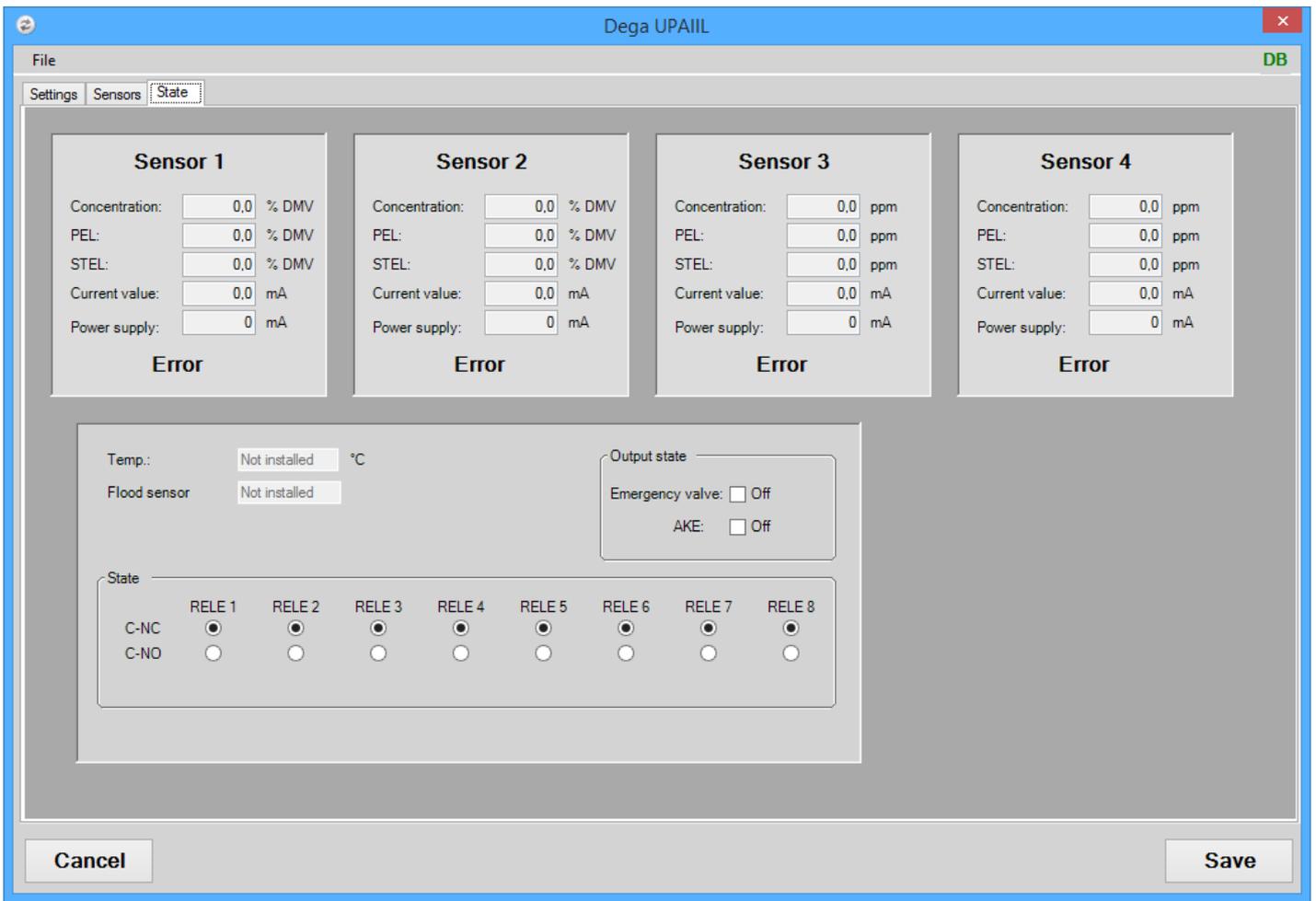
PEL - calculation of average concentrations over time

Limit - the limit value of the PEL alarm

Save interval and Interval count - determine the time of the PEL calculation. The saving interval should be as small as possible (in the scope of 1-255 minutes). The number of intervals (1-255) should be as high as possible. The time of the PEL calculation is then given as $\text{interval_length} * \text{interval_number}$. In case you do not require PEL, fill all boxes with zeroes.

When scrolling over any box, contextual help will be displayed.

2. The "Status" panel



Displays the actual status of the gas controller

MENU

File

Read configuration from file - loads configuration from the file

Save configuration into file – save configuration of gas controller to the file

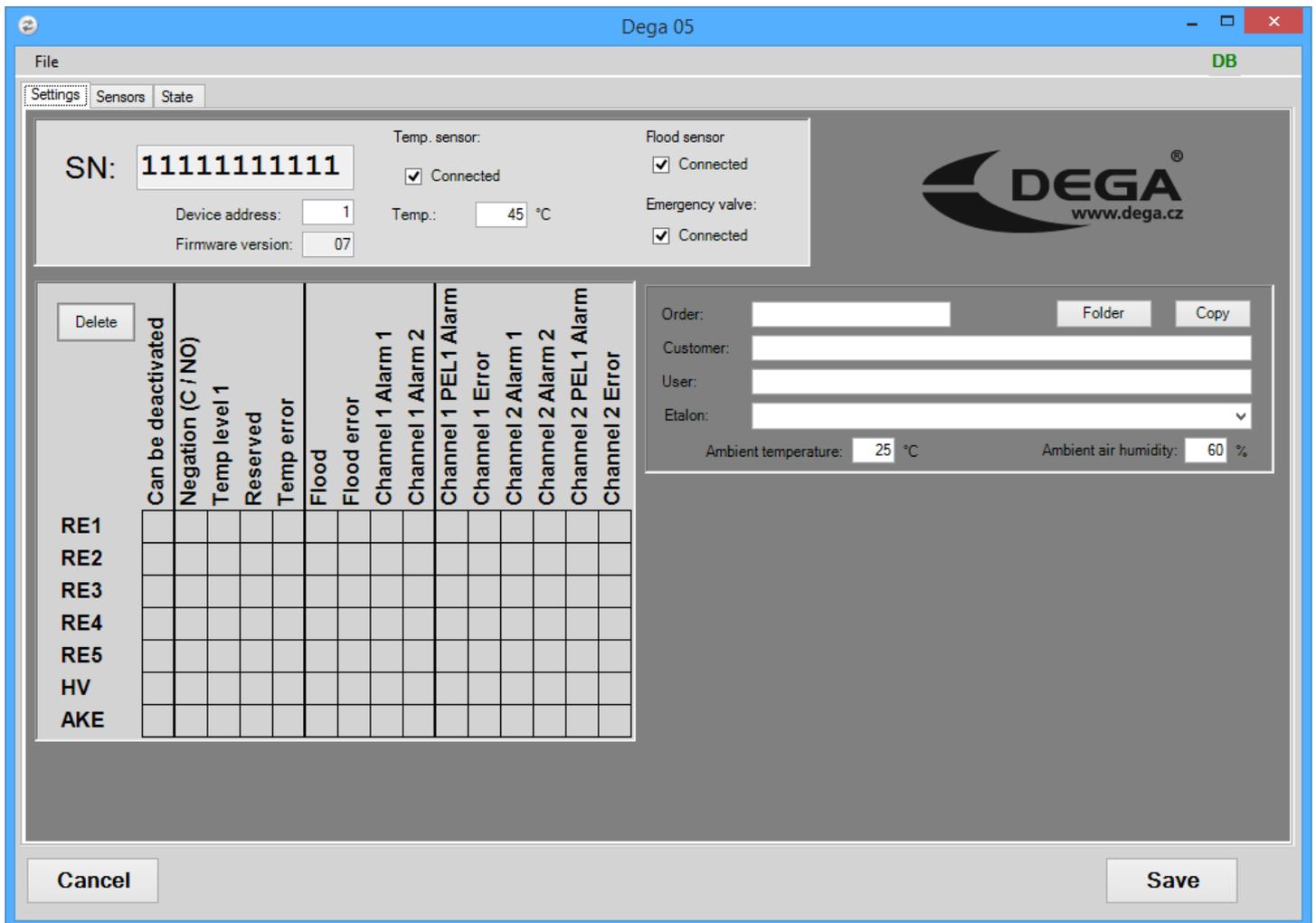
Print the protocol - prints out the gas controller configuration protocol – the protocol must be attached to each gas controller.

Save the configuration by pressing the "Save" button. Restart the gas controller will follow, after which you can either terminate the DegaConfig or re-enter the configuration.

Configuration of the DEGA05 detector

When setting a new DEGA05 detector, a pop-up message is displayed, informing that a valid serial number must be entered - otherwise the gas controller configuration will not be saved in the device.

1. The "Settings" panel



SN - sets the serial number of the gas controller. If it has already been set up and you need to change it, it is necessary to delete the processor and upload a new program.

The address of the device – is entered in the case of cooperation of the DEAG05 with a superior system. Otherwise, write any number between 1-253.

Temp. sensor – if used, set the temperature to 45°C

Flooding sensor - tick if used

Emergency valve – tick if used

Table of outputs (Tic Tac Toe)

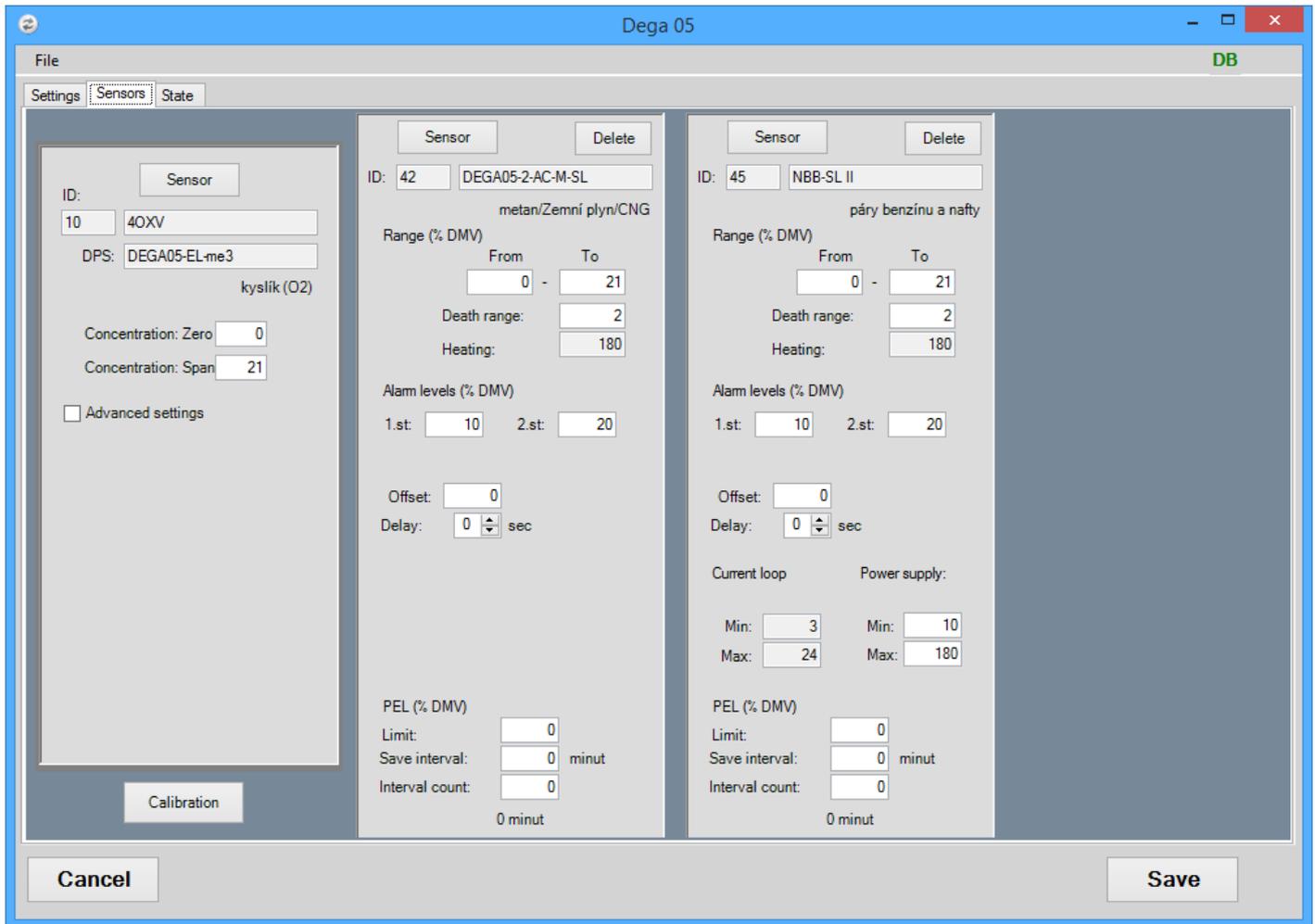
The individual outputs can be read vertically and the events horizontally.

Can be deactivated – after pressing the quit button, the relevant output switches to idle mode

Negate (C/NO) – this means that the output relay is in the idle mode C/NO (can be used for example in the case of a glitch)

If the event Grade 1 ALARM is ticked, the relevant output will also be switched on in the case of a Grade 2 ALARM.

3. The "Sensors" panel



This panel serves to configure the physical sensor mounted on the board of the device and the detector. First, select the sensor using the **Sensor** button. This will open a menu of sensors, which can be filtered by the dps type.

After selecting the desired sensor, you can edit its parameters:

Zero Concentration: The concentration of the calibration gas for calibration of the zero value

Span Concentration: The concentration of the calibration gas for the calibration of the concentration tangent

The values of time and temperature compensation can be found under the **Advanced settings** checkmark. Do not change these values.

TempKomp A - temperature compensation

TempKomp B - temperature compensation

TimeKomp A – time compensation (compensation for the aging of the sensor)

TimeKomp B - time compensation (compensation for the aging of the sensor)

U sen Val - verification of the functionality of the sensor (catalytic, electrochemical)

Delta R zero span - verification of the functionality of the sensor (semiconductor)

Upp Ref Out Min - verification of the functionality of the sensor (infrared)

Alpha - gas compensation for the infrared sensors

Beta - gas compensation for the infrared sensors

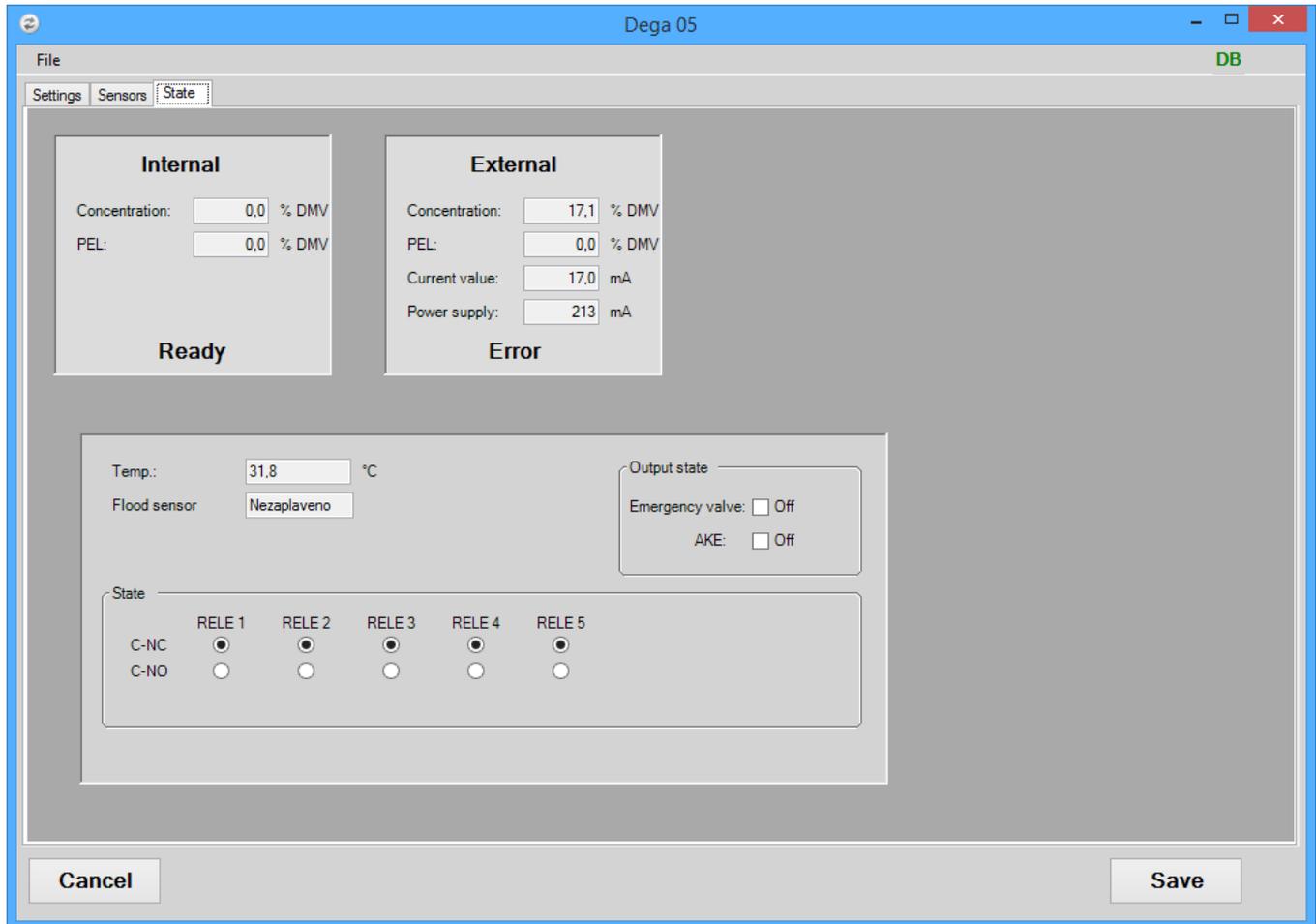
Next, you can proceed to the configuration of the sensors. The internal sensor is adjusted automatically when a physical sensor has been selected.

Press the **External** button to select the preferred sensor that is connected to the external input – the list of sensors can be filtered by type and environment.

After the configuration of the physical sensor, the sensor can be calibrated.

4. *The „Status“ panel*

The panel displays the current status of the detector, which means the values of the Internal and the External detector, their status, the status of output relays, the temperature and status of the flooding sensor and the emergency valve. This information is updated every second.



5. **MENU**

File

Load configuration from file - loads configuration from the file

Save configuration into file – save configuration of gas controller to the file

Print the settings protocol - prints out the protocol of the configuration of the device

Print the calibration protocol - prints out the protocol of the calibration of the device

Save the configuration by pressing the "Save" button. Restart of the device will follow, after which you can either terminate the DegaConfig program or re-enter the configuration.

6. Calibration

Pressing the calibration button on the "Sensors" panel will take you to the calibration form:

The screenshot shows a 'Sensor calibration' dialog box. At the top, it displays 'Work time' as 28 (1 dní) and 'Next calibration' as 12/18. Below this is a 'Settings' section with a 'Measured A/D' field showing 685. There are two radio buttons: 'Zero' (unselected) and 'Span' (selected). Under 'Concentration', there are two input fields with values 0 and 21. Under 'Old value', there are two input fields with values 684 and 0. Under 'New value', there are two input fields with values 0 and an empty field. At the bottom of the settings section is a 'Save' button. Below the settings section are 'Cancel' and 'Close' buttons.

Operating time - time since the last calibration

Next calibration - time until the next calibration in months

Bridge offset – information parameter for catalytic sensors regarding the balance of the measuring bridge

Measured A/D - the value of the A/D processor converter - used to track the stabilization of values

Concentration – the concentration of calibration gases for the zero calibration and span calibration

Old value - saved calibration values

New value – the actual measured values saved by pressing the Save button

To calibrate:

- 1) Bring clean air to the sensor and wait until the A/D value stabilizes
- 2) Press the "Save" button
- 3) Bring calibration gas the concentration of which is listed under "Concentration" and wait until the A/D value stabilizes
- 4) Press the "Save" button
- 5) Press the "Close" button
- 6) The calibration, as well as the entire configuration, will not be saved until you press the "Save" button on the main panel. Your device will also be restarted.

The NBx-yL II detector

1. Configuration

The configuration form of the sensor consists of a single panel, through which the physical sensor and other parameters can be set.

SN - sets the serial number of the detector. If it has already been set up and you need to change it, it is necessary to delete the EEPROM processor memory and perform the entire set up anew.

The address of the device – is entered in the case that multiple detectors are connected to one gas controller (range 1-253). Otherwise, keep number 1 in the address box.

Pressing the Sensor button will enable you to choose a sensor fitted in DPS from the menu. The sensors can be filtered according to the type of DPS. The sensor panel and the selection form are the same as in the case of the DEGA05 device.

Concentration Zero: The concentration of the calibration gas for calibration of the zero value

Concentration Span : The concentration of the calibration gas for the calibration of the concentration tangent

The values of time and temperature compensation can be found under the **Advanced settings** checkmark. Do not change these values.

TempKomp A - temperature compensation

TempKomp B - temperature compensation

TimeKomp A – time compensation (compensation for the aging of the sensor)

TimeKomp B - time compensation (compensation for the aging of the sensor)

U sen Val - verification of the functionality of the sensor (catalytic, electrochemical)

Delta R zero span - verification of the functionality of the sensor (semiconductor)

Upp Ref Out Min - verification of the functionality of the sensor (infrared)

Alfa - gas compensation for the infrared sensors

Beta - gas compensation for the infrared sensors

The values **Scope from** (corresponding to the output current 4 mA) and **Scope to** (corresponding to the output current 20 mA) will also be filled in automatically.

Incandescence – the sensor incandescence time after launch

Concentration is listed in the **Status** section (the correct values are displayed once the configuration has been saved) and the temperature of the installed thermometer.

1. Calibration

Pressing the calibration button on the "Sensors" panel will take you to the calibration form:

The screenshot shows a 'Sensor calibration' dialog box. At the top, it has a title bar 'Sensor calibration'. Below the title bar, there are several fields and buttons. 'Work time' is set to 32 (1 dni) with a 'Reset' button. 'Next calibration' is set to 365 dni. A 'Settings' section contains 'Measured A/D' (1190, range 0-4095), radio buttons for 'Zero' (selected) and 'Span', 'Concentration' (0 and 20 % DMV), 'Old value' (1200 and 1632), and 'New value' (1220 and 1654). There are 'Save', 'Cancel', and 'Close' buttons at the bottom.

Work time - time since the last calibration

Next calibration - time until the next calibration in months

Bridge offset – information parameter for catalytic sensors regarding the balance of the measuring bridge

Measured A/D - the value of the A/D processor converter - used to track the stabilization of values

Concentration – the concentration of calibration gases for the zero calibration and span calibration

Old value - saved calibration values

New value – the actual measured values saved by pressing the Save button

To calibrate:

- 1) Bring clean air to the sensor and wait until the A/D value stabilizes
- 2) Press the "Save" button
- 3) Bring calibration gas the concentration of which is listed under "Concentration" and wait until the A/D value stabilizes
- 4) Press the "Save" button
- 5) Press the "Close" button
- 6) The calibration, as well as the entire configuration, will not be saved until you press the "Save" button on the main panel. Your device will also be restarted.

The NSx-yL II, NSx-yL III, NSx-yL III detectors

1. The "Settings" panel

Firmware version: a version of the uploaded program

SN: serial number of the sensor base

Environment type: selects the type of environment in which the installation takes place - just normal for the moment

Sensor Type: you can choose between the sensors NSX-yL II, III NSX-yL and NSX-yL III

Device address: if the sensor is connected to the gas controller via RS485, set up such an address that will be unique in the entire contract

Innner address of device: setting of the RS485 address via the DIP switch on the motherboard

Save values period: How often the measured values and status information are saved in the internal memory.

Inner time difference: the time by which the internal clock of the sensor is late

Concentration: the measured concentration

Current value: the size of the output current of the current loop

Status: displays the sensor status, or a brief description of the error

Voltage: size of the power voltage

Vdd voltage: voltage in the 5V branch

Consumption (5V): power consumption of electronics

Inner temp.: the processor chip temperature – approximately 10-15°C higher than the ambient temperature

Sensor temp.: the sensor temperature - approximately 5°C higher than the ambient temperature

Sensor

This panel enables you to configure the physical sensor, connected to the motherboard.

First, select the desired sensor using the **Sensor** button. This opens a menu of sensors, which can be filtered by the type of DPS.

Once a sensor has been selected, it is possible to change its parameters:

Zero Concentration: The concentration of the calibration gas for calibration of the zero value

Span Concentration: The concentration of the calibration gas for the calibration of the concentration tangent

The values of time and temperature compensation can be found under the **Advanced settings** checkmark. Do not change these values.

TempKomp A - temperature compensation

TempKomp B - temperature compensation

TimeKomp A – time compensation (compensation for the aging of the sensor)

TimeKomp B - time compensation (compensation for the aging of the sensor)

U sen Val - verification of the functionality of the sensor (catalytic, electrochemical)

Delta R zero span - verification of the functionality of the sensor (semiconductor)

Upp Ref Out Min - verification of the functionality of the sensor (infrared)

Alpha - gas compensation for the infrared sensors

Beta - gas compensation for the infrared sensors

Alarm grades etc. can be set on the right side.

Scope - enter a from-to range, in which the measurement will take place (from equals 4 mA, to equals 20 mA)

Dead zone - until the measured value exceeds this number, the display will show zero (alarm of a grade lower than 1 must be set)

Incandescence – the sensor incandescence time after launch

Alarm grades - settings of the individual alarm grades

Offset – only used for oxygen - set value 20,9 (normal oxygen content in the atmosphere)

The alarms for oxygen are set as differences from the idle mode; the alarm is switched on when this difference is exceeded.

Thus, for example, if you wish for oxygen to be activated at 18%, enter the number 3 into the relevant alarm item ($21-18 = 3$).

At the same time, the alarm is also activated if oxygen rises above 24% ($21 + 3 = 24$)

Interval of the relay status change - how often the output relay will be switched over

PEL - calculation of average concentration over time (usually 8h)

Limit - the limit value of the PEL alarm

Saving interval and number of intervals - determine the time of the PEL calculation. The saving interval should be as small as possible (in the scope of 1-255 minutes). The number of intervals (1-255) should be as high as possible. The time of the PEL calculation is then given as $\text{interval_length} * \text{interval_number}$. In case you do not require PEL, fill all boxes with zeroes.

STEL - calculation of average concentration over time (usually 15 minutes)

7. The "Outputs" panel

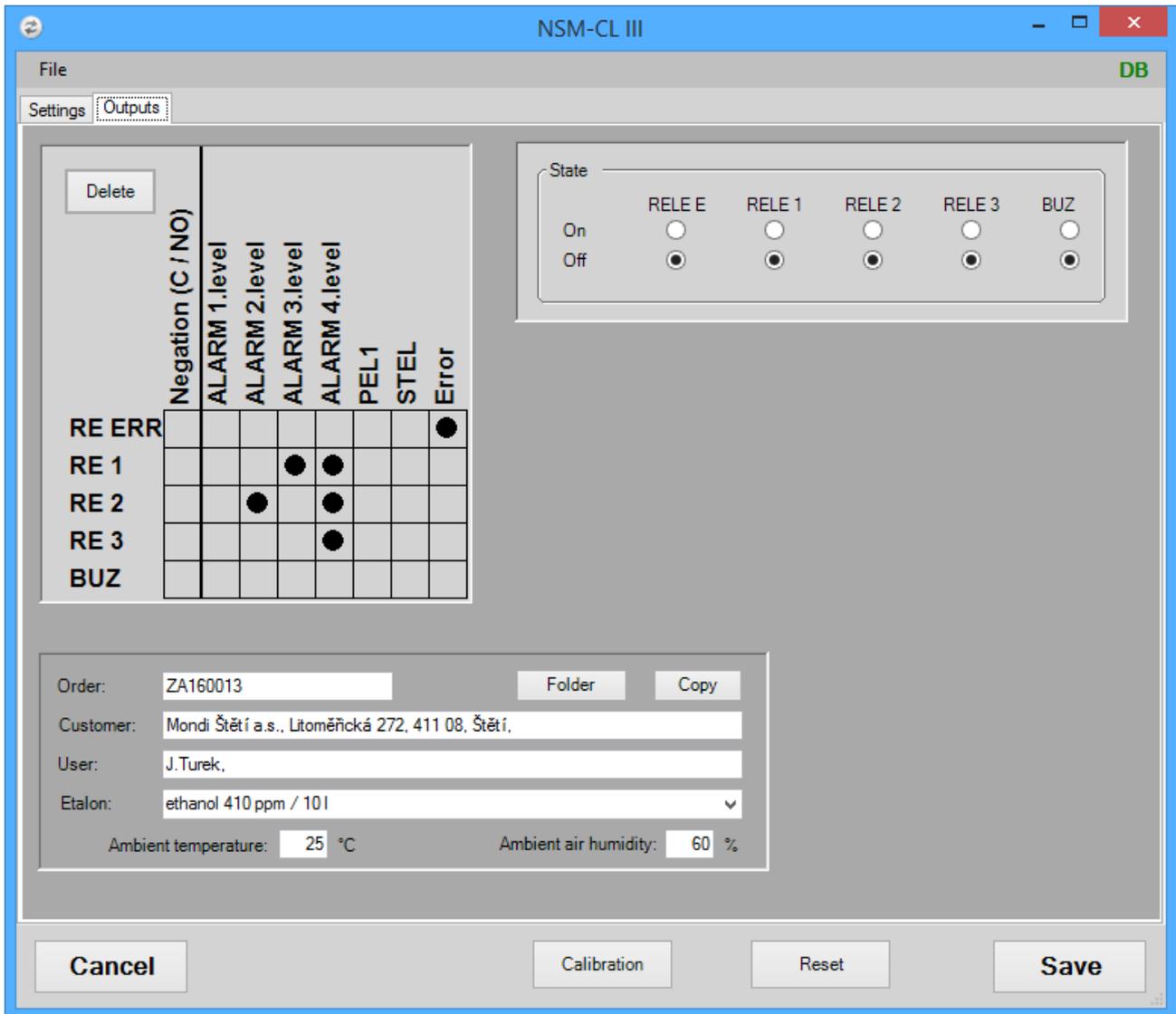


Table of outputs (Tic Tac Toe)

The individual outputs can be read vertically and the events horizontally.

Negate (C/NO) – this means that the output relay is switched on in the idle mode

Events are triggered only if there is a dot in the corresponding place. For instance, if the event grade 1 ALARM is marked, the corresponding output will be released upon reaching grade 2 ALARM.

Output status - displays the status of the output relays and the piezo siren (if fitted)

Information for the calibration/configuration protocol

Control buttons on the main taskbar:

Cancel: Cancels of the settings

Calibration: Enters the calibration

Reset: restarts the sensor (the changes you made will not be saved)

Save: saves changes and restart the sensor

Save the finished configuration in the sensor by pressing the "Save" button. The sensor will be restarted and you can proceed to calibration.

8. Calibration

1) Enter calibration through the main screen

The screenshot shows the 'NBCO2-IL III' calibration software interface. The window title is 'NBCO2-IL III' and it has a 'DB' indicator in the top right. The interface is divided into several sections:

- Settings:** Firmware version: 17; SN: 9999999999; Environment type: Basic; Sensor type: NBx-yL III; Device address: 1; Inner address of device: 2; Save values period: 60; Inner time difference: -6136 d.
- State:** Concentration: 0.0 % obj; Current value: 4.0 mA; Status: Ready; Monitor: Voltage: 22.80 V; Vdd voltage: 4.94 V; Consumption (5V): 106 mA; Inner temp.: 39.4 °C; Sensor temp.: 4.1 °C.
- Sensor:** ID: 26; MSH-CO2/NC/TC; DPS: NSx-IL-II-SU; SN: 7777777777; Concentration: zero: 0 % obj; Concentration: span: 2.5 % obj; Advanced settings.
- Range (% , ppm):** From: 0; To (20 mA): 2.5; Dead range: 0.2; Heating: 15.
- Alarm levels (% , ppm):** 1.st: 0.5; 2.st: 1; 3.st: 2; 4.st: 2.5; Offset: 0; Relay refresh period: 1 sec.
- PEL:** Limit: 0; Save interval: 0 minut; Interval count: 0; Sum: 0 minut.
- STEL:** Limit: 0; Save interval: 0 minut; Interval count: 0; Sum: 0 minut.

At the bottom, there are buttons for 'Cancel', 'Calibration', 'Reset', and 'Save'.

2) The calibration form will appear

The screenshot shows the 'Sensor calibration' form with the following fields and values:

- Work time: 32 (1 dni) with a 'Reset' button.
- Next calibration: 365 dni.
- Settings section:
 - Measured A/D: 1190 (0-4095).
 - Radio buttons: Zero, Span.
 - Concentration: 0 and 20 % DMV.
 - Old value: 1200 and 1632.
 - New value: 1220 and 1654.
 - 'Save' button.
- 'Cancel' and 'Close' buttons at the bottom.

The screenshot shows the 'Sensor calibration' form with the following fields and values:

- Work time: 28 (1 dni).
- Next calibration: 12/18 (dropdown menu).
- Settings section:
 - Measured A/D: 685.
 - Radio buttons: Zero, Span.
 - Concentration: 0 and 21.
 - Old value: 684 and 0.
 - New value: 0 and (empty).
 - 'Save' button.
- 'Cancel' and 'Close' buttons at the bottom.

- 3) On clean air, switch the radio button to "Zero", wait until the stabilization of "New value" or "New DET/REF" and press Save
- 4) Connect the calibration gas of the "Span" concentration, switch radio button to "Span" and wait until the stabilization of "New value" or "New DET/REF", then press Save
- 5) After stabilization press the "Close" button and return to the "Settings" panel
- 6) Press the "Save" button to save the calibration in the sensor

DEGA UPA III

The configuration form comprises a total of 3 parts. Global Configuration, Configuration of analog channels and Configuration of digital channels. Furthermore, the bookmark with the gas controller status can be accessed from here.

1. The global configuration of the UPA III

	Can be deactivated	Negation (C / NO)	Critical temp 1	Critical temp 2	Temp error	Flood	Flood error	Voting
RE1								1
RE2	●							1
RE3								1
RE4								1
RE5		●						1
RE6								1
RE7	●	●			●		●	1
RE8			●					1
RE9				●				1
RE10						●		1
SOUND	●							1
LIGHT								1
HV								1
BEEP	●							1

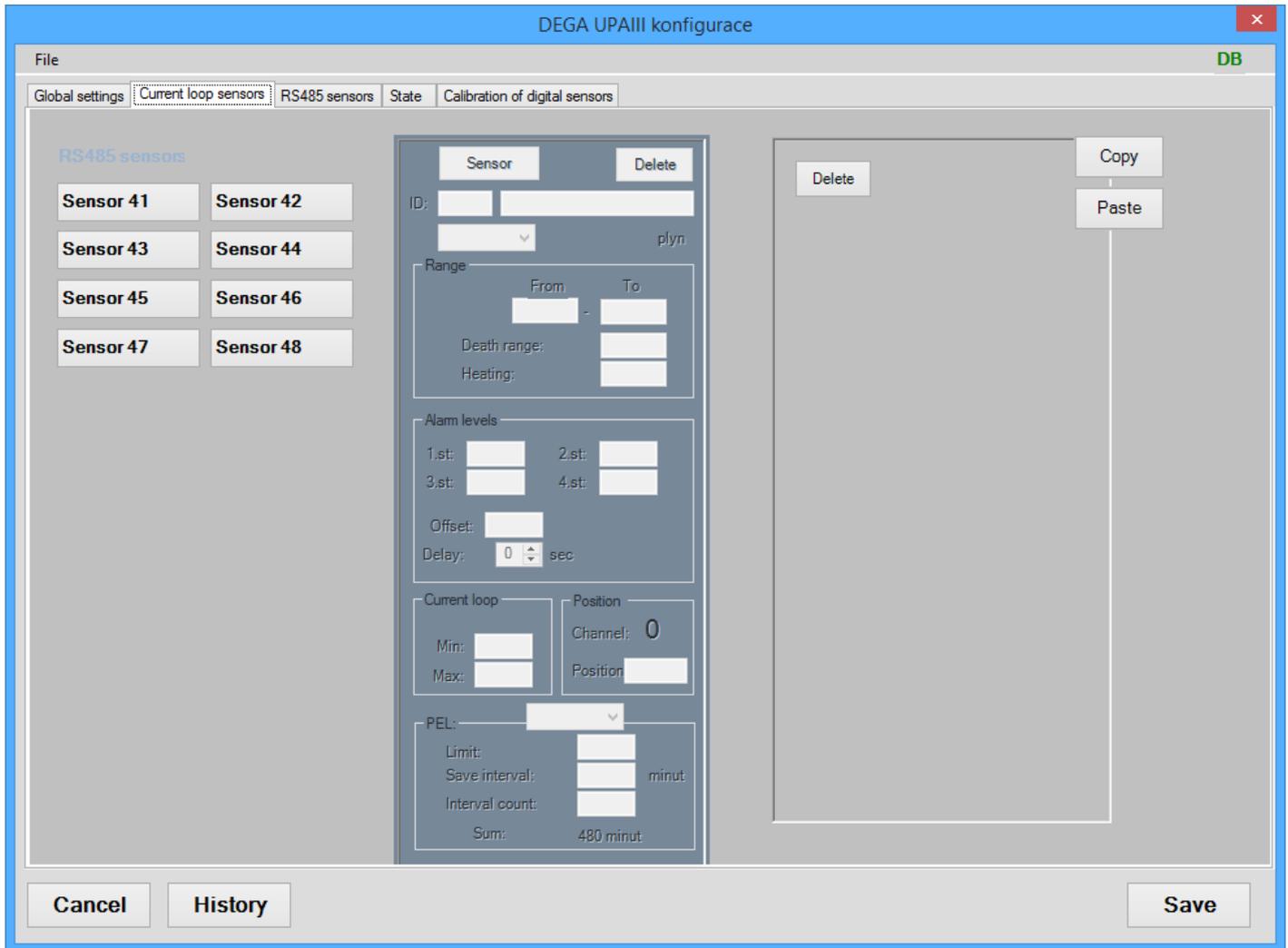
This is the place, where you can set the global configuration of the gas controller. Find the section for setting the parameters on the left and the global setting of the relays on the right.

- Device address - sets the gas controller address for the superior system: range 1-253
- Relay refresh period - sets the interval of the shortest duration of a closure or a release of the relay in seconds (1 s by default)
- Save values period - sets the frequency of saving the values into the memory of the device; for 60 seconds, the devices runs out of memory in about one month, whereupon overwriting of the oldest data begins, max 65535 s.
- Temp. sensor - configures an additional temperature sensor along with the critical temperature
- Flood sensor – adds a flooding sensor
- Emergency valve – connects the emergency valve
- Flashing period - sets the OPT-SIG (optical signaling) output in intermittent switching mode, max 65535 s; at 0 flashing will not take place
- Timeout of deactivation - All outputs, which can be deactivated, will be automatically deactivated after a specified time at non-zero time, max 65535 s; at 0 the outputs can be deactivated by pressing the ENTER button on the gas controller, or by the means of an external quit button

The global setting of the relays sets the gas controller outputs (relay 1-10, external audio signalization, visual signalization, emergency valve, internal audio signalization) with regard to global events (critical temperatures, flooding and failure of temperature sensors and flooding). Provided that the corresponding cell has been marked by a dot, the relevant output will be

closed (or released in the case of negated logic). The events Can be deactivated and Negate belong to specific settings. They are permanently pertinent to the respective output of the gas controller; the deactivation allows for the set output to be switched off by pressing the ENTER button on the gas controller or by the means of an external quit button. Negating then reverses the entire logic; unless the output is activated, the relay is closed (the LED indicator at the respective output is on). The cancel button enables you to exit the configuration of the gas controller without saving, the History button downloads the history of the measured values into a csv file. Press the Save button to save the configuration into the gas controller.

9. The UPA III analog channels



The analog detectors (connected via current loop) are set similarly to the DEGA UPA II gas controller. On the left, click on one of the 8 analog channels, which the gas controller has at its disposal (detectors 41-48 respond on gas controllers S1 to S8). In the middle section, click on the detector to open a menu of all detectors available to the gas controller. For proper function, simply select the correct detector with the desired gas. The pre-defined alarm grades, the dead zone etc. can then be manually edited according to the detection system requirements at any time. Interesting is for example the position field. The text you enter there (8 characters) is shown on the gas controller display, thus serving for better identification of the sensor in a supervised area. On the right side, there are more settings of the outputs with regard to the events. For example, relay 1 in the displayed configuration will be activated for a methane concentration of 5% of the lower explosive limit, which corresponds to a current of about 8 mA. Relay 5 will then close after exceeding 20% of LEL, that is a current loop of 20 mA. The events PEL and STEL are used for toxic gases, and if their limit is zero, they never take place. Failure occurs, if the flow running through the current loop is consistently lower than 3 mA.

The buttons Copy and Paste on the right side serve to simplify the relay settings. Press Copy to save in the current configuration of the relay. When setting another channel, press Enter and the relay configuration will then be duplicated on the channel.

10. The UPA III digital channels

Digital channels are subject to similar requirements as the analog ones. Select the appropriate channel according to your requirements and set its detector address, then press the "Read Detector" and if the detector is functioning and properly connected to one of the subordinate RS485 buses (automatically detects both), identification of the loaded detector will appear in the form.

The screenshot shows the 'DEGA UPAIII konfigurace' software window. The 'RS485 sensors' tab is active, displaying a grid of 32 sensor slots (Sensor 1 to Sensor 32). 'Sensor 2 (2)' is selected. Below the grid is a detailed configuration panel for 'Sensor 2' with the following fields:

- Offline mode
- Sensor: NBCO2-IL III
- Address: 2
- Position: [empty]
- Line: BUS0
- Type: NBXIII
- Sn: 9999999999
- Range from: 0
- Range To: 5
- Alarm 1: 0.5
- Alarm 2: 1
- Firmware: 17
- Units: %
- PEL1 limit: 0
- Alarm 3: 2
- Gas: CO2
- PEL2 limit: 0
- Alarm 4: 2.5

Buttons include 'Remove sensor', 'Read sensor', 'Delete', 'Copy', and 'Paste'. To the right is a detection matrix with columns: ALARM 1st level, ALARM 2nd level, ALARM 3rd level, ALARM 4th level, PEL, STEL, Error. Rows are labeled RE1 through BEEP. A black dot is present in the 'Error' column for RE4.

Please, do not use the offline mode field. It serves to set up the gas controller without a detector connected. If you wish to remove the sensor from the configuration, click the "Delete detector" button.

11. The State bookmark

The bookmark displays the currently measured values of the connected detectors. If the detector is in the ready mode, it is functional. In the case that error, or any other kind of text containing err., is displayed, the detector is not functional.

General warranty terms

Provided that the instructions on installation, operation and maintenance are observed, the manufacturer provides a 24-month warranty from the date of receipt of the product. Should the purchased product be put into operation by a subject other than the seller, the warranty period starts from the day of putting into operation; if the buyer ordered commissioning no later than three weeks after the takeover. The customer expressly acknowledges that he cannot ask for a replacement product or exercise withdrawal from the purchase contract during a warranty period beyond the warranty period specified in the Civil Code (statutory warranty).

- 1 In case of reclamation of the product, a proof of purchase of the item containing the following information: name and surname, name and business name of the seller, his identification number, in case of a legal person, the name, identification number and registered office, in case of a physical person - name, surname, address and warranty card, if the buyer received one from the seller, must be submitted. Deficiencies concerning the issue of the warranty certificate do not affect the validity of the warranty.
- 2 Within the warranty period, the product (only complete devices are accepted for warranty repairs) can be reclaimed only at the dealer it was purchased from; subsequently, the seller is obliged to forward the product to an authorized service or manufacturer.
- 3 A condition for recognition of the warranty rights is that the installation of the product is performed by an authorized person with a valid certificate from the manufacturer.
- 4 Reclamation of a product defect, which can be without consequences reasonably quickly removed, will be solved by removing the defect (repair) or replacement of a component of the product, as in this case replacing the product in its entirety contradicts the nature of things (§ 616, paragraph 4 CC).
- 5 The buyer, who exercises the warranty right for repairs, is not entitled to obtaining the components that were replaced.
- 6 The warranty can be extended for up to 48 months its range can be broadened above standard on the basis of an individual warranty contract. Further information can be obtained at specific business negotiations.

This warranty does not cover:

- A sensor, which **was not commissioned by certified personnel** with a valid certificate of the manufacturer or by the manufacturer
- A sensor, which **was not subject to regular calibration and functional revision** performed by a certified service with a valid certificate or by the manufacturer
- damage caused by fire, water, static electricity, surge in the electric distribution network or public network, accident, misuse of the product, wear and mechanical damage,
- pollution of the detectors of the device and their cleaning
- damage caused by **unprofessional installation, alteration, modification** or use in an improper manner inconsistent with the manual, technical standards or safety regulations applicable in the Czech Republic
- damage of the product during transport, which was caused by improper handling or treatment of the product inconsistent with the manual
- DEGA products that have been **used with other than the original DEGA products including consumables and accessories**
- **calibration of the detectors**, i.e. setting the detection range
- **wear or destruction of the detector sensors including the necessity of replacement**
- wearing components and consumables (e.g. a spanner for the removal of sensors, seals, etc.), which are subject to normal wear and tear during operation, and wear of the product and its components that occurred as a result of normal use.

The complete version of the general business conditions and warranty terms is available at www.dega.cz.

Manufacturer: DEGA CZ Ltd., K Žižkovu 640/9, 190 00 Praha 9, Czech Republic
DIČ: CZ 279 029 43, IČO: 279 02 943; Telephone: +420 774 447 661-2, Fax: +420 227 203 512
E-mail: , Web: www.dega.cz