INSTRUCTIONS MANUAL

Control software

DegaConfig

Content

Screen resolution minimum 1024 x 768
Processor minimum 1,3 GHz
RAM minimum 1 GB

Windows XP, Windows 7 or higher
.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 UPA II - 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.
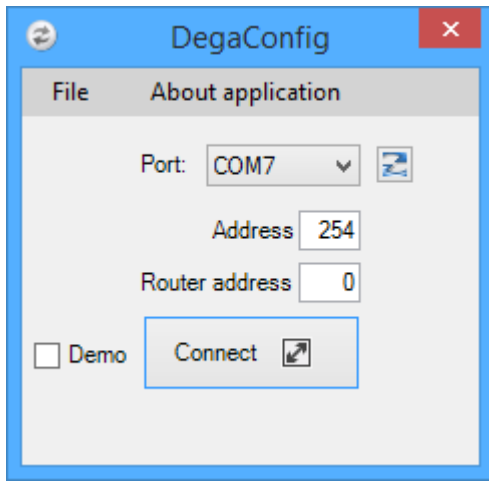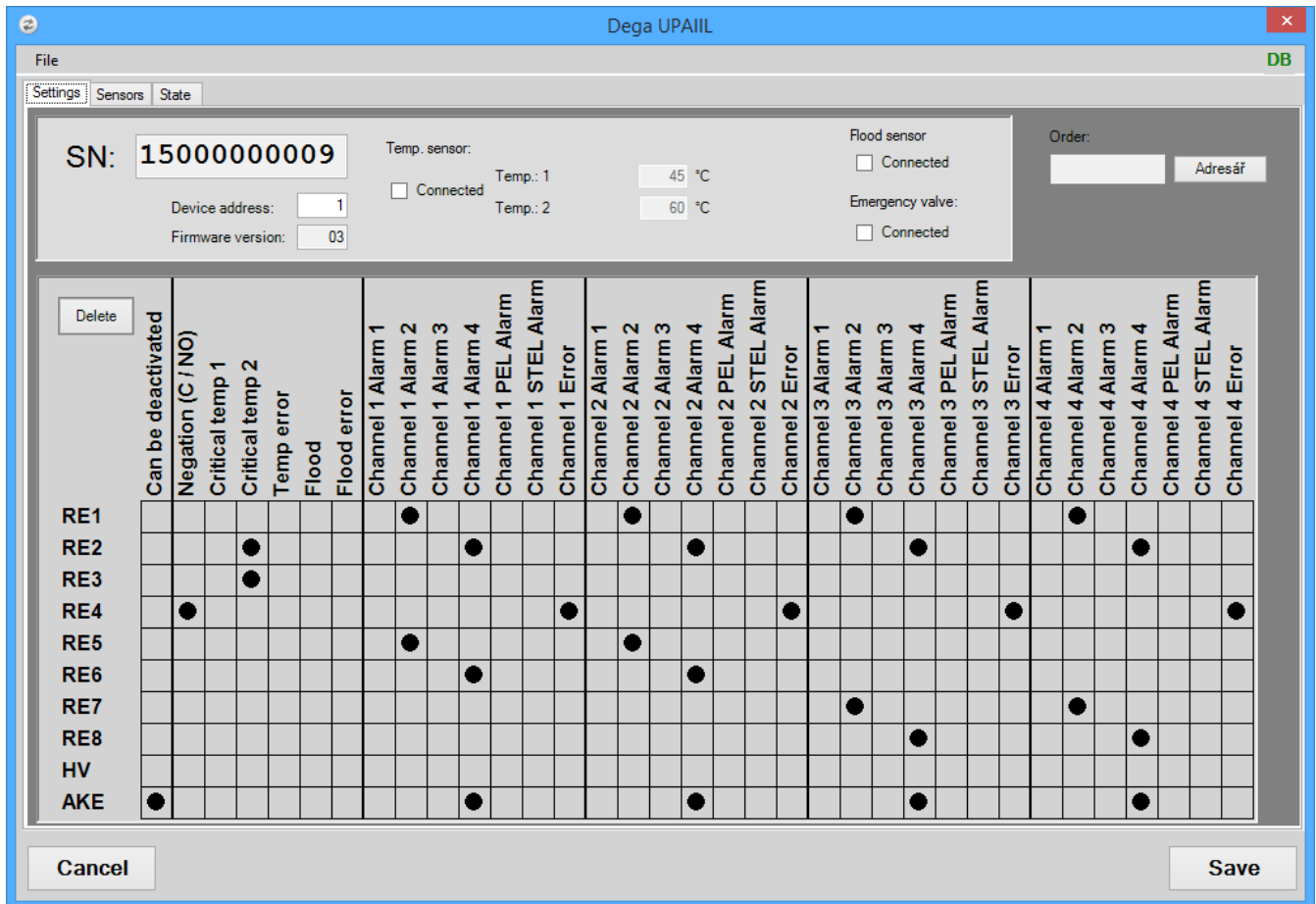
Control panel DEGA UPA II

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**

Dega UPAIIL

File — DB

Settings | Sensors | State

SN: **15000000009**

Device address: 1
Firmware version: 03

Temp. sensor:
☐ Connected
Temp.: 1 45 °C
Temp.: 2 60 °C

Flood sensor
☐ Connected

Emergency valve:
☐ Connected

Order: _____ Adresář

	Can be deactivated	Negation (C / NO)	Critical temp 1	Critical temp 2	Temp error	Flood	Flood error	Ch1 Alarm 1	Ch1 Alarm 2	Ch1 Alarm 3	Ch1 Alarm 4	Ch1 PEL Alarm	Ch1 STEL Alarm	Ch1 Error	Ch2 Alarm 1	Ch2 Alarm 2	Ch2 Alarm 3	Ch2 Alarm 4	Ch2 PEL Alarm	Ch2 STEL Alarm	Ch2 Error	Ch3 Alarm 1	Ch3 Alarm 2	Ch3 Alarm 3	Ch3 Alarm 4	Ch3 PEL Alarm	Ch3 STEL Alarm	Ch3 Error	Ch4 Alarm 1	Ch4 Alarm 2	Ch4 Alarm 3	Ch4 Alarm 4	Ch4 PEL Alarm	Ch4 STEL Alarm	Ch4 Error
RE1								●							●							●							●						
RE2				●					●							●							●							●					
RE3				●																															
RE4		●												●							●							●							●
RE5								●							●																				
RE6									●							●																			
RE7																						●							●						
RE8																							●							●					
HV																																			
AKE	●								●							●							●							●					

Delete — Cancel — Save

3

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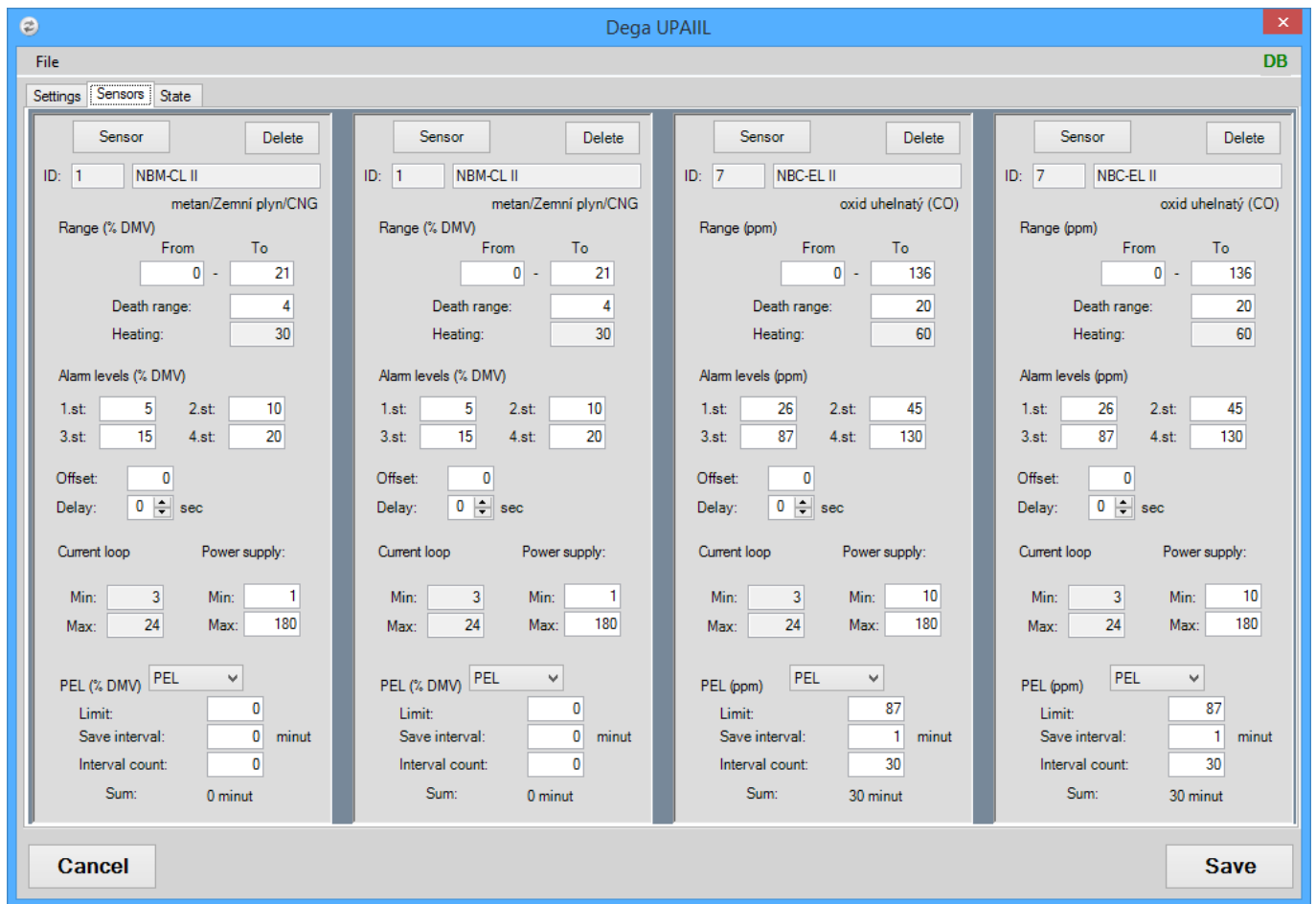
Press the Channel button to select the desired sensor from the menu – the list of sensors can be filtered by sensor and by environment.

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 interval_length * 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
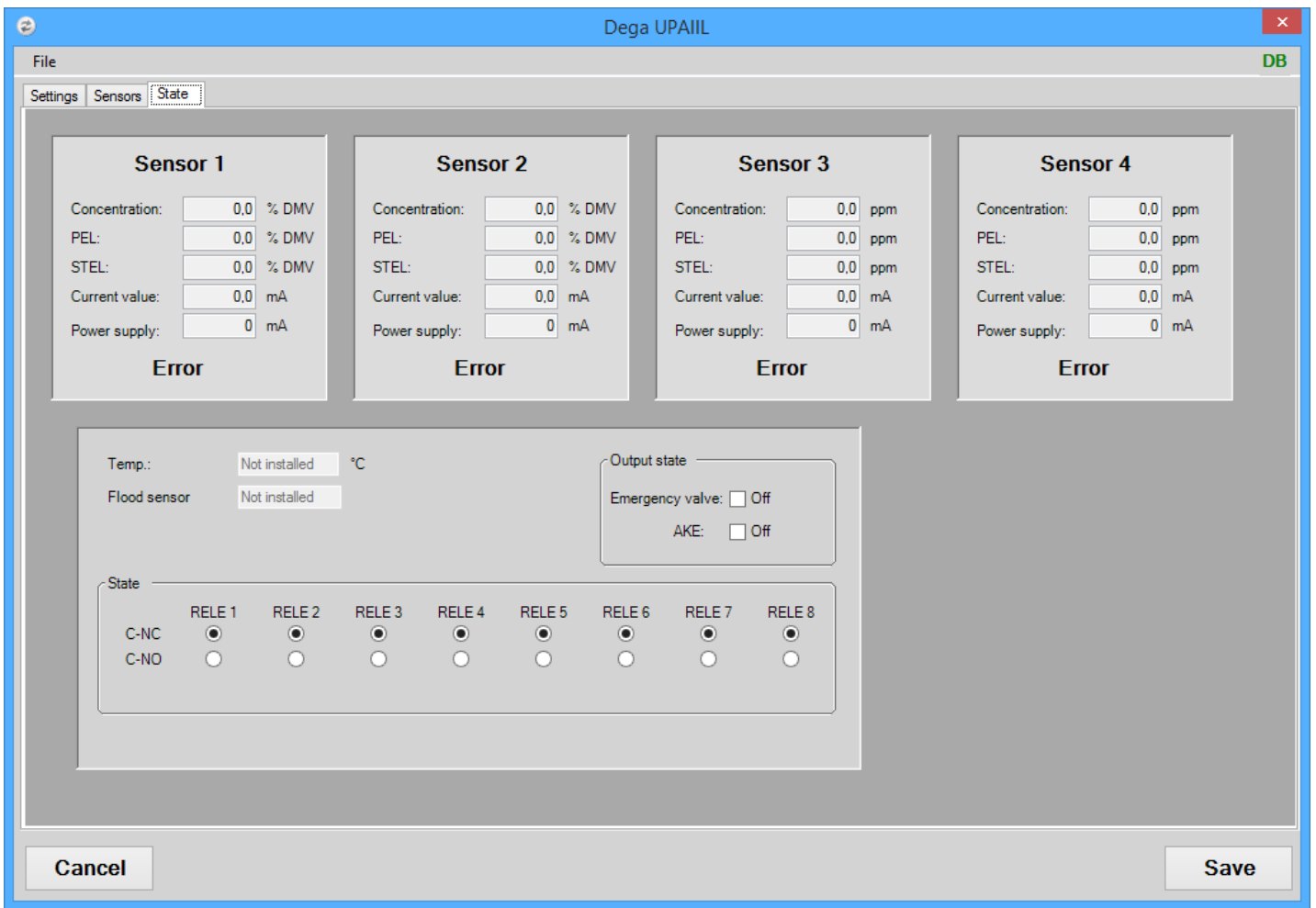
Displays the actual status of the gas controller

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.

Detector DEGA05

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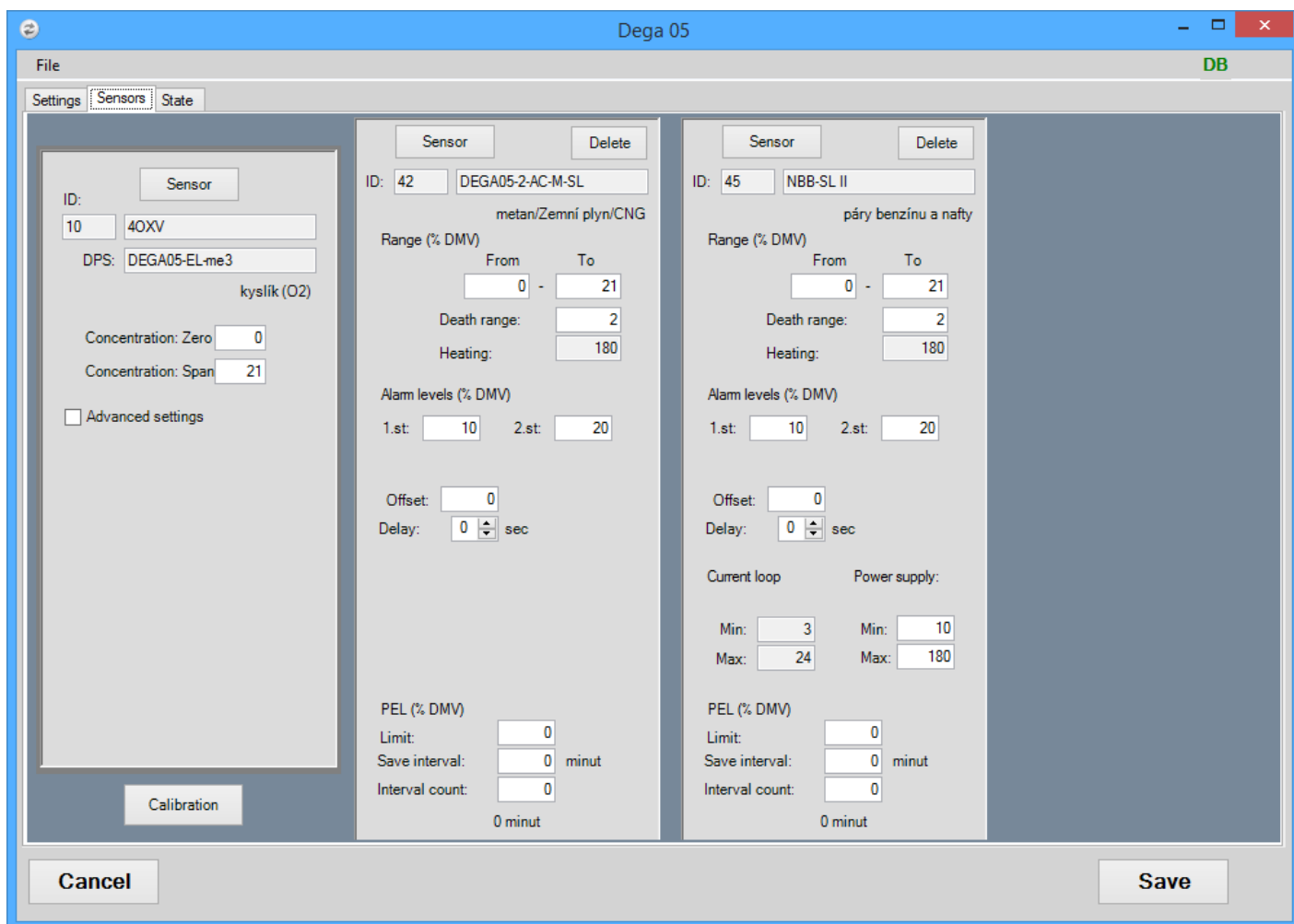
This panel serves to configure the physical sensor mounted on the board of the device and the detector.
First, select the sensor using the **Sensor** button. This will open a menu of sensors, which can be filtered by the dps type.

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.
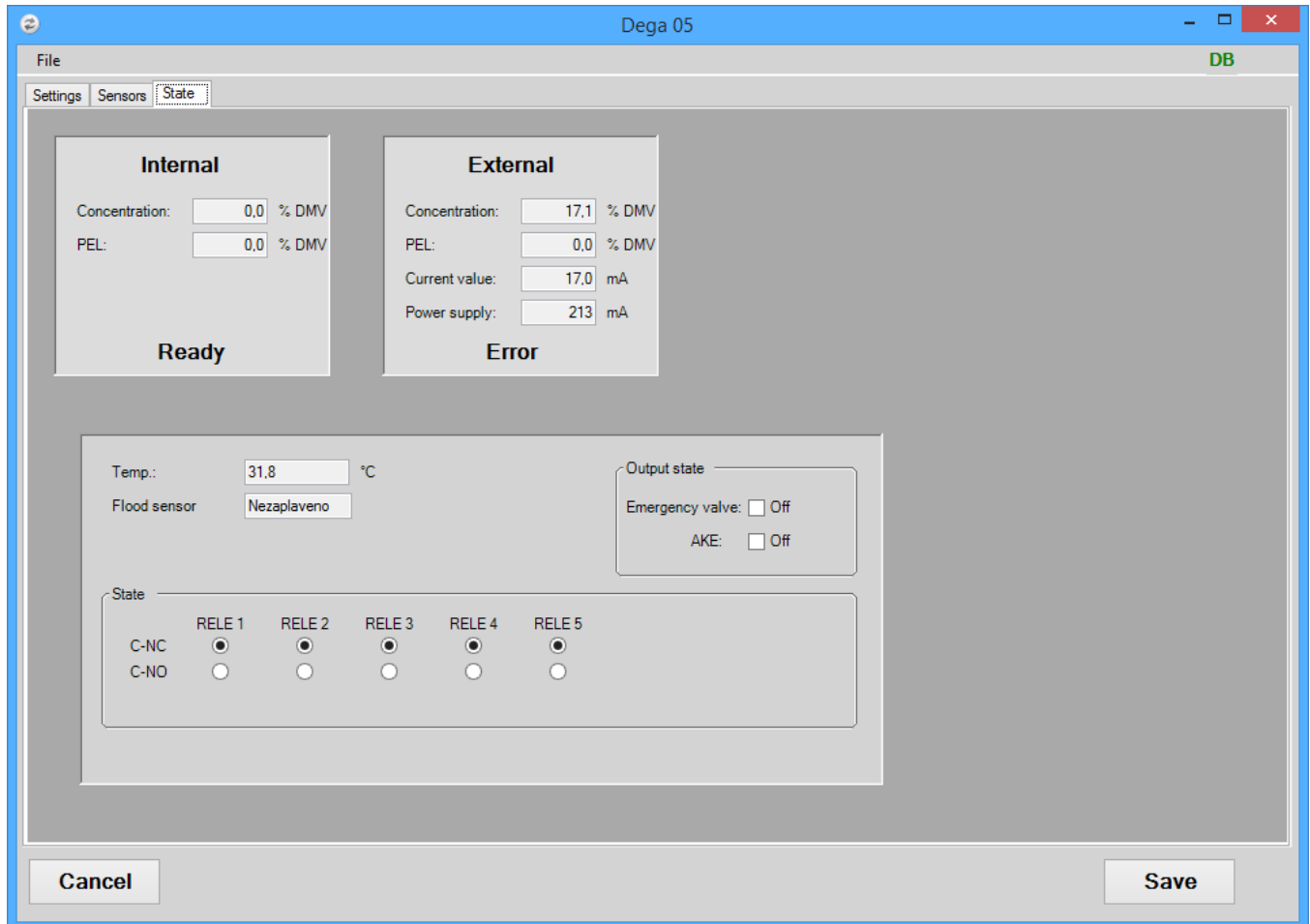
5. MENU

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:

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.

Detector DEGA NB II

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)
Alpha - gas compensation for the infrared sensors

11

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:

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.

Detector DEGA NB III, NS II, NS III

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 interval_length * interval_number. In case you do not require PEL, fill all boxes with zeroes.

STEL - calculation of average concentration over time (usually 15 minutes)
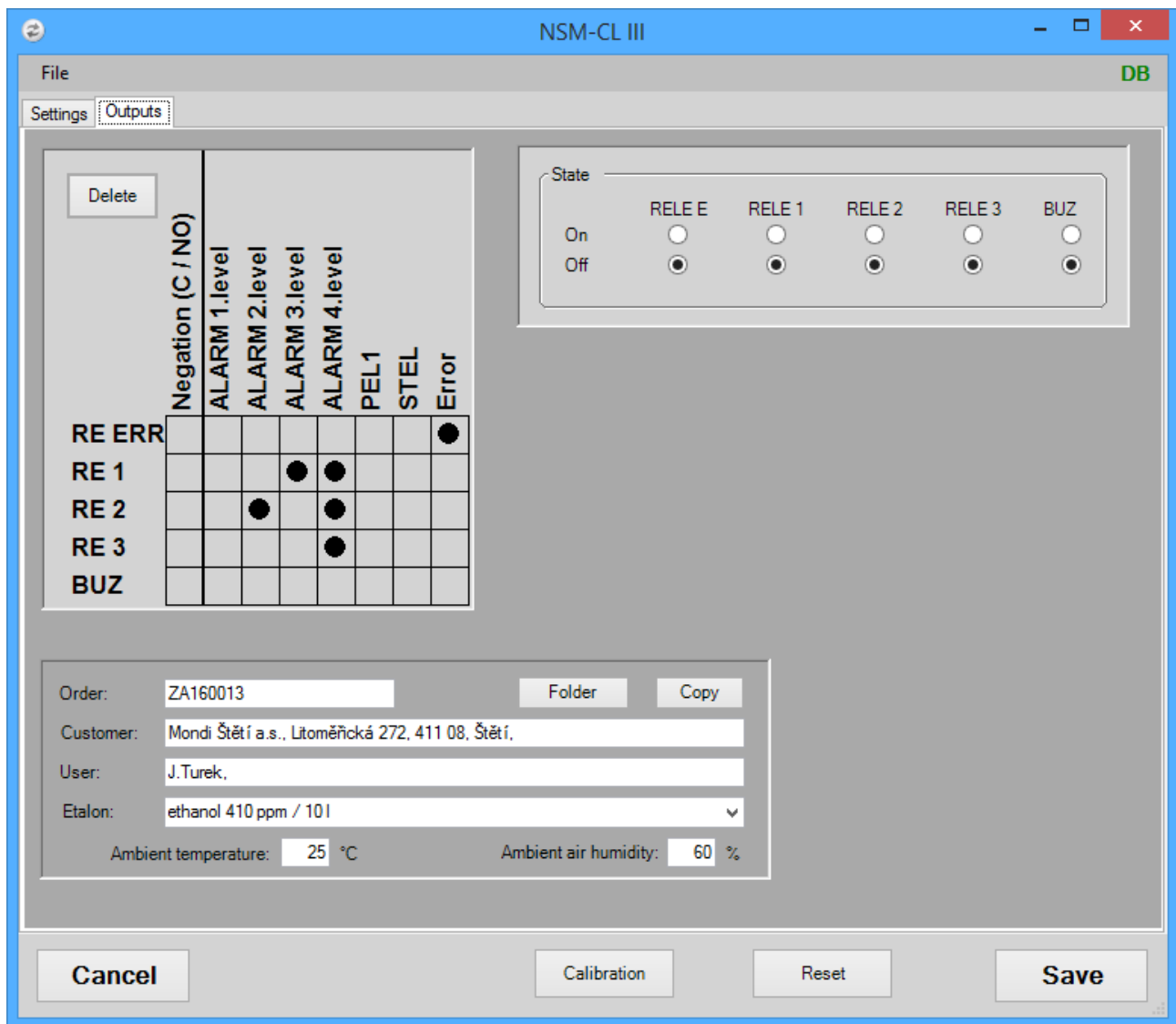
7. The "Outputs" panel

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

2) The calibration form will appear

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

Control panel 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*

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

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
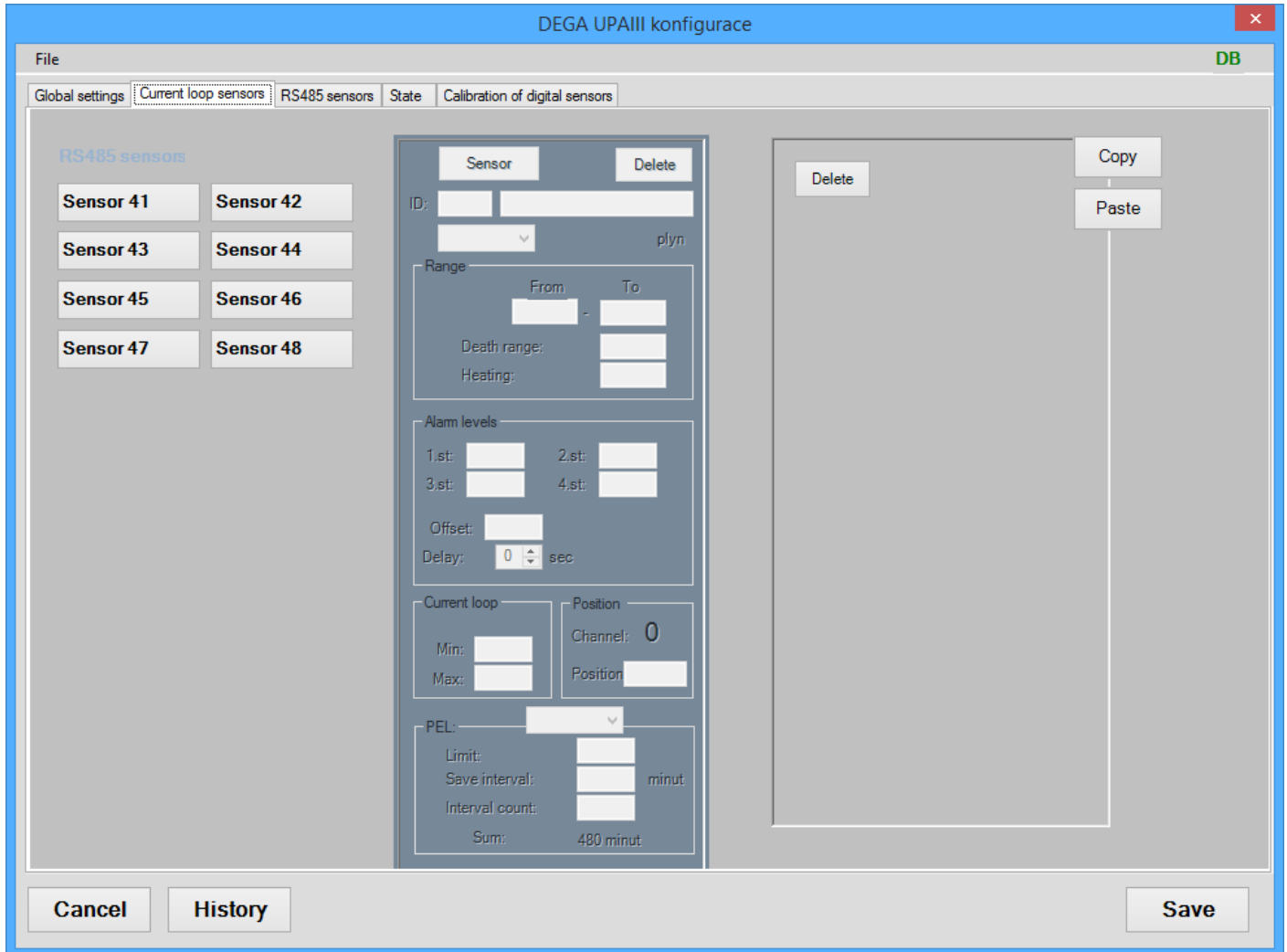
The analog detectors (connected via current loop) are set similarly to the DEGA UPA II gas controller. On the left, click on one of the 8 analog channels, which the gas controller has at its disposal (detectors 41-48 respond on gas controllers S1 to S8). In the middle section, click on the detector to 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.

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 and conditions

When following the instructions for installation, operation and maintenance, the manufacturer guarantee 24 months from the date of receipt for the product. Should the product purchased be put into operation by an entity other than the seller, the warranty period commences from the date that the product is put into operation, provided that the buyer ordered its commissioning within three weeks of its receipt. The customer expressly acknowledges that during the warranty period that extends beyond the length of the warranty period that is specified in the Commercial Code (the statutory warranty) s/he can neither require replacement of the product nor may s/he withdraw from the contract.

1. When claiming a product defect it is necessary to submit a proof of purchase that contains the following information: name and surname, name and business name, address and the warranty card, if the buyer received one from the seller. The validity of the warranty shall not be affected by non-compliance with the obligations related to the issuance of the warranty card.
2. Claims concerning the product (for a warranty repair only complete devices are accepted) may be filed during the warranty period only with the seller from which it was purchased; subsequently the seller is required to forward the product to an authorised service centre or to the manufacturer.
3. A condition for the recognition of the rights under the warranty is the installation of the product having been undertaken by an authorised person in possession of a valid certificate from the manufacturer.
5. Claims regarding a product defect that can be dealt with reasonably quickly and without additional consequences will be resolved by remedying the defect (repair) or by replacement of the product part , because in such a case it is a contradiction of the standard norms that the entire product shall be replaced (§ 616, paragraph 4 of the Commercial Code).
6. The buyer who exercises the right of warranty repair is not entitled to the return of the parts that have been replaced.
7. The warranty period can be extended for up to 48 months and its validity can be extended beyond the standard length on the basis of the conclusion of an individual warranty contract. Further information may be obtained through a specific business meeting.

This warranty is not applicable to:

- a product that has not **been put into operation by the manufacturer or by a certified employee** in possession of a valid certificate issued by the manufacturer
- A product that did not have regulary performed calibrations and functional checks by the manufacturer or by a certified employee is possession of a valid certificate issued by the manufacturer.
- damage caused by fire, water, static electricity, power surges in the electric supply or in the public network, accident, improper use of the product, wear and tear
- contamination of the product and its subsequent cleaning
- damage caused by **improper installation, any adjustment, modification** or improper manner of use inconsistent with the instruction manual, the technical standards or the applicable safety regulations in the Czech Republic
- damage to the product during transportation caused by improper handling or handling of the product in a manner contrary to the advice provided in the instruction manual
- DEGA products that have **been used in association with other than original DEGA products**, including consumables and accessories
- bearing additional parts or consumables (e.g. a foil label, seal, etc.), that are detrimental to normal wear and tear during operation, together with wear and tear of the product and its parts caused by their normal use

For the complete version of the general business conditions and of the claims procedure go to www.dega.cz

Manufacturer: DEGA CZ s.r.o., Malešická 2850/22c, 130 00 Praha 3, Czech republic
VAT: CZ 279 029 43, Telephone: +420 774 447 660, E-mail: info@dega.cz, Web: www.dega.cz

User Manual ver.: 2/29/2024 10:26:00 AM