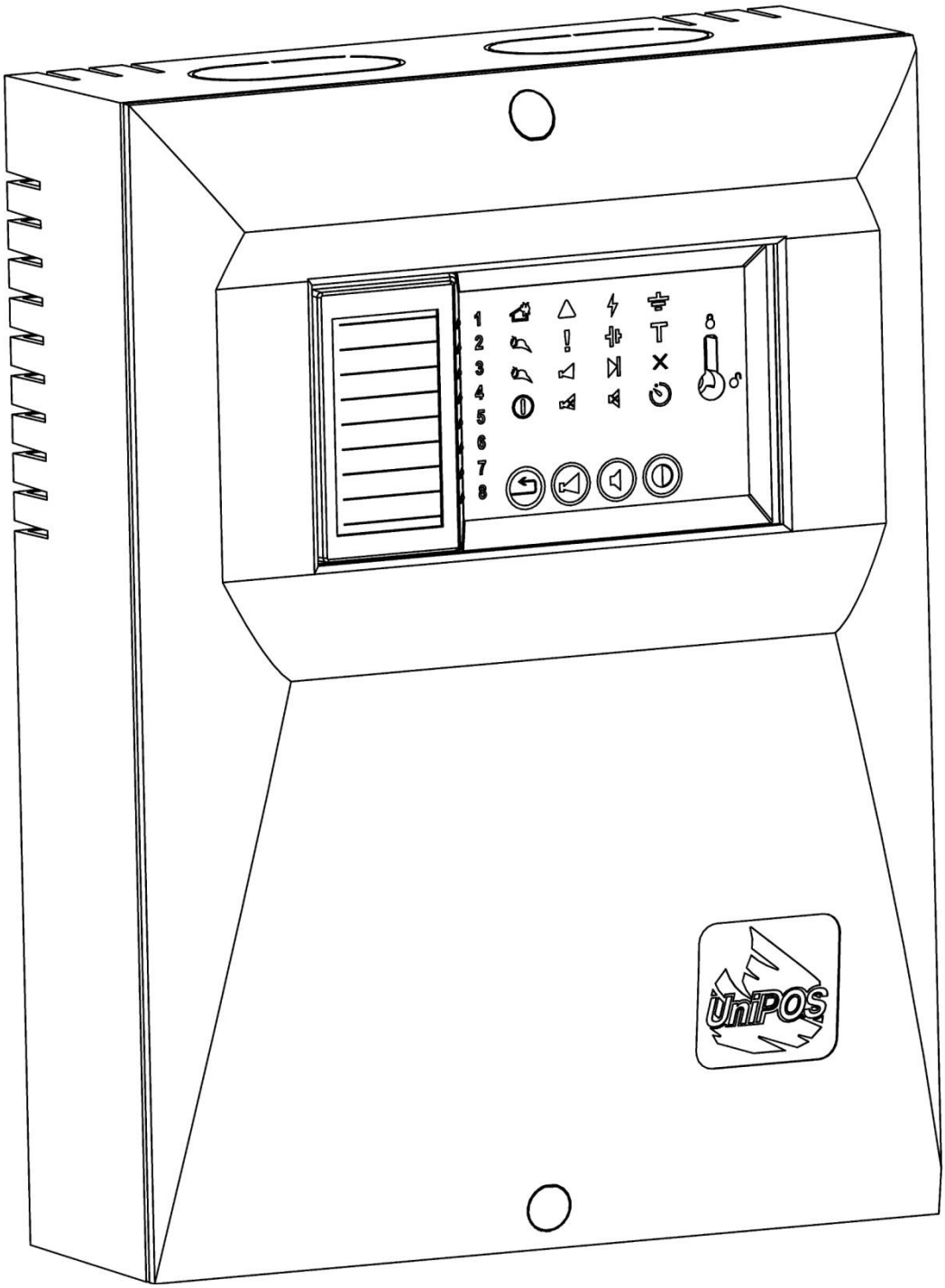
Fire Control Panel
FS4000



INSTRUCTION MANUAL

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Contents

1. Introduction

Fire control panel FS4000 is an up-to-date, highly reliable and multifunctional control and indicating equipment. It is designed to process signals from manual call points and automatic fire detectors and based on fire scenarios to activate sound and light indication. The fire control panel provides options for connection of external sound, beacon and trigger equipment.

2. Terminology

DELAY OF OUTPUTS – delay of activation of monitored and dry-contact outputs within a predefined period. The delay period is counted down since the fire condition is registered. Typically, the delay period is sufficient for the staff to inspect the premises indicated by the fire control panel. The delay is skipped with activation of a manual call point (response current ≥44mA at 24V) or with second fire condition detected in another line. The delay time is user programmable and is equal for all fire detection lines.

DISABLED LINE – a switched off *line*, without power supply, not monitored for fire and fault condition. This status is user defined. The disabled line condition is indicated with a common disabled status led and dedicated light indication per line.

DISABLED OUTPUTS – *the monitored outputs* are switched off (sounder and beacon can not be activated) and are not monitored for a fault condition. This feature is user defined. The disabled monitored output is indicated through common light indication and dedicated light indication for the monitored output.

EARTH fault – non-system *non-fatal fault condition*, due to leakage to an earthed wire.

MONITORED OUTPUT – potential output that monitors the connection wires between the fire control panel and the external equipment.

SHORT CIRCUIT IN A LINE OR IN A MONITORED OUTPUT – non-system *non-fatal fault condition* due to registered current value in a *line* or in a *monitored output* that exceeds a specified threshold value.

LINE IN TEST – a *line* set by the user to Test condition. The line is powered up and reset (the power is switch off for a period of 3 s) on a period of 64 s. The events registered in a line in Test condition do not trigger the dedicated fire scenario. The Test condition is indicated with common light indication and dedicated light indication per line.

NON-FATAL FAULT CONDITION – fault condition that allows the fire control panel to continue operation. A non-fatal fault condition is usually a *non-system* fault condition. The fault condition is indicated with common light indication, local sound indication and activated common fault dry contact output.

ACCESS LEVEL – access level to various indications and control functions.

LOW BATTERY – non-system *fatal fault condition* due to full discharge of the backup batteries upon interrupted power supply - mains .

SUPRESSED OUTPUT – *monitored* or *dry-contact* output which should normally be activated upon Fire condition, but is manually suppressed by the user.

FIRE DETECTION LINE/ZONE (further on it will be referred as LINE) – a combination of automatic fire detectors and manual call points, physically connected through two-wire connection - shielded fire cable. The basic configuration of FS4000 is offered in four different configurations - 2, 4, 6, 8 conventional lines. Following the EN54-2 up to 32 fire detectors and manual call points can be connected per line.

FIRE CONDITION – Fire condition phase indicated from the control panel on activation of automatic fire detector or manual call point. The fire condition is indicated with common light fire indication and dedicated light indication per line and local sound signaling.

FIRE CONDITION 1st STAGE – Fire condition phase one, is triggered when the Control Panel detects activation of automatic fire detector and a delay of outputs scenario is preset. This fire phase one condition proceeds as long as the delay of the outputs is active. Indication includes light indication and local sound signaling.

FIRE CONDITION 2nd STAGE – Fire condition phase two, entered by the Control Panel indicates that the estimated time for delay of outputs has expired or a manual call point is triggered, or a fire is detected in adjacent line. Indication includes light indication and local sound signaling.

INTERRUPTED LINE OR MONITORED OUTPUT – non-system *non-fatal fault condition* due to current value in a *line* or in a *monitored output* lower than the threshold value.

RELAY OUTPUT – dry-contact, potential-free, switching outputs that control external equipment.

SYSTEM FAULT – fault condition due to a fault in a basic component of the fire control panel (or the system). The System fault may be *a fatal error* or a *non-fatal error*. The event is indicated with a common light indicator for fault, dedicated led indicator for system fault and local sound signaling.

REMOVED FIRE DETECTOR – non-system *non-fatal fault condition* due to removed fire detector in a *line*.

FUNCTION "LOGICAL AND " OF TWO LINES - function that enables the fire Control panel to indicate FIRE CONDITION FIRST STAGE when automatic detectors are activated simultaneously in two lines.

3. Function

Fire control panel FS4000 is designed to operate with conventional automatic fire detectors and manual call points. The panel has outputs dedicated to trigger external equipment.

The panel is manufactured in four configurations:

- 2 fire detection lines - FS4000/2
- 4 fire detection lines - FS4000/4
- 6 fire detection lines - FS4000/6
- 8 fire detection lines - FS4000/8

ref. to F4.d), F.4.a), Classification of use by
The equipment is dedicated for operation in restricted access area.
The equipment is intended for operation on altitude below 2,000 m. ref. to Altitude during operation p.5.4.2.5

4. Technical features

4.1. Fire detection lines:

- Maximum number of fire detectors and manual call points in a line - 32
- Connecting line - two-wire
- Maximum resistance of a line - 100Ω

4.2. Current thresholds for:

- 0÷6mA - Fault condition
- 6÷16mA - Duty mode
- 16÷40 mA - Fire condition stage 1
- 40÷80 mA - Fire condition stage 2
- >80mA - Short circuit

4.3. Monitored outputs for fire condition:

- Number - 2 pcs
- Type - potential, dry-contact with monitoring

for short circuit, open line and overload

- Electrical characteristics - (19÷27.5)V DC/1A

4.4. **Relay outputs:**

4.4.1. Dry-contact outputs for fire condition

- Number - 2
- Type - potential-free, 1 pcs type C-NC/NO, 1pcs type C-NO
- Electrical characteristics - 3A/125V AC, 3A/30V DC

4.4.2. Dry-contact output for fault condition

- Number - 1
- Type - potential-free, type C-NC/NO
- Electrical characteristics - 3A/125V AC, 3A/30V DC

4.5. **Input for remote "Reset fires" or "Activate monitored outputs"** (refer p.6.3)**:**

Reset fire Input for remote Reset fires operation.

- Number - 1
- Type - none-monitored type activated on short-circuit (from dry contact)
- Electrical characteristics - 5 V DC on normal open state
  - 0 V DC in activation mode

4.6. Functionality:

- Monitoring of the fire detection lines and monitored outputs for fault conditions (short circuit and interruption) and automatic fault reset
- Detection of removed fire detector and automatic fault reset;
- Identification of manual call points trigger on the detection line;
- LED indication for fire alarm state and evacuation;
- Delay of fire outputs with optional time period of 1, 2, 3, 4, 5, 6 or 7 minutes after fire condition is detected;
- Option for " LOGICAL AND " scenario of two fire detection lines;
- Evacuation functionality, i.e. Duty Mode with direct trigger on the two monitored outputs;
- Status Indication of the device for data transmission on RS485 to external annunciator;
- Enable/Disable of the RS485 interface;
- Built-in buzzer for fire condition – one tonal, continuous, can be switched off;
- Built-in buzzer for fault condition – one tonal, discontinuous, can be switched off;
- Test mode for fire detection lines;
- Disabling fire detection lines;
- Disabling monitored outputs for fire condition.
- Optional board with dry-contact outputs for fire condition per line and built-in RS485 for operation with annunciator;
- Input for remote Reset fires operation or remote activation of the monitored outputs for Fire Alarm Devices (refer p.6.3);
- 8 pcs. UniPOS Automatic Fire Detectors (or 4 pcs. With connected RI31 remote indicators) simultaneously in Fire per zone, before the Short-circuit protection of the line is triggered. It is because of the self-adaptive current thresholds per zone.

4.7. Indications of registered events:

- Light indication - LED
- Sound - built-in buzzer

4.8. Power supply

4.8.1. Mains:

- voltage - 220/230VAC/0,25A
- frequency - 50/60Hz
- power cable requirements (not included) - 3 wires X 1,5mm2 each

The equipment must be connected to a standalone and dedicated mains circuit with overcurrent protective device of 6 Amps (ref. to L.2).

4.8.2. Backup batteries:

- battery type - Lead-Lead dioxide
- number of batteries - 2 pcs
- nominal voltage of the backup battery - 2x12V DC
- nominal capacity C_{20} - (7,0) Ah
- charge voltage - 28 V DC/1,5Amps
- recommended model - CP1270 or equivalents compliant with EN 60896.22.
- Back-up batteries must be provided in addition, from the installation company.
  * Batteries are not considered as part of the product.

Operation in Duty mode on back-up batteries:

	24V/ 7,0Ah	24V/ 4.5Ah	24V/ 1.2Ah
Configuration 2 lines	163h	104h	27h
Configuration 4 lines	118h	76h	20h
Configuration 6 lines	93h	93h	16h
Configuration 8 lines	77h	50h	13h

4.8.3. Consumption on backup batteries supply:

- Configuration of 2 lines - < 43mA at 24V DC
- Configuration of 4 lines - < 59mA at 24V DC
- Configuration of 6 lines - < 75mA at 24V DC
- Configuration of 8 lines - < 90mA at 24V DC

* The consumption is without connected to the lines fire alarm detectors or manual call points

4.9. Power supply to external devices:

- Voltage - (19÷27)V DC
- Maximum current value (including current of monitored outputs) - 1,2A
- Cable (the same as for fire detection lines) - see. 14.4

4.10. Fuses:

- Main supply 250V AC - 4.0A
- Power supply to external equipment -1,85 A automatic
- Monitored outputs - 1,1 A automatic

4.11. Dimensions - 304x222x94 mm

4.12. Weight, backup batteries not included - 0,98kg

5. Contents of delivery:

- Fire control panel FS4000 - 1 pc
- End of line resistors 3,0k / 0.6W
  - ♦ for 2 detection lines - 4 pcs
  - ♦ for 4 detection lines - 6 pcs
  - ♦ for 6 detection lines - 8 pcs
  - ♦ for 8 detection lines - 10 pcs
- Fuse 4,0A - 2 pc
- Cable bridge - 1 pc
- Leaflet - 2 pc
- Screws to fix the front cover - 2 pcs.
- Packing - 1 pc

6. General information

6.1. Access levels

6.1.1. Access level 1

Ordinary persons who would presumably find out and react to alarm for fault condition or fire condition have access to level 1. All control buttons and light indicators are available.

6.1.2. Access level 2a

This access level is dedicated to Instructed persons, who are trained to operate the panel in the following conditions:

- Duty Mode;
- Fire condition;

To enter Access level 2a  place the key in unlock position

The following features are accessible:

- reset the fire condition (see pp.12-13);
- suppressing the outputs activated on fire condition;
- suppressing the local buzzer;
- trigger monitored outputs Out1 and Out2 for evacuation

6.1.3. Setup Access level 2b - this access level is dedicated to Instructed and skilled persons to operate the panel in Duty, Fire and Fault condition;

Setup Access level 2b is available after placing the key in unlock position and press and hold beeper and LED-test buttons. The operations and modes that are possible to trigger in Setup Access level 2B are the following:

- all options from Access levels 1 and 2;
- disabling a conventional line;
- disabling monitored outputs;
- switch a conventional line to Test mode;

6.1.4. Access level 3 - this access level is dedicated only to skilled persons.

In order to switch the panel to Access level 3, then:

- open the front cover;
- place the key to unlock position;
- hold short-circuit on the 'RST' input;
- change pin position of the 10position dip-switch;

The following features are accessible:

- all options from Access levels 1 and 2 and Setup level 2;
- replacing a burnt fuse;
- delay on the monitored fire outputs with setup the line in direct mode (skip delay);
- Switching on / off communication interface RS485;
- optional user scenarios for the fire outputs;
- Module FD 4201 installation;
- Toggle the mode of the "RST" input application;

6.1.5. Access level 4

Accessible for personnel trained and authorized from the manufacturer to repair the fire control panel and to modify the software. Special tools are required for access to this level.

6.2. Indications and control

Table 1 describes the CIE indications, table 2 presents the basic CIE controls. In Appendix 1 is described the interface board of the control panel with indications and control.

Table 1

Conditions of the fire control panel	Indication
All conditions - The fire control panel is power supplied	Indicator *Power supply* – steady green light
Only in case that delays are active.	Indicator *Delay of outputs* - steady yellow light
Fire condition	Common indicator *Fire condition* – flashing in fire phase 1 red light or steady red light in phase 2
Fire condition or Fault condition - Sound signaling is suppressed	Indicator *Stop/Start Buzzer* - continuous yellow light
Fire condition- Outputs for fire condition are disabled	Indicator *Stop/Start Outputs* - steady yellow light
Fault condition - all types of faults	Common indicator *FAULT condition* - flashing yellow light
Fault condition – System fault	Indicator *System fault* – steady yellow light
Fault condition - Fault in mains supply	Indicator *Fault in mains supply* - steady yellow light
Fault condition - Fault in the backup batteries or in the charger	Indicator *Backup battery fault* - steady yellow light
Fault condition- Fault in internal power supply units, voltage for supply of lines and/or user voltage 24V	Indicator Fault in internal power supply unit - steady yellow light
Fault condition - Fault in a monitored output	Indicator *FAULT /Disabled monitored output* – flashing / steady yellow light
Fault condition – Earth FAULT Leakage to earthed wire or earthed construction	Indicator Earth FAULT – steady yellow light
Disabled component - Disabled detection line or monitored output	Indicator *Disabled component* - steady yellow light in combination with Line LED 1 to 8 depending on the Disabled lines
Test condition	Indicator Test - steady yellow light in combination with Line LED 1 to 8 depending on the lines in Test
Status of the RS485 interface communication	Indicator for the status of the device for RS485 interface - red LED for a confirmation from Remote Control Panel FS5200R; - yellow LED Indicates Fault Condition in the network or in the transmitting device.
Fire / Fault condition and Disable / Test mode	1 2 3 4 5 6 7 8 — Dedicated indicators for Fire condition and Fault Condition per line "N"- – red light and continuous sound from the local buzzer in Fire condition; – yellow flashing light and interrupted signal from the local buzzer in Fault condition;

Table 2

Means of control	Condition of the fire control panel	Access level	Operation
Button *Reset*	Fire condition	Level 2a/2b	Exit of Fire condition
Button *Outputs*	Fire condition	Level 2a/2b	- suppress the outputs in case that they are activated in fire mode; - trigger evacuation on the monitored outputs in case that the CIE is in Duty mode
Button *Buzzer*	Fire condition and Fault condition	All Levels	Trigger the local buzzer
Button *Test Indication*	Duty mode	All Levels	LEDs and sound indication test

Remote Input “RST” for remote reset fire operation. On short-circuit activation on the input then the zones in fire will be reset and the panel exit from fire.

6.3. Configuration modes of lines, outputs, and operation of the interface RS485 – General description

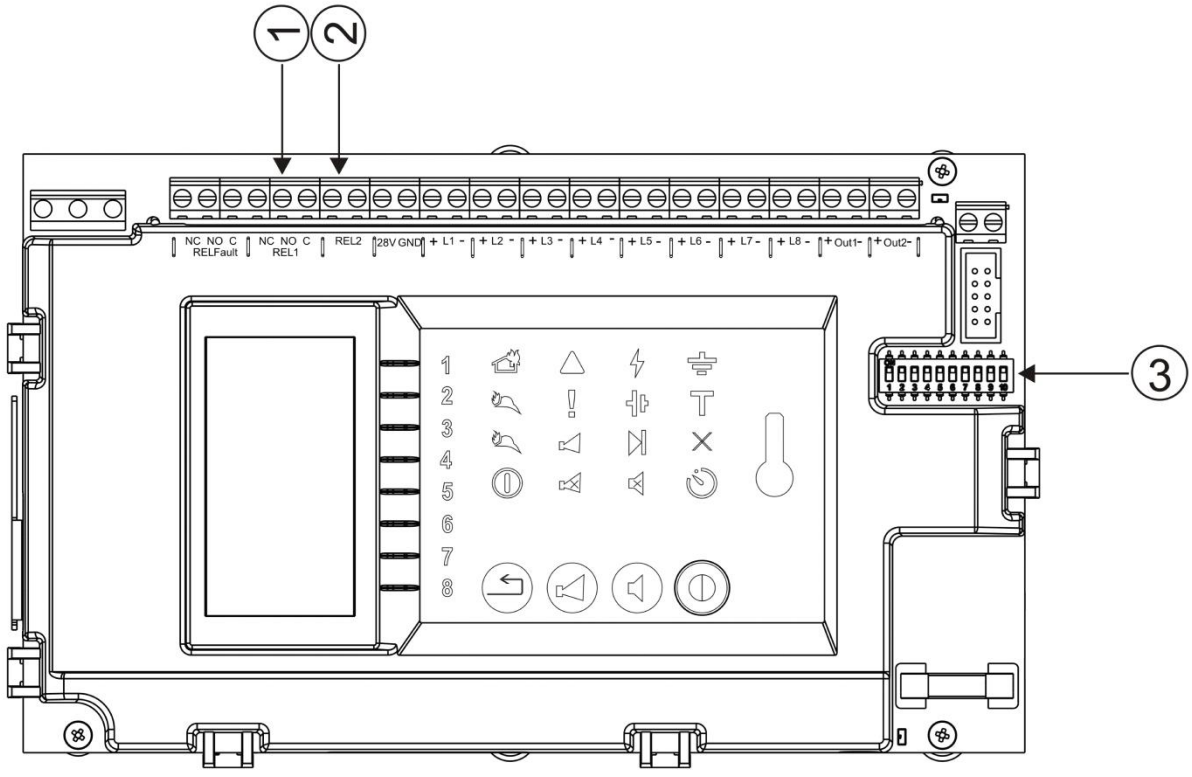


Fig. 1

In the Fire Control Panel through DIP-switches there are user selectable options for:
- setting time delay for activation of the outputs on Access level 3(pos.3, fig. 1);
- skip delay functionality per zone on Access level 3 (pos.3, fig. 1);

- switching on/off communication interface RS485 on Access level 3 (pos.3, fig .1);
- configuring of outputs with 8 steady set user combinations on Access level 3 (pos.3, fig .1)
- disabling “Earth FAULT” on Access level 3 (pos.3, fig. 1);
- disabling “Check Rem. Det. on Access level 3 (pos.3, fig. 1).

The application mode of the “RST” input can be toggled from “Reset fires” functionality to “Activate monitored outputs” functionality and vice-versa through the following simultaneous combination:

- Switch off the panel from mains and backup power supplies.
- To enter Access level 2a place the key in open condition;
- Hold the control button “Reset”;
- Power-up the panel (from the Accumulator batteries or the Mains 220/230VAC);

If the described above combination is true simultaneously, then the application mode of the input “RST” and relay fire output “REL2” is toggled through the following modes:

- Mode 1 – on trigger on the “RST” input are activated monitored outputs “Out 1” and “Out 2”. The fire relay output “REL 2” is suppressed in Fire Alarm mode from control button “Outputs”;
- Mode 2 – on trigger on the “RST” input are reset the fire events in the Fire Control Panel. The fire relay output “REL 2” is Not suppressed in Fire Alarm mode from control button “Outputs”;

The last optional application mode (Mode 1 or Mode 2 described above) is stored as a stored configuration even after a reboot of the fire control panel.

The default application mode of the panel is Mode 1.

6.4. Conditions of the Fire Control Panel

Fire control panel FS4000 monitors the fire detection lines in sequence. Depending on the current value, the line can be in normal condition, in fire condition or in fault condition (short circuit or open line). If this function "Check for removed detector" is enabled, then a constant control for removed fire detectors procedure is triggered. In order to support this functionality, then the fire alarm system must be installed and commissioned according to the diagram of section 14.3. The sounder outputs Out1 and Out2 are also monitored.

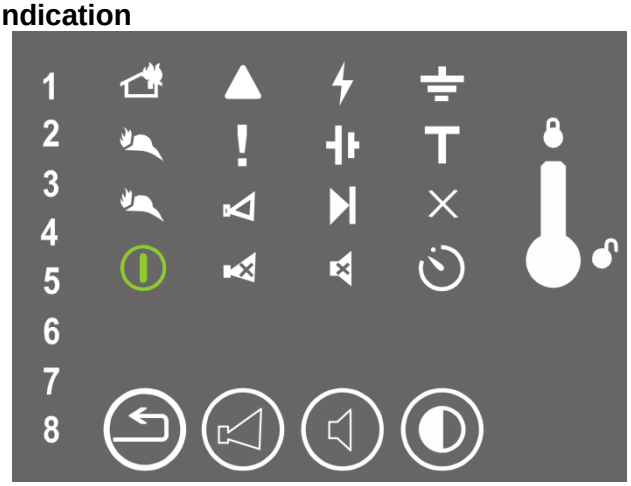
The fire control panel FS4000 operates in five basic modes: Duty Mode, Fire Condition, Fault Condition, Disabled Component Mode and Test Mode.

7. Duty mode

7.1. Description

The fire control panel is in Duty Mode, when it is not in Fire condition or in Fault condition.

7.2. LED and sound indication



In Duty mode are active only the green LED indicator (Power supply).
The local buzzer is off.

7.3. Buttons operation

Active buttons in Duty mode:

- pressing the button Test Indication and Buzzer then will activate full indication and sound signaling for visual inspection of the interface board;

- Using the button in this mode activates the monitored outputs (or suppresses them if they were activated). The application of this functionality is to signal for forced evacuation.

7.4. Additional option

In FS4000 there is option dedicated per detection line(s) so that in case of fire the common delay of outputs will be skip and the CIE will be in Fire condition 2nd stage. Configuring is described in section 12. Setting a line in this mode is programmed with manual operation on a pair of dip-switch in the relevant positions (ON/OFF).

8. Fire condition

8.1. Description

The Fire Control Panel enters Fire condition on activation of a fire detector in any fire detection line. The Fire Control Panel can enter Fire condition in one fire detection line or in a number of fire detection lines simultaneously.

To exit Fire condition, press button at Access level 2.

8.2. LED and sound indication

In this condition are triggered :

- common indicator with interrupted red light if Fire condition 1st stage and continuous red light if Fire condition is 2nd stage;

- Dedicated red LED indicator per line, which is detected for Fire condition;

- If the local buzzer is suppressed with button then the indicator is illuminated with yellow light;

- if the outputs are suppressed with button , then the indicator is illuminated with yellow light;

Local buzzer is activated.

If the Control Panel is connected with local network by Remote Control Panel for indication, the indicator is illuminated in red light when receiving a confirmed signal for Fire condition from the Remote Panel FS5200R.

8.3. Buttons operation

8.3.1. Button (STOP/START Buzzer)

Press the button to:

- Switch off the local buzzer if it is activated due to Fire condition or Fault condition;
- Activate the local buzzer if the fire control panel is in Fire condition or Fault condition and the local buzzer is previously deactivated by the same button.

The LED indicator is illuminated if the local buzzer is switched off for Fire condition or Fault condition.

The button does not affect and is not cancelled by the following events:

- Fire condition in new line ;
- New Fault condition will activate the local buzzer.

Access to the button is allowed at Access level 1, 2, 3.

8.3.2. Button (STOP/START Outputs)

The button operation depends on the current access level and the status of the fire control panel.

Where lines in Fire condition are available, press the button:

- In case of suppressed outputs for fire condition – to force activation of the outputs;
- In case of activated outputs for fire condition – to suppress the outputs.

The LED indicator illuminates if outputs for fire condition are suppressed.

8.3.3. Button (RESET FIRE)

Press it to force the control panel to exit Fire condition and to reset the lines (switch off the power supply for a period of 3 sec).

The button is triggered on Access level 2.

8.3.4. Reset fires input – "RST"

The remote fire reset input operation does not depend on the access level of the panel.

On short-circuit on the 'RST' input the fire condition of the panel will be reset and all zones in fire will be reset.

9. Fault condition

9.1. Description

The fire control panel enters Fault Condition when any of the events below has been registered:

- System fault;
- Battery Low – backup batteries discharged due to interruption in mains supply;
- Fault in a line – removed fire detector, short circuit or open line;
- Fault in a monitored output – short circuit or open line;
- Fault in main supply;
- Fault in backup batteries power supply;
- Short circuit or earth leakage;

- Fault in power supply to detection lines;
- Fault in power supply to external equipment;
- Network fault or fault in the transmitting device;

In System fault the main processor is not able to continue operation.

In case of System fault condition, then the operator should disconnect the control panel from the mains supply and send it for repair.

All other faults are not fatal and switch off some of the periphery devices only. The fire control panel exits the status automatically 8 s after the fault condition is eliminated.

The dry-contact output for fault condition operates in fail-safe mode – i.e. in Fault condition terminals C and NC of the dry-contact are connected; when no fault condition is registered, terminals C and NO of the same output are connected.

9.2. LED and sound indication

In "*Low Battery" state then* no dedicated LED indicator will trigger, but the indicator (Fault Condition) flashes in steady yellow light, and indicators (Fault in backup battery) and (Fault in mains supply) flash in yellow light.

The local buzzer is activated in interrupted alert signal.

In all other fault conditions the indicator (Fault condition) flashes in yellow. Depending on the type of the fault condition the following indicators are illuminated:

- System fault - indicator (System fault) is illuminated in yellow light;
- Fault in fire detection line – Individual LINE indicators flashes in yellow to indicate:
  - Break in a line - 1Hz frequency /slow flashing light/;
  - Short circuit - 4Hz frequency /quick flashing light/;
  - Removed fire detector - 8Hz frequency, 1 second pause /interrupted, quick flashing light/.
- Fault condition in monitored output - indicator FAULT in / Disabled monitored output) flashes in yellow light;
- Fault in backup batteries - indicator (Backup battery fault) is illuminated in yellow light;
- Fault in power supply to external devices - indicator (Fault in internal power supply) is illuminated in yellow light;
- Short circuit or leakage to earth wire - indicator (Earth FAULT) is illuminated in yellow light.
- Fault in the local network or in the transmitting device the indicator is illuminated in continuous yellow light.

The local buzzer is activated and produces discontinuous signal. If the sound indication has been suppressed by button (STOP/START Buzzer), the LED indicator is illuminated in continuous yellow light.

9.3. Buttons operation

No buttons are operational in System fault.

In all other fault conditions button (START/STOP Buzzer) is active only. Press the button to:

- Switch off the local buzzer if it is triggered for Fire condition or Fault condition;
- Activate the local buzzer if the Fire control panel is in Fire condition or Fault condition and the local buzzer is previously suppressed by the same button.

The LED indicator is illuminated, if the local buzzer is switched off for Fire condition or Fault condition.

The local buzzer will be activated:
- when new detection line enters Fire condition;
- when new fault condition is registered.

The button is operational at Access level 1, 2, 3.

10. Disabled component mode

10.1. Description

The fire control panel enters Disabled mode– a fire detection line or a monitored output. The condition is set by programming:

Press both buttons at the same time. The fire panel will go to programming mode, LED's T, X and will start blinking.

10.2. Disable/Enable a line:

By pressing button entering in programming mode. Press the button, to select Disable/Enable lines until LED X is ON. When the LED X is ON, the numbers 1 to 8 which are ON are in disabled mode, the rest which are OFF, are Enable. One more press of button will go to disable/enable mode. LED X is blinking, and LED's 1 will start blinking (Active mode - flashes quickly, with the diode ON for a short time Inactive mode - flashes quickly, with the diode OFF for a short time.). By one time pressing of the button will go through all zones, By button will set Disable or Enable mode for selected line.

With continuous yellow light are illuminated :

- the dedicated indicator of the line;
- the common indicator X (if no other disabled components)

10.3. Disable/Enable outputs in Fire condition

The pos. 10 DIP-switch (pos.3, fig .1) is dedicated for control on the time delay setting (table 4), interface RS485, "Earth Fault", "Check Removed Device." (table 3) and for free-programmable outputs (table 5) is used.

Table 3

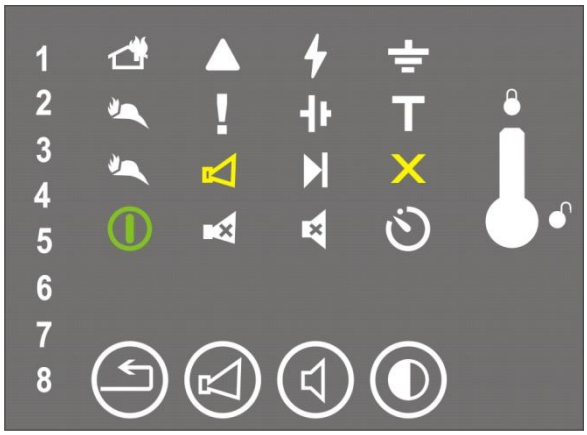
DIP	ON	OFF
1	Check for removed detector disabled	Check for removed detector enabled
2	Earth detection disabled	Earth detection enabled
3 4 5	Time delay See Table 4	
6	Not used	
7	Communication interface RS485 is ON	Communication interface RS485 is OFF
8	User combinations See Table 5	
9		
10		

After last zone is set another press of button will allowed to change programming of the Fire alarm output. When the LED is ON (not blinking) gives information about the programmed status of the Fire Output. Anoter press of button will enter the Output in programming mode.

10.3.1. Disable monitored outputs

To disable Fire Output press button the LED will start blinking, one more press of the button will Enable the Fire Output,

The LED will blink. Button will save the made setting and move programming to next prog raming settings.



10.4. Switching ON/OFF communication interface RS485

The optional board FD4201 enabled the Fire Control Panel to network and to communicate with other Remote control panels.

DIP 7 (pos 3, fig .1) define On and Off communication interface RS485 as follows:

Position ON – communication interface is switched ON;

Position OFF – communication interface is switched OFF;

For Disabled component mode no sound indication is supported.
The modifications take effect at Access level 3.

10.5.Enable/Disable "EARTH detection":

10.5.1. When the Fire Control panel operates altogether with spark protection unit, the "EARTH detection" function could be disabled:

- Move DIP 2 (pos.3, fig.1 and Table 3) into position "On";

10.5.2. Enable "EARTH detection" function:

- Move DIP 2 (pos.3, fig.1 and Table 3) into position "Off".

The modifications take effect at Access level 3.

10.6.Enable/Disable “Check Rem.Det”:

10.6.1. Disable “Check Rem. Det.“:

- Move DIP 1 (pos.3, fig.1 and Table 3) into position “On”;

10.6.2. Enable “EARTH detection” function:

- Move DIP 2 (pos.2, Table 3) into position “Off”.

The modifications take effect at Access level 3.

11. Test condition

11.1. Description

The Fire control panel enters Test Mode after a fire detection line has been manually set to operate in test condition Test Mode condition is set by a setup procedure. Each line is browsed with Steps.

The Fire control panel enters Test Mode after a fire detection line has been manually set to operate in test condition Test Mode condition is set by a setup procedure.

Press both buttons at the same time and hold it for at least 3 sec. The fire panel will go to programming mode, LED’s T, X and will start blinking.

Note: The Fire Control Panel provides option for testing LED and sound signaling indication.

Pressing and holding the button illuminates all lights and LEDs and activates the buzzer.

11.2. Line in Test condition

After the panel is in Programming mode (LED’s T, X and are blinking) To select Test programming mode press button until LED T is ON. When the LED is ON showing the status of the lines. The Lines which are ON, are in Test Mode. LED T is continuously ON.

To set line at Test mode press button until LED T is blinking. Line’s LED will also start blinking.

Select line with button and press button to activate (the line will start blinking flashes quickly, with the diode ON for a short time. If the line is with deactivated Test Mode will flashes quickly, with the diode OFF for a short time.) To select another line press button . To exit programing mode press button until the fire panel goes to Duty Mode.

11.2.1. Line indication at Test Mode

Duty Mode at this condition are illuminated:

- the dedicated zone indicator is with continuous On yellow indication;

- the indicator with continuous yellow light T.

12. Delay of outputs

12.1. Description

The Fire control Panel switch the time delay of the outputs on access level 3 and after manual operation for setting the appropriate value. The line time delay is activated by programming of the lines and the Time delay value is set by a combination of 3rd 4thand 5th position of DIP-switch (pos.3, Figure 1 and Table 3) and can be 0, 1, 2, 3, 4, 5, 6 or 7 minutes. At time delay set to "0" – the outputs are activated immediately after the Fire control panel enters Fire condition.

Time delay setting is performed by moving the 3rd 4thand 5th position of DIP-switch (pos. 3, fig .1) in the following tables:

Table 4

DIP	0 minutes	1 minute	2 minutes	3 minutes	4 minutes	5 minutes	6 minutes	7 minutes
3	OFF	OFF	OFF	OFF	ON	ON	ON	ON
4	OFF	OFF	ON	ON	OFF	OFF	ON	ON
5	OFF	ON	OFF	ON	OFF	ON	OFF	ON

When the time delay is set to ≠ 0, then the indicator is illuminated with steady yellow light, only while the panel is in Fire condition.

The modifications take effect at Access level 3.

12.2 Activating Line Time Delay

The fire control panel enters programming mode after Pressing both buttons at the same time. The fire panel will go to programming mode LED's T, X and will start blinking.

To select Time Delay programming mode press button until LED is ON. When the LED is ON showing the status of the lines. The Lines which are ON, have activated Time Delay Mode.

To Activate or Deactivate Line's Time Delay Mode, press button LED will blinking. Line is in active delay if LED flashes quickly, with the diode ON for a short time. If the line is with deactivated Time Delay Mode - will flashes quickly, with the diode OFF for a short time.)

To select another line press button . To exit programing mode press button until the fire panel goes to Duty Mode.

12.3 Indication of Time Delay

When the time delay is set to ≠ 0, then the indicator is illuminated with steady yellow light, only while

the panel is in Fire condition.

13. User configuration of the outputs

The Fire Control Panel provides the option for inserting combinations for outputs activation .8 constant combinations are set. An operating combination shall be chosen by 8th, 9th, and 10th position of DIP-switch (pos.3, fig.1).

Possible combinations are given in Table 5.

Table 5

			Rel 1	Rel 2	Out 1	Out 2
1	DIP	position	Switches On immediately	Switches On with time delay	Switches On with time delay and will resound on new fire	Switches On with time delay and will resound on new fire
	8	OFF				
	9	OFF				
	10	OFF				
2	DIP	position	Switches On immediately	Switches On immediately	Switches On with time delay and will not resound on new fire	Switches On with time delay and will resound on new fire
	8	OFF				
	9	OFF				
	10	ON				
3	DIP	position	Switches On with time delay	Switches On with time delay	Switches On with time delay and will resound on new fire	Switches On with time delay and will not resound on new fire
	8	OFF				
	9	ON				
	10	OFF				
4	DIP	position	Switches On with time delay	Switches On with time delay	Switches On with time delay and will not resound on new fire	Switches On with time delay and will not resound on new fire
	8	OFF				
	9	ON				
	10	ON				
5	DIP	position	Switches On only in Fire condition of line 1	Switches On only in Fire condition of line 2	Switches On with time delay	Switches On with time delay
	8	ON				
	9	OFF				
	10	OFF				
6	DIP	position	Switches On only in Fire condition of lines 1 or 2	Switches On only in Fire condition of lines 3 or 4	Switches On with time delay	Switches On with time delay
	8	ON				
	9	OFF				
	10	ON				
7	DIP	position	Switches On only in Fire condition of lines 1 and 2	Switches On only in Fire condition of lines 3 and 4	Switches On with out time delay	Switches On with out time delay
	8	ON				
	9	ON				
	10	OFF				
8	DIP	position	Switches On only in Fire condition of line 1,2,3 or 4	Switches On only in Fire condition of line 5,6,7 or 8	Switches On with time delay	Switches On with time delay
	8	ON				
	9	ON				
	10	ON				

The modifications take effect at Access level 3.

14. Installation and initial start of the fire control panel

NOTE: Read FS4000 Safety Guide carefully! Only people who have access level 3 and 4 /according EN-54/ and they are skilled /according EN 62368-1/ are authorized to do installation, initial start, changing the settings and repairing of the fire control panel!

14.1. Preliminary installation steps

- Unpack the panel and pull-up the front cover (pos.1, fig.3)

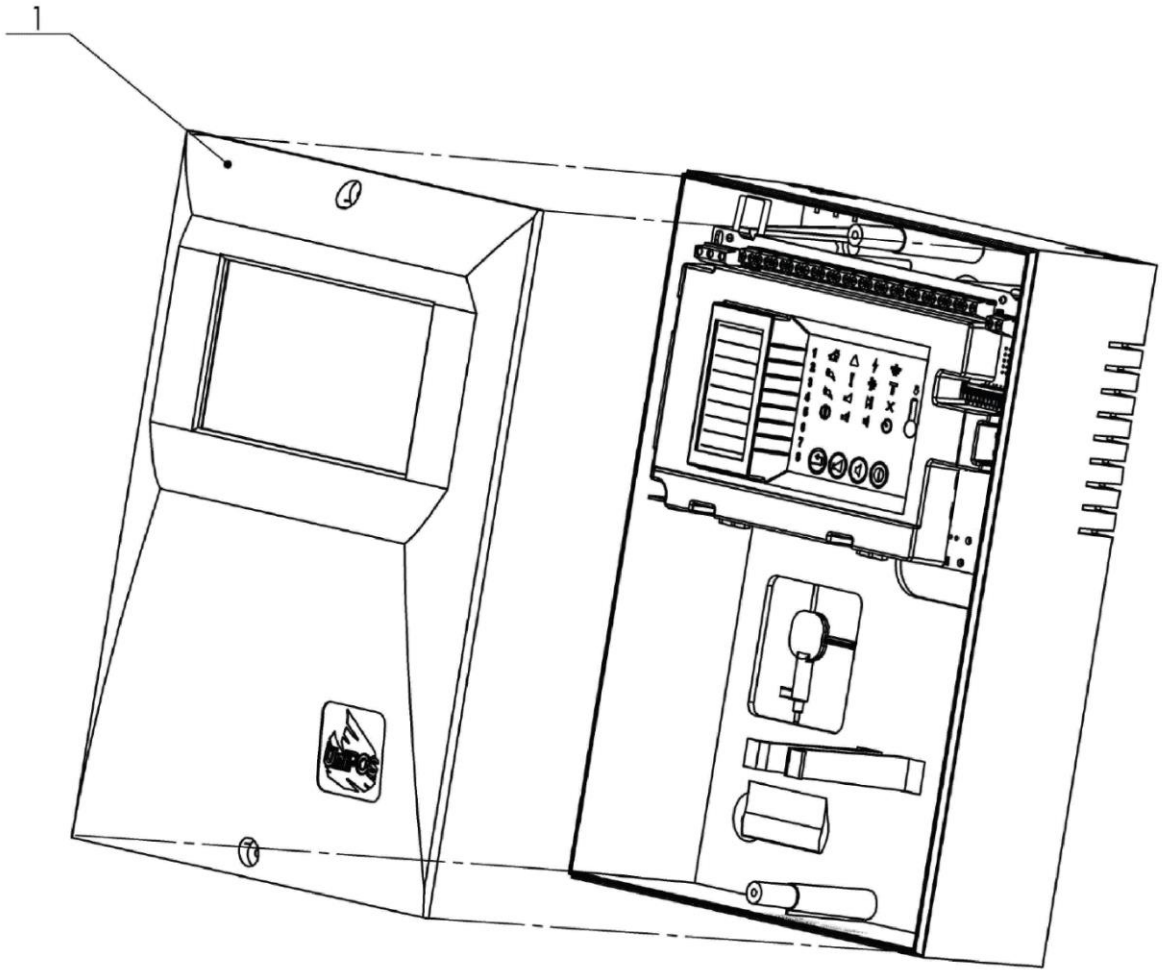


Fig.3

- Pull-out the interface board (fig.4) following the sequence:
  - push the holders on the top side (fig.4, pos.1);
  - take out (from the top holders) the interface board and leave it fixed on the bottom holders (fig.4, pos. 2);
  - pull the interface board out of the bottom side holders (fig.4, pos. 3), till fully released;

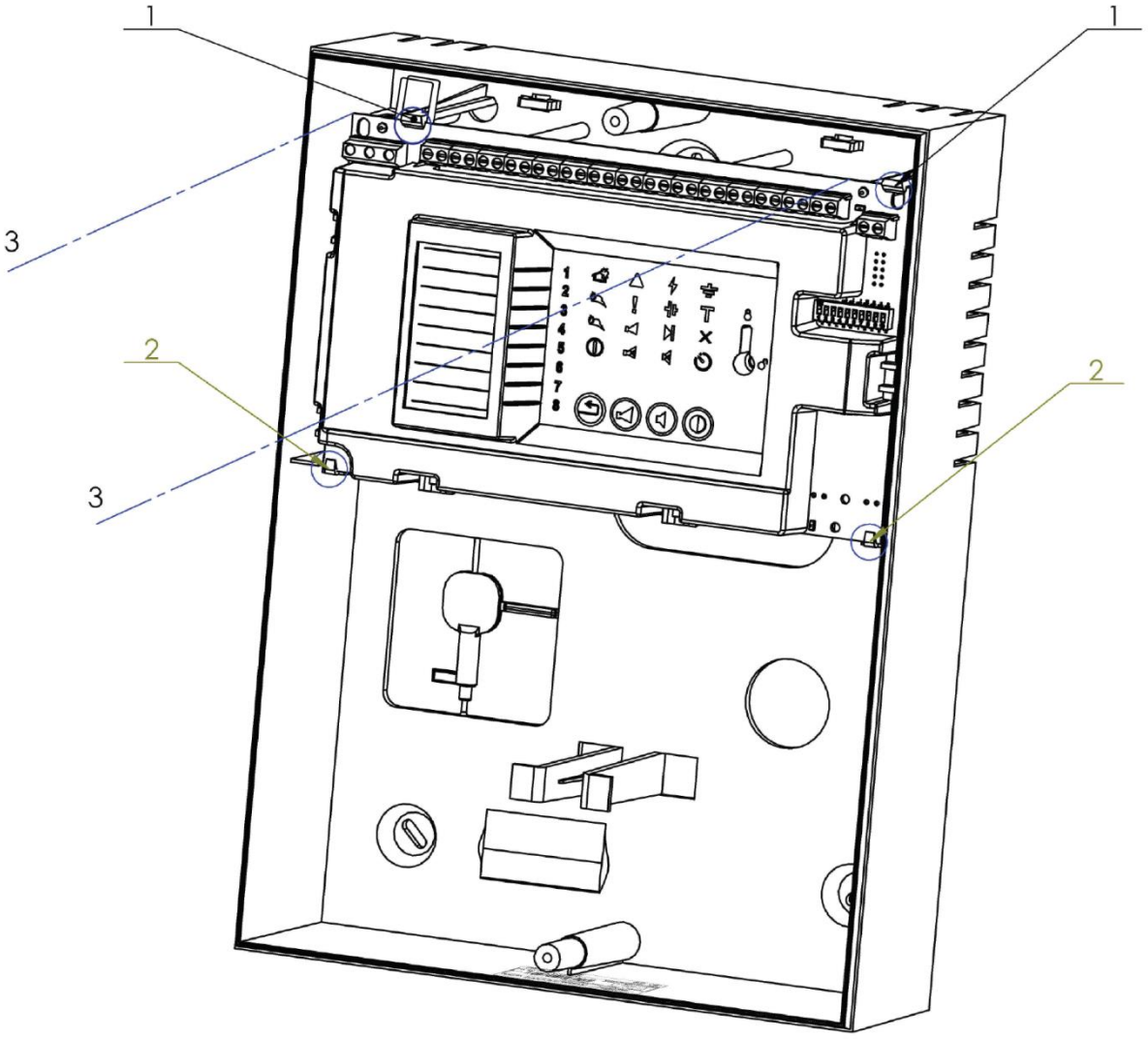


Fig.4

- Cut the access level key out from the bottom side of the cabinet (fig.5, pos.3);
- Cut the plastic plugs out from the bottom side of the cabinet (fig.5, pos.2);

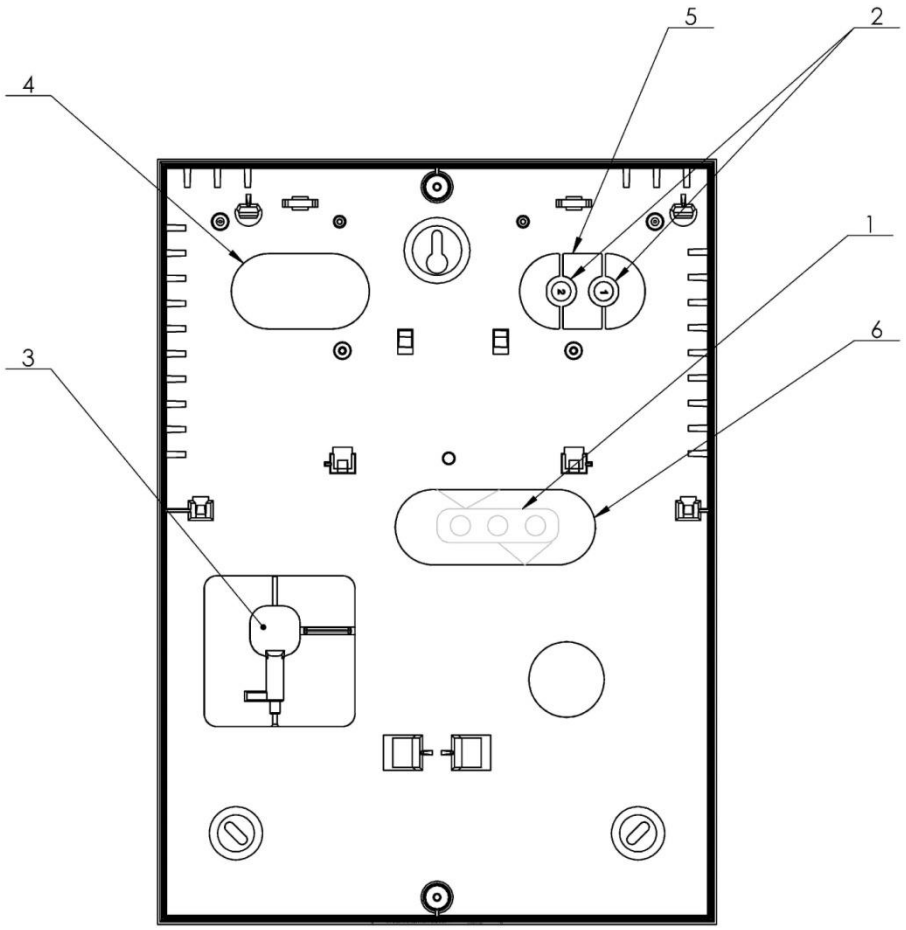


Fig.5

14.1.2. Prepare the cable openings

- Take care to fully clean the opening on fig.5, pos.5;
- Do not remove the plastic component (fig.5, pos.1);
- The openings (fig.5, pos.6) and (fig.5, pos.5) are dedicated to the signal lines (conventional zones and alarm and protection equipment);
- The opening in the top left corner is only dedicated to the 220/230VAC mains power line (fig.5, pos.4), applicable for the FS4000 mains power supply;

14.1.3. Preparation of the installation cables in the cabinet of the FCP.

- The length of the mains cable line (220/230VAC), placed inside the cabinet must be 185 mm, as marked on the draft fig.6(A);
- The length of the signal line cables, placed inside the cabinet must be 300 mm, as marked on the draft fig.6(B).

Fitting the mains cord cable with strap, close to the mains connector. Its in the dedicated holder (plastic ring) located on the PCB back-cap's.

As a result, the wires will be flexible enough to move the interface board inside the cabinet, with the signal lines already connected to the FCP connectors.

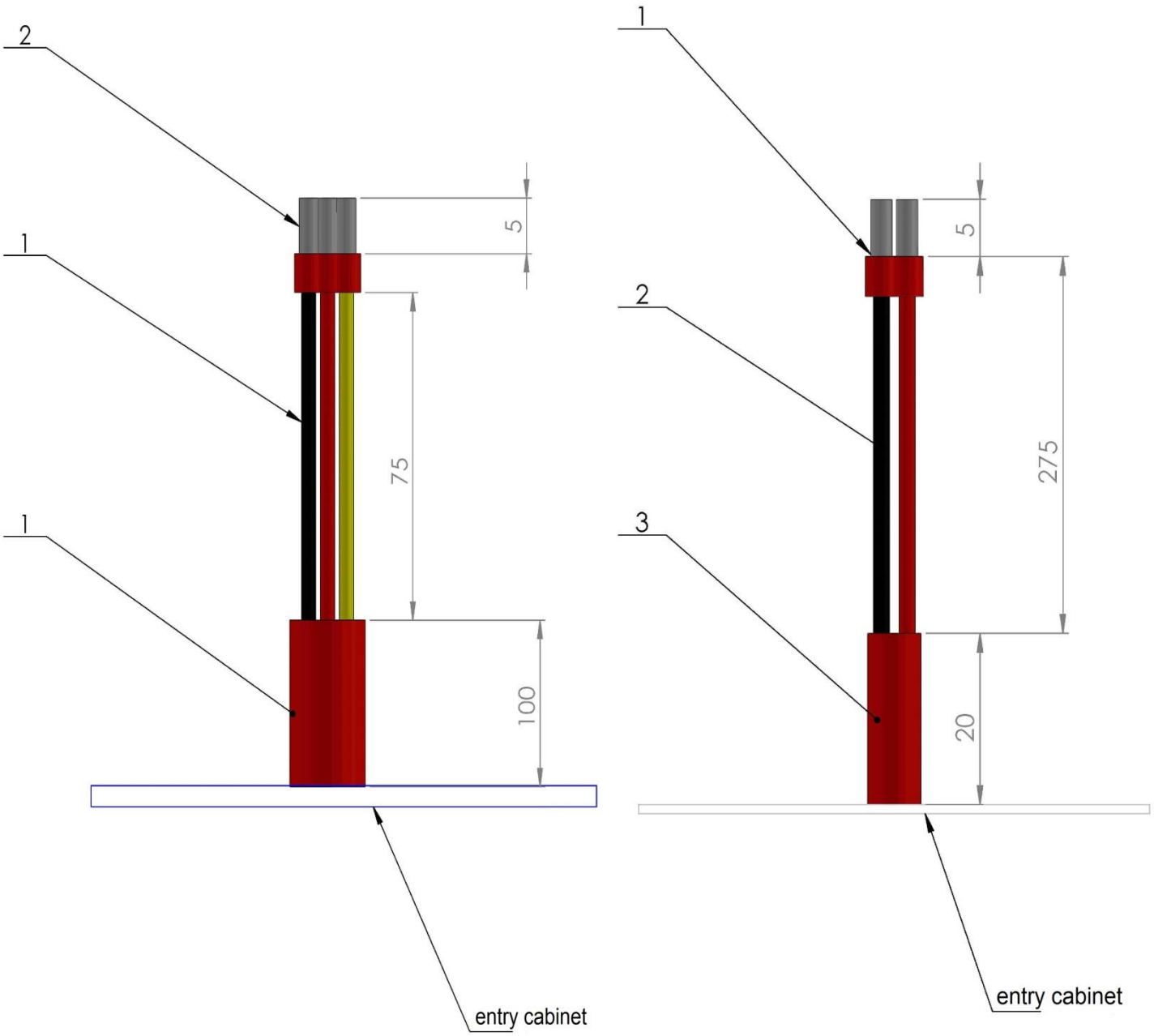


Fig.6.(A) Fig.6.(B)

14.1.4. FCP cabinet location

NOTE: FS4000 is for use in locations where children are not likely to be present.

- The distance between the wall and the backside of the FCP cabinet is 7 mm (fig.7). For correct installation, there should be no cables or obstacles in the gap between the cabinet and the wall, which are more than 7 mm (fig.7, pos.1);
- The FCP must not be installed in location close to heat sources like refrigerators, air-conditioners or similar;
- The dedicated cabinet openings (fig.7, pos.2) shall be open, for proper heat convection.

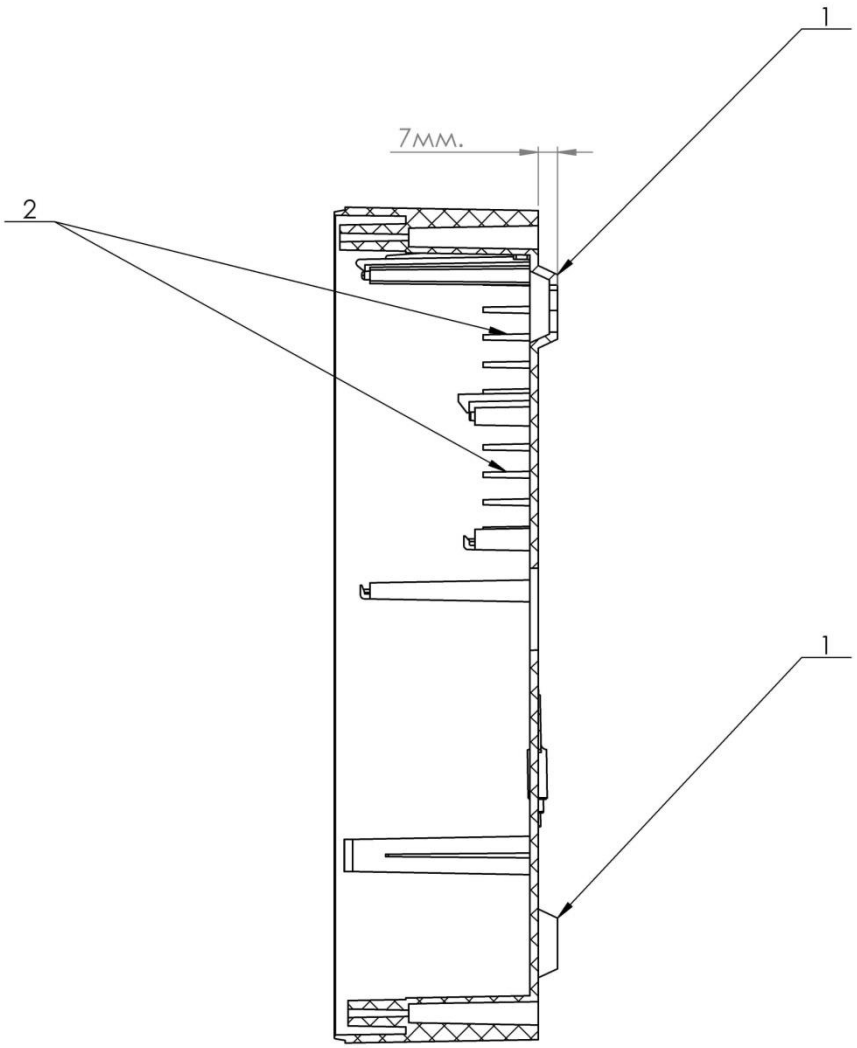


Fig.7

Put the panel's cabinet on the wall and mark the positions for the dowels (fig.8, pos.1).

Depending on the type of wall, please use suitable fasteners with a minimum load capacity of 25N each. Distribute the load on each of the fasteners evenly.

The mounting height of the control panel controls and indications must be 1,8m according to the product Safety guide.

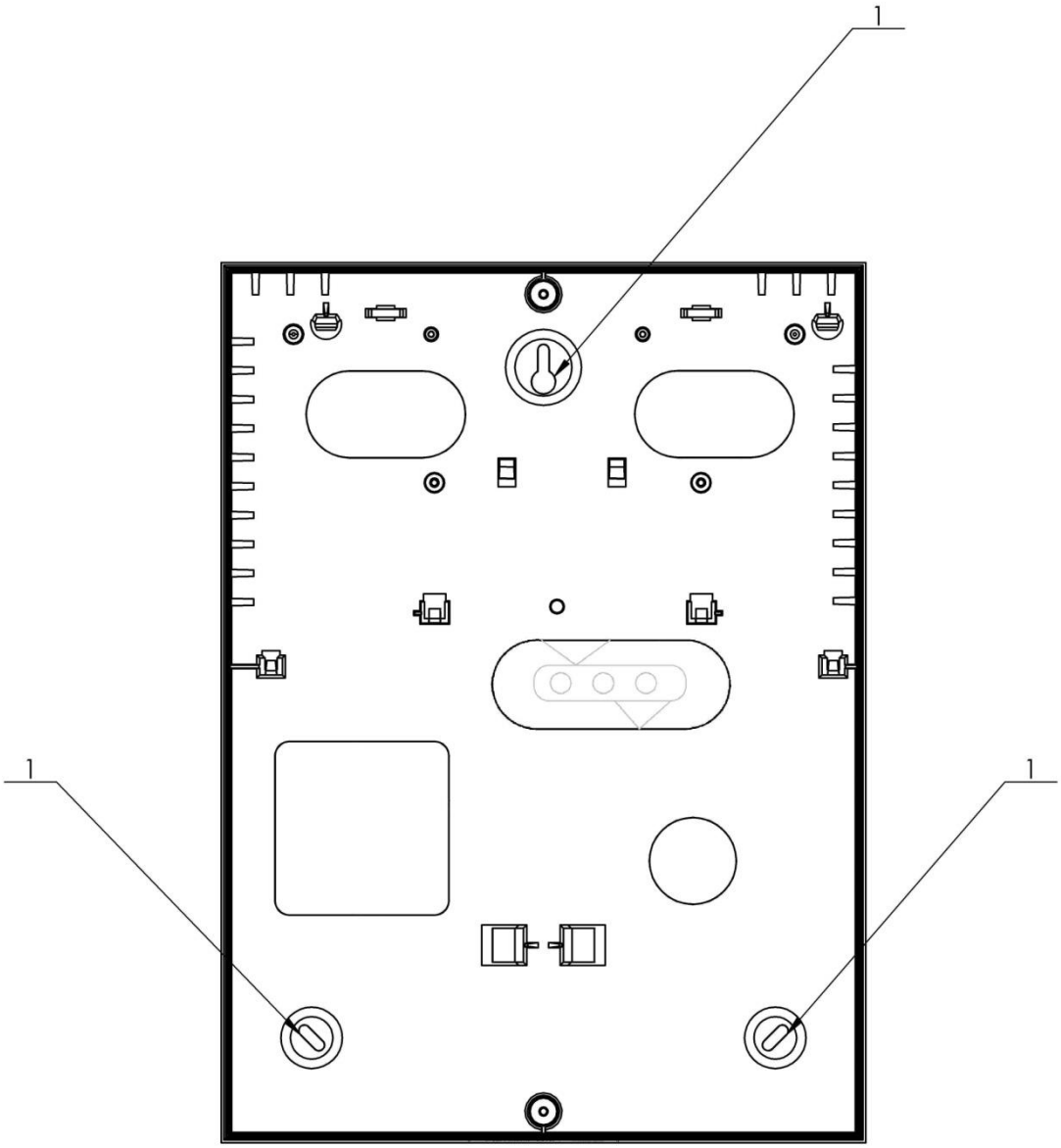


Fig.8

- Take the signal and power lines through the dedicated openings (refer p.14.1.2) and mount the screws (fig.8 pos.1) and fix cabinet on the wall.

14.1.5. The signal lines and mains power line prepare to connect to main interface board.

- The mains power line, passing through the dedicated opening (p.14.1.2) is fixed with tie-wraps in the cabinet on fig.9, pos.1.
- The signal lines, passing through the dedicated opening (refer p.14.1.2) is fixed with tie-wraps in the cabinet on fig.9, pos.2 and fig.9, pos.3.

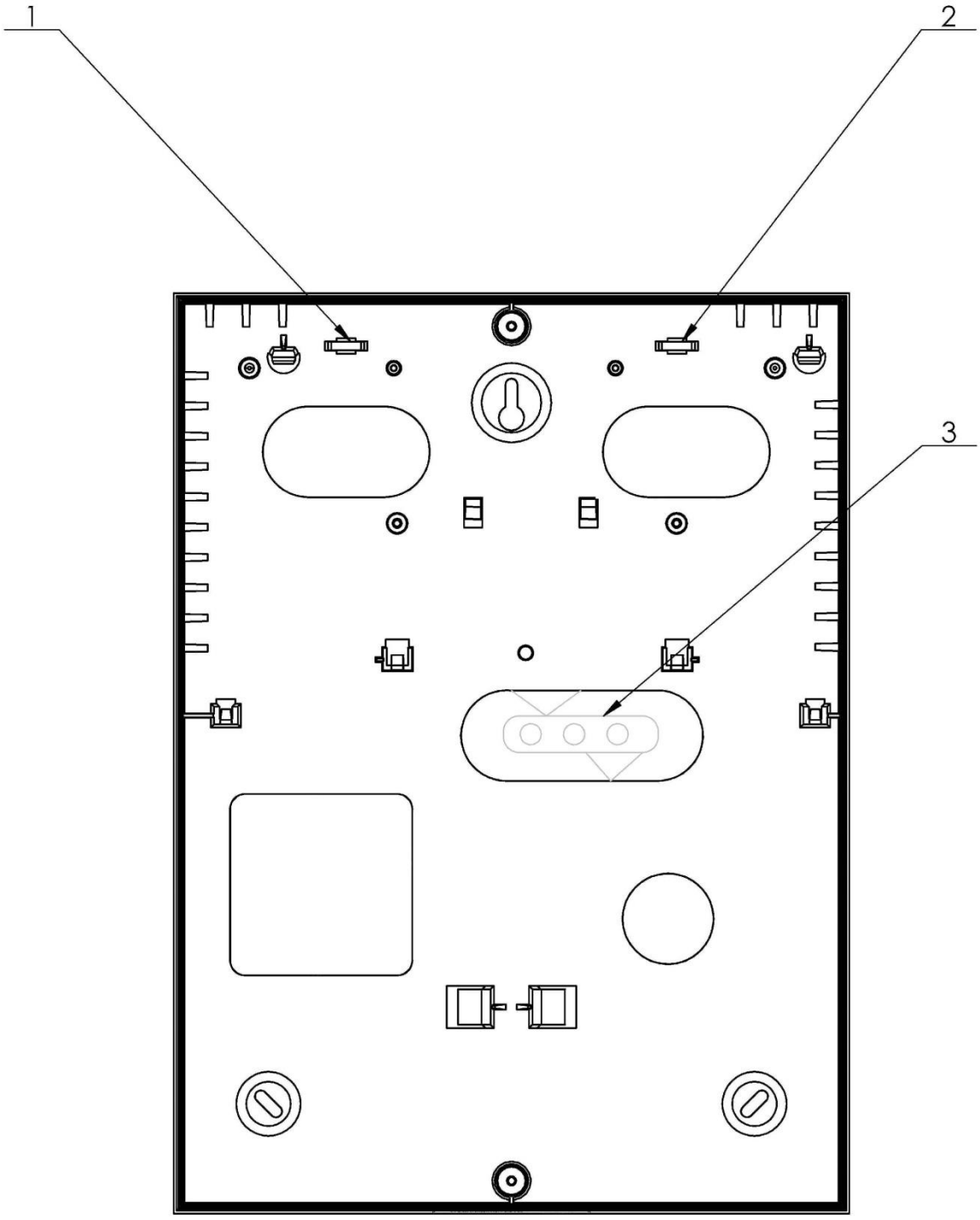


Fig.9

14.1.6. The signal lines cable connection to main interface board.

- For easy wires installation in the PCB connectors, the interface board is mounted to the bottom holders, as illustrated on fig.10, pos.1.
- The signal cable lines, dedicated for the conventional zones and fire protection and fire alarm equipment, are fit to the PCB connectors in the main interface board (fig.10, pos. 2), without being fully tighten. The mains cable is not connected in the PCB connector on this stage, but later on when the interface board is in its initial position (refer p.14.1.7)

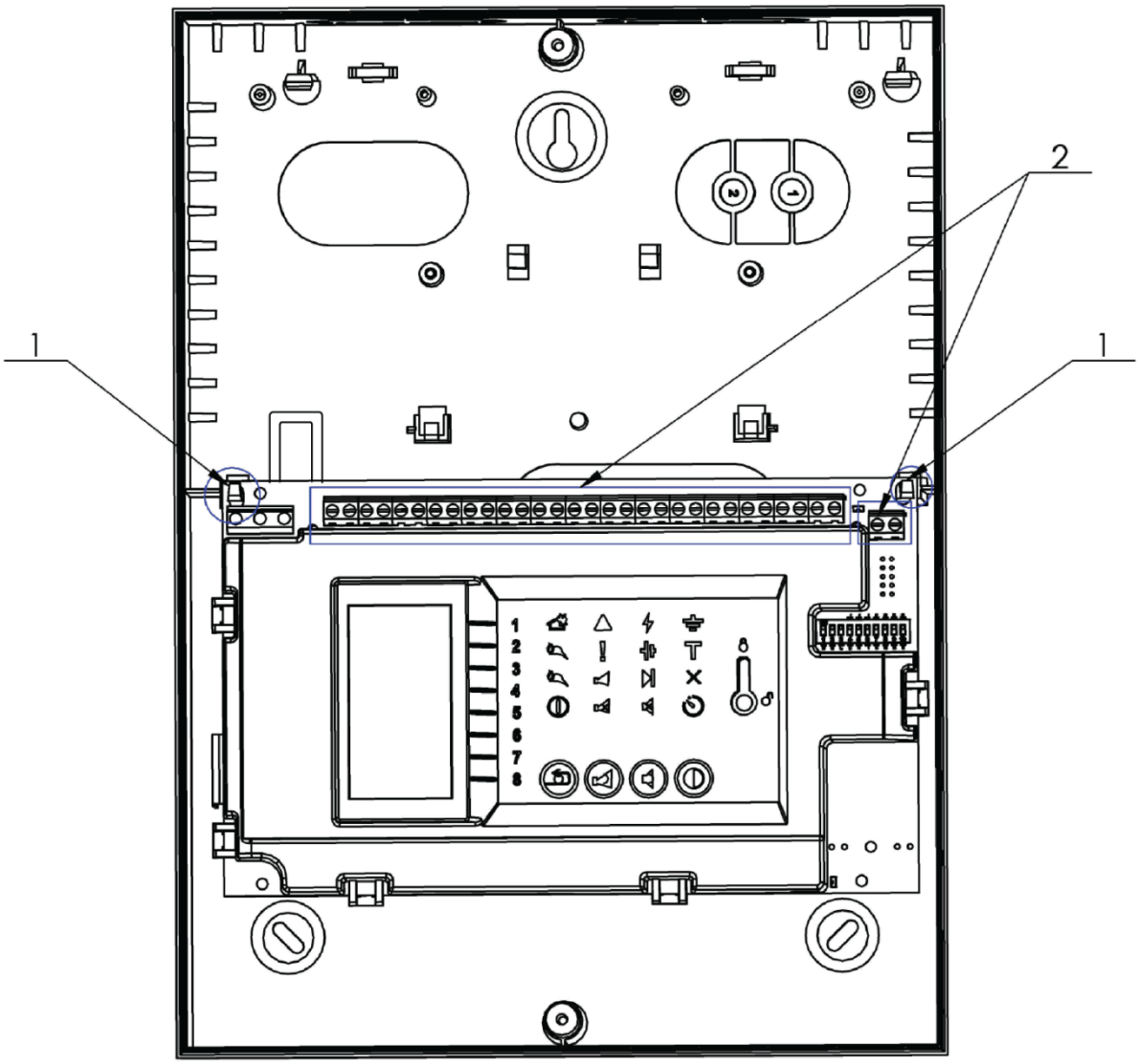


Fig.10

14.1.7. Mains power line connection to the main interface board.

The interface board is put back to its initial position (Fig.11) :

- The bottom side of the interface board is mounted on the holders (fig.11, pos.1);
- The top side of the interface board is pushed until the top-side holders click to fix it (fig.11,pos.3);
- The power line is connected in the PCB connector in FCP (fig.11, pos.4);
- Fully tighten the signal line cables, dedicated to the conventional zones and fire alarm and protection equipment (fig.11, pos.5).

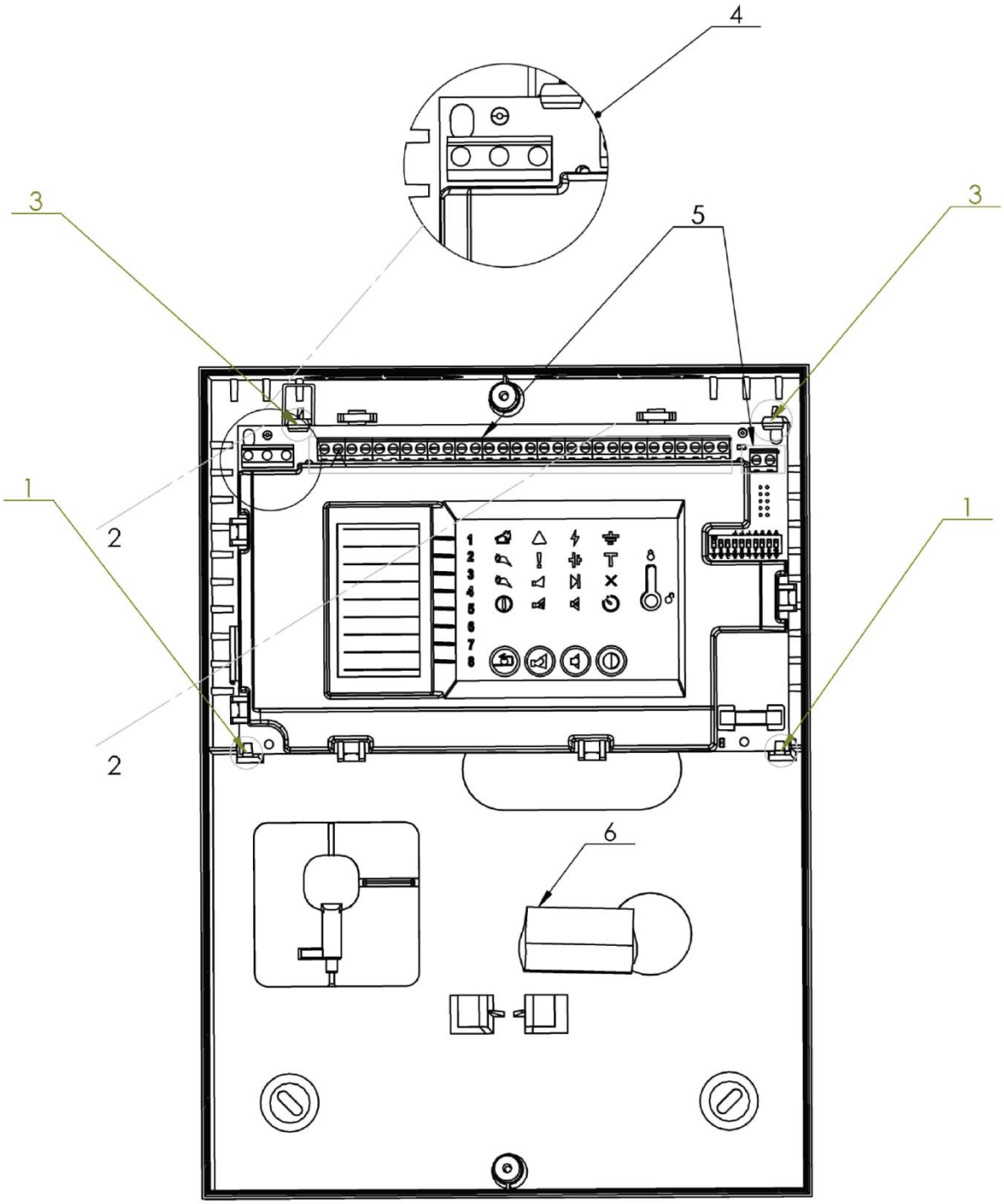


Fig.11

14.1.8. Installation of the back-up batteries in FCP.

Batteries are not part of the product !

- Install the back-up batteries in the cabinet of the FCP (fig.12, pos.1). The maximum capacity of the batteries is 7 Ah, but it is correct to install 1.2 Ah or 4.5 Ah back-up batteries, as well.

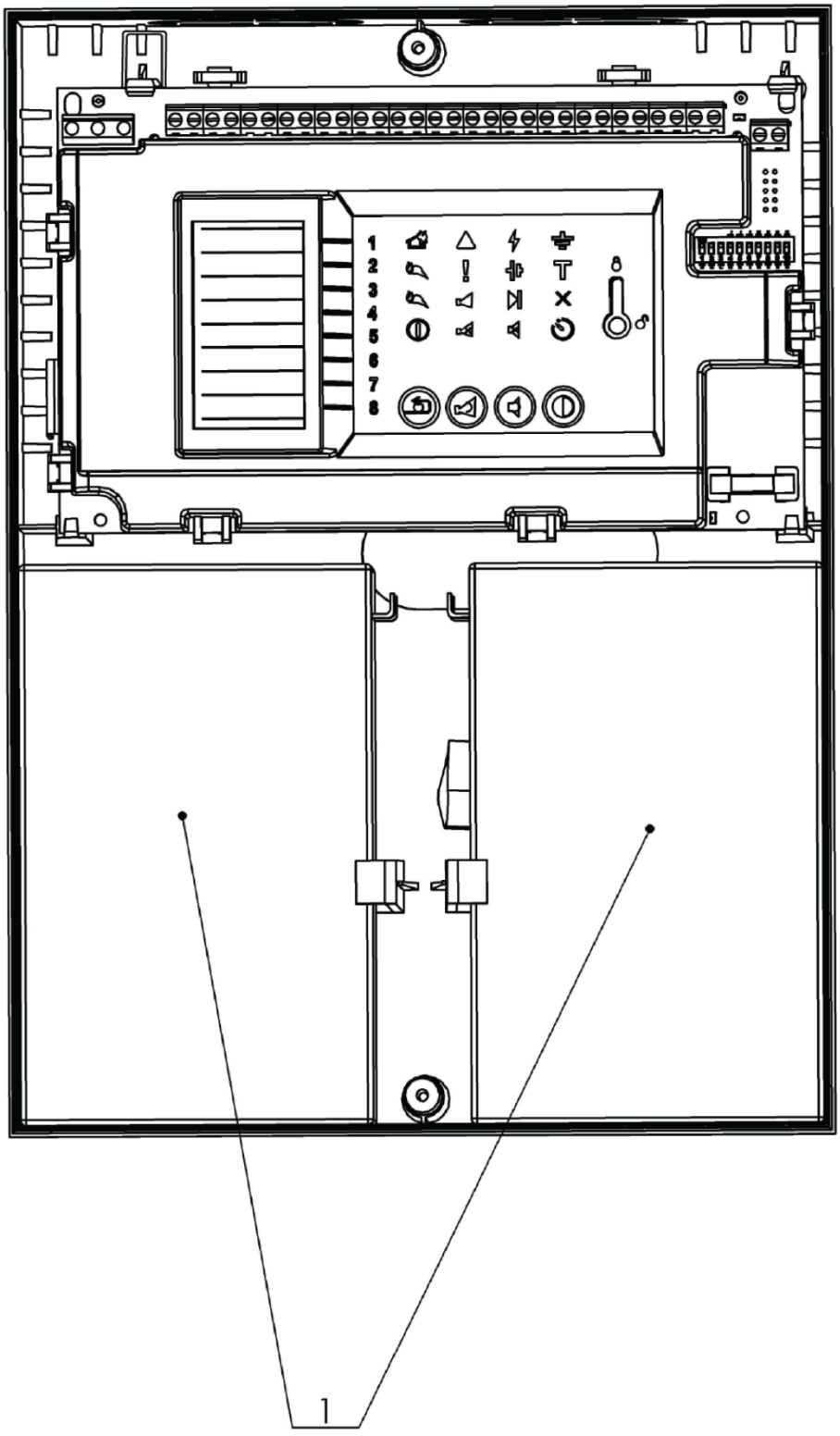


Fig.12

14.1.9. Close the cabinet.

- Fit the front cover of the cabinet to its initial position (fig.13);
- Install the screws (2pcs 3,9mm X 13mm) in the dedicated openings of the front cover (fig.13, pos.1 and pos.2); Apply torque 1,2 Nm to each screw, one at a time.
- Put the plastic plugs to hide the screws (fig.13, pos.3);
- Install the access level key (fig.13, pos.4);

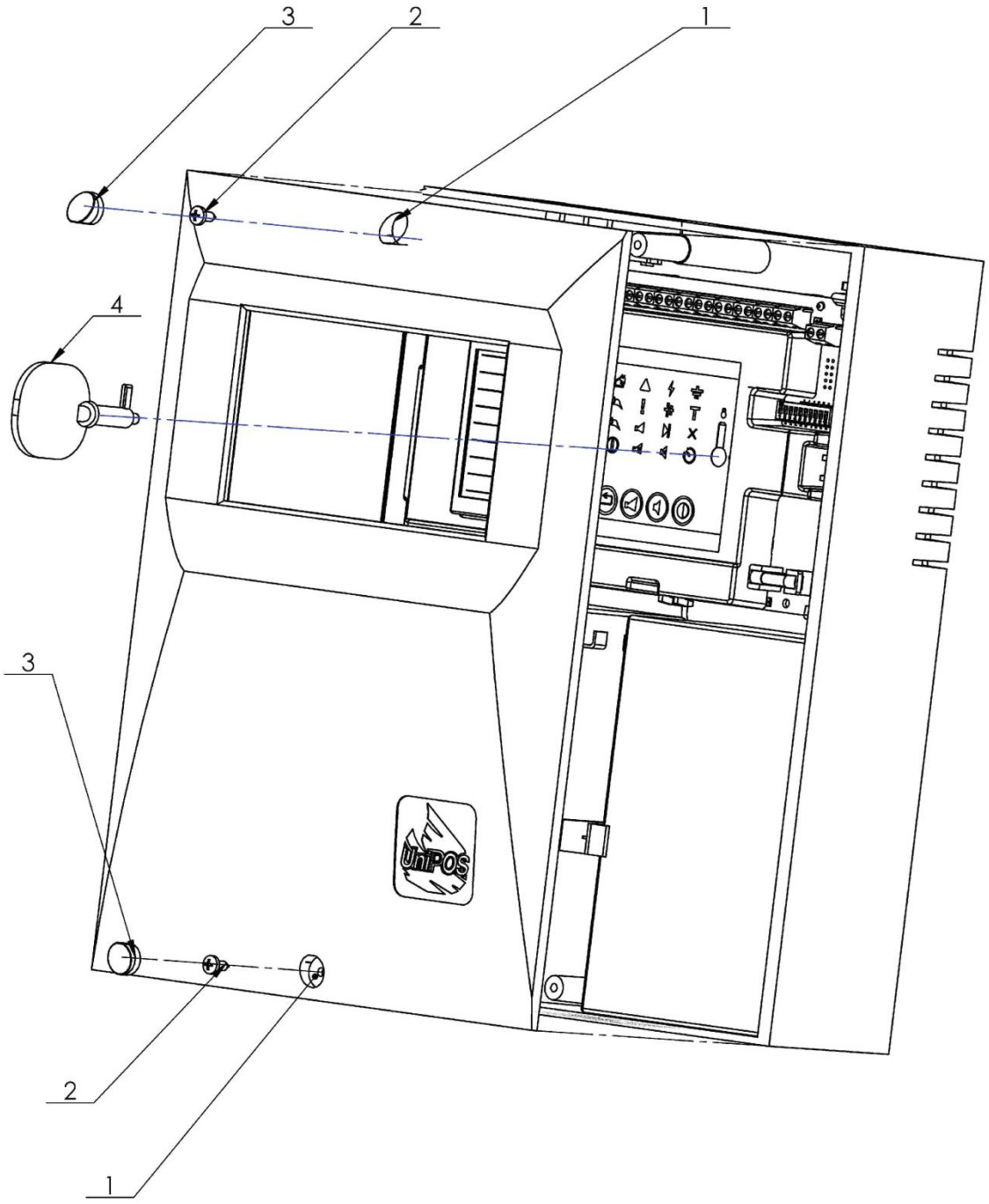


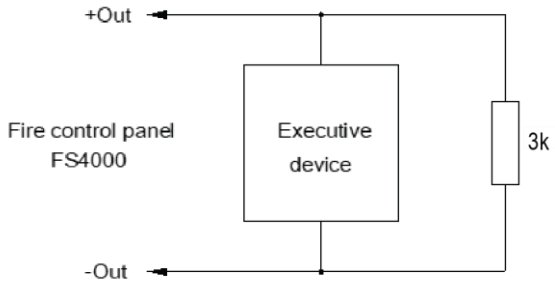
Fig.13

14.2. Periphery devices assembly

All wiring is installed in terminals, mounted on the printed circuit boards . Be advised, that the total consumption of the voltage powering the external equipment (terminal “+ 24V”) shall not exceed 1,2 A in alarm mode.

14.2.1. Mounting periphery devices to monitored outputs

Terminals “+Outx”, “-Outx” - monitored potential output, triggered in Fire condition. The fire control panel constantly monitors the power supply line for Fault conditions (break or short circuit).

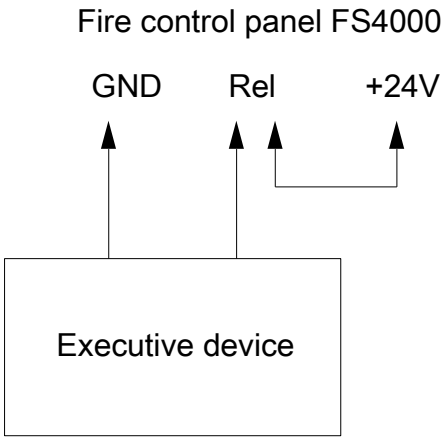


If the monitored output is not connected, then terminate the output with a resistor 3,0 kOhm / 0.6W on the terminals “+Outx” and “-Outx”.

14.2.2. Mounting periphery devices to relay outputs

Connect:

- terminal “+28V” – positive voltage potential with reference to the GND terminal to supply with direct current the external equipment (beacon and strobe equipment, third party devices devices etc.);
- terminals “REL Fault/C”, “REL Fault/NO” и “REL Fault/NC” - dry-contact dedicated to fault condition. Terminals “REL Fault/C” and “REL Fault/NO are connected when no fault condition is detected; terminals “REL Fault/C” and “REL Fault/NC” are connected when fault condition is detected.
- terminals "REL1/C”, “REL1/NO” and “REL1/NC ”- dry-contact dedicated to fire condition. In duty mode there is a connection between terminals “REL1/C” and “REL1/NC, and in Fire condition between terminals “REL1/C” и “REL1/NO”.
- terminals "REL2/C” and “REL2/NO” – dry-contact dedicated to fire condition REL2. In duty mode there is no connection between terminals “REL2/C” and “REL2/NO”, in Fire condition there is a connection between terminals "REL2/C” and “REL2/NO”.



Not connected dry-contact outputs are not terminated.

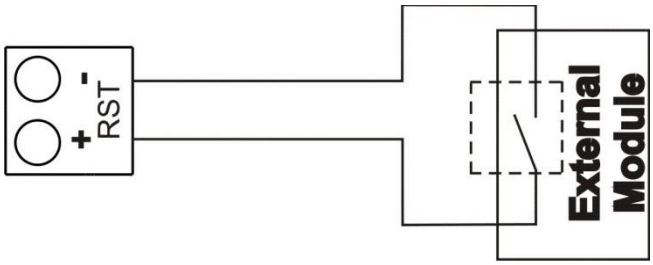
14.2.3. Connection of extension module FD 4201

In Fire Control Panel FS4000 there is an option for extension through module FD 4201.
The optional module FD 4201 is with the following interfaces:

- 2, 4, 6 or 8 dry-contacts (depending on the number of detection lines in the panel). Each dry-contact is dedicated to a conventional line;
- RS485 for network connection of the panel.

Not connected dry-contact outputs are not terminated.

14.3. Connecting Remote Reset Input / "Activate monitored outputs"



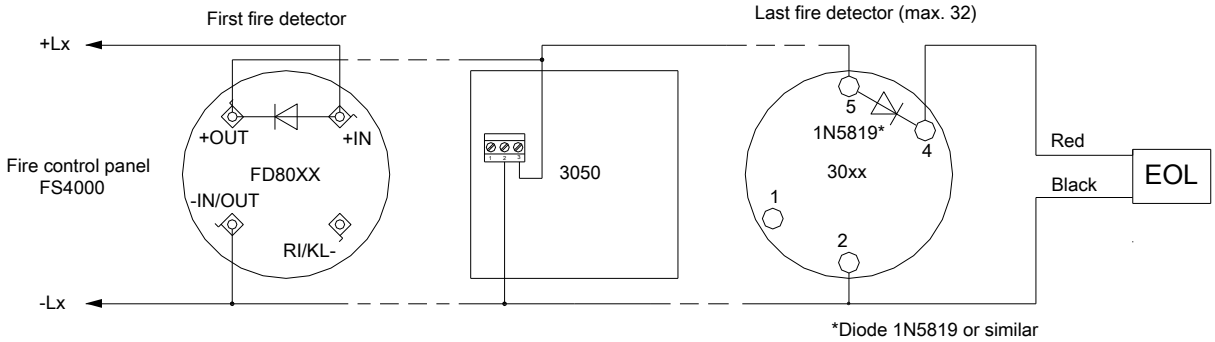
14.4. Connecting fire detectors

Fire detectors are connected to the fire control panel by means of two-wire insulated line of total resistance up to 100Ω. Recommended cross section of the wires depending on the length of the line is:

- Up to 500 m -cable 2 x 0.5 mm^2
- Up to 1000 m -cable 2 x 1.0 mm^2
- Up to 1500 m -cable 2 x.1.5 mm^2

Before connecting a fire detection line to the control panel, run a check-up with a measuring equipment. The detection lines are terminated with 3,0 kOhm / 0.6W (or EOL module) then a resistance of 3.0 kOhm (+/-10%) shall be measured on the input of the line. Please check-up both wires of the line for leakage to "Earth".

Complete the connection using the terminals of the corresponding line "+L x" and "-L x" (where "x" is the number of the line); follow the designated polarity.



Automatic fire detectors of series FD3000 and FD8000 or compatible can be used. To enable detection of Fault condition *Removed fire detector* diodes shall be mounted – for example 1N5819, at the indicated direction. The first DIP- switch in fire control panel must to be on to activate "Check for removed detector disabled" (Table 3). The manual call points shall respond with current ≥44mA at voltage 24V. You can use FD3050 Manual Call Point or compatible.

Up to 32 fire detectors can be connected to one fire detection line regardless of their type.

The free detection lines should be terminated with End of line resistor (or End of line module EOL if "Check Rem. Det" Is enabled).

14.5. Connection to mains power supply

- WARNING: Be sure that the overcurrent protective device on the mains , supplying the control panel is switched OFF.
- Applied torque on the screws must be 0,6Nm for each screw of the terminal, one at a time.
- Assemble the power supply plastic protector (white part) on the bottom side of the PCB if it is disassembled it.
- Assemble over the PCB the Indications and control plastic panel if it is disassembled.
- Connect the mains AC to the terminal on the PCB (please refer appendix 3 indicated L, ⏚, N on the Indications and control plastic panel), observing the following positions:
  - L – mains "Phase";
  - ⏚ – protective earth wire;
  - N – mains "Null".

The power cable shall be double insulated with 3 wires 1,5mm2 each.
The mains power line must be on a separate circuit in the distribution board of the building.

15. Fire control panel start up

- Double-check that the connection to mains power supply is correct.
- Double-check that the periphery equipment is connected correct.
- On panel's power-up then all LEDs shall blink for a short time, then the control panel starts operation.
- Connect the feeding cable and the backup batteries; the batteries shall be in a series connection.
- Connect the red wire to the positive backup battery pole, and the blue wire - to the negative pole. The overall voltage of both batteries must be over 20V, otherwise the fire control panel will not recognize them.
- User Configuration on Access level 3:
    - Time delay
    - Switching On/Off communication interface;
    - User scenarios on the fire outputs;
    - Check Rem. Det. Detection;
    - Earth detection;
- If necessary attach a card with inscribed text for each line.

16. Conditions of operation, storage and transportation

16.1. Operation and storage

The fire control panel shall operate and be kept in closed premises, under the following conditions:

16.1.1. Temperature:

- storage - 5°C to 35°C
- transportation - minus 10°C to 50°C
- operation - minus 5°C to 40°C

16.1.2. Relative humidity:

- storage - up to 80%
- operation - up to 93%

16.2. Transportation

The fire control panel shall be transported by vehicles, in factory packing, in the above stated environmental conditions and at sinusoidal vibrations with acceleration amplitude not more than 4,9m/s^2 in frequency range 10 to 150Hz.

17. Warranty

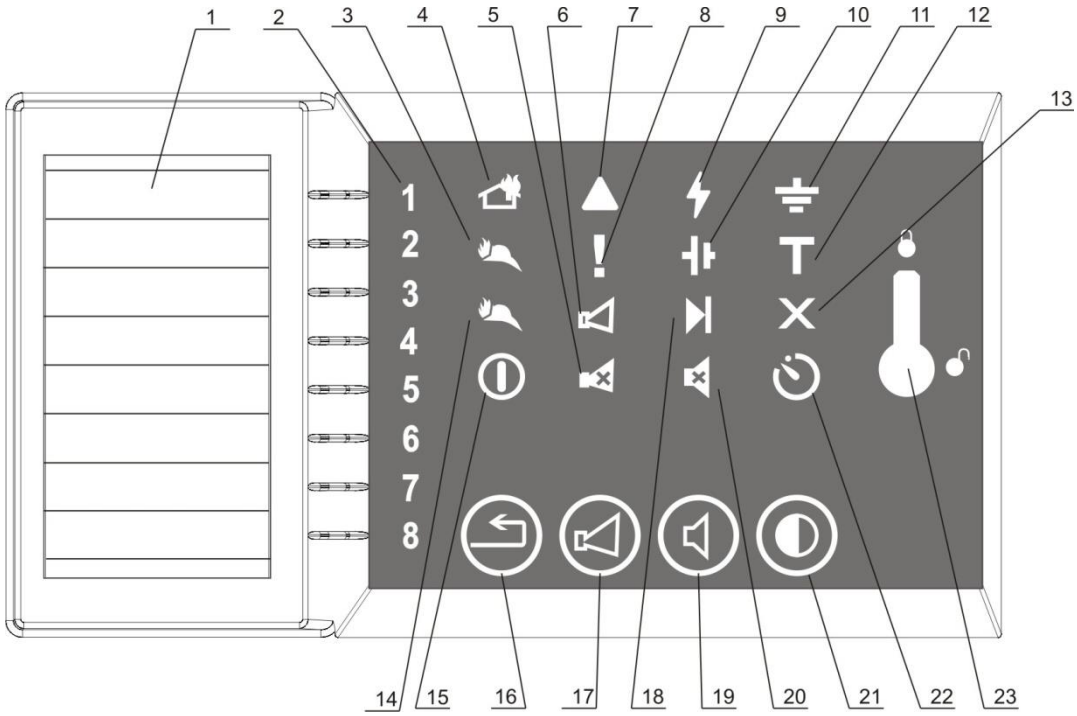
The producer guarantees compliance of the unit with EN54-2 and EN54-4.
The warranty period is 24 months from the date of the purchase, providing that:

- conditions of storage and transportation have been observed;
- startup has been done from skilled personnel only;
- requirements for operation stated herein have been observed.

UniPOS wishes you a successful work!

18. Appendixes

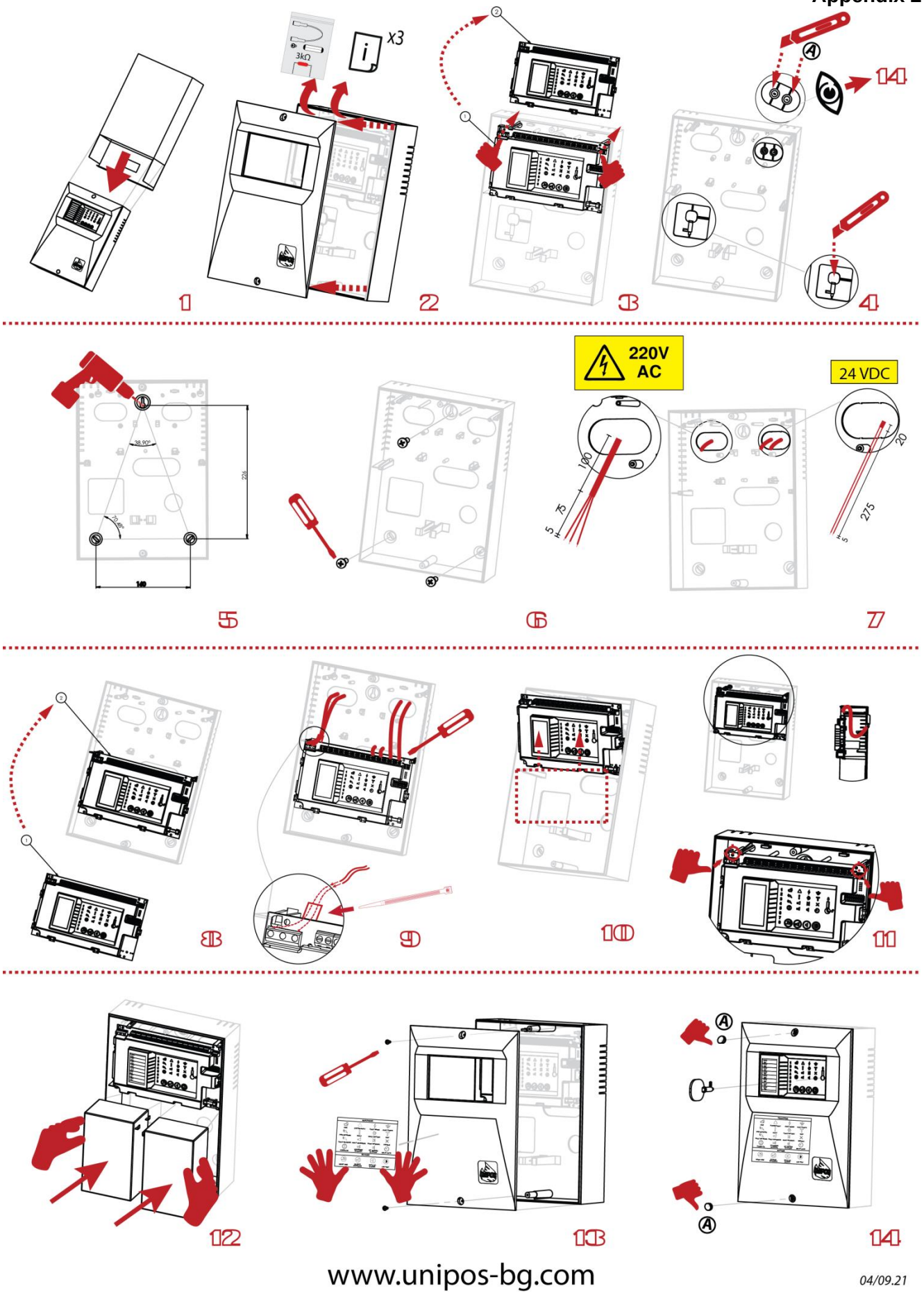
Appendix 1



1. **Area for LINE labeling**
2. **Individual LINE indicators for LINE states - FIRE(red), FAULT, TEST, DISABLED (yellow)**
3. ***Confirmed fire condition from the Remote Control Pane*l (red)**
4. **Common indicator FIRE condition (red)**
5. **Indicator *ACTIVATE/DEATCIVATE Outputs* (yellow)**
6. **Indicator *FAULT in/Disabled monitored output (yellow)***
7. **Indicator *System fault (yellow)***
8. **Common indicator for FAULT condition *(yellow)***
9. **Indicator *FAULT in mains power supply (yellow)***
10. **Indicator *FAULT in back up battery power supply (yellow)***
11. **Indicator Earth *FAULT (yellow)***
12. **Indicator *TEST condition (yellow)***
13. **Indicator *Disabled component (yellow)***
14. **Indicator *FAULT in Communication interface RS485 (yellow)***
15. **Indicator *Power Supply (green)***
16. **Button *RESET FIRE***
17. **Button *ACTIVATE/DEATCIVATE Outputs***
18. **Indicator *FAULT in internal supply units (yellow)***
19. ***Button suppress Buzzer***
20. **Indicator *STOP/START Buzzer (* yellow *)***
21. **Button *Test Indication and Buzzer***
22. **Indicator *Delay of FIRE Outputs (yellow)***
23. **Key switch “Access level 1” / “Access level 2a”**

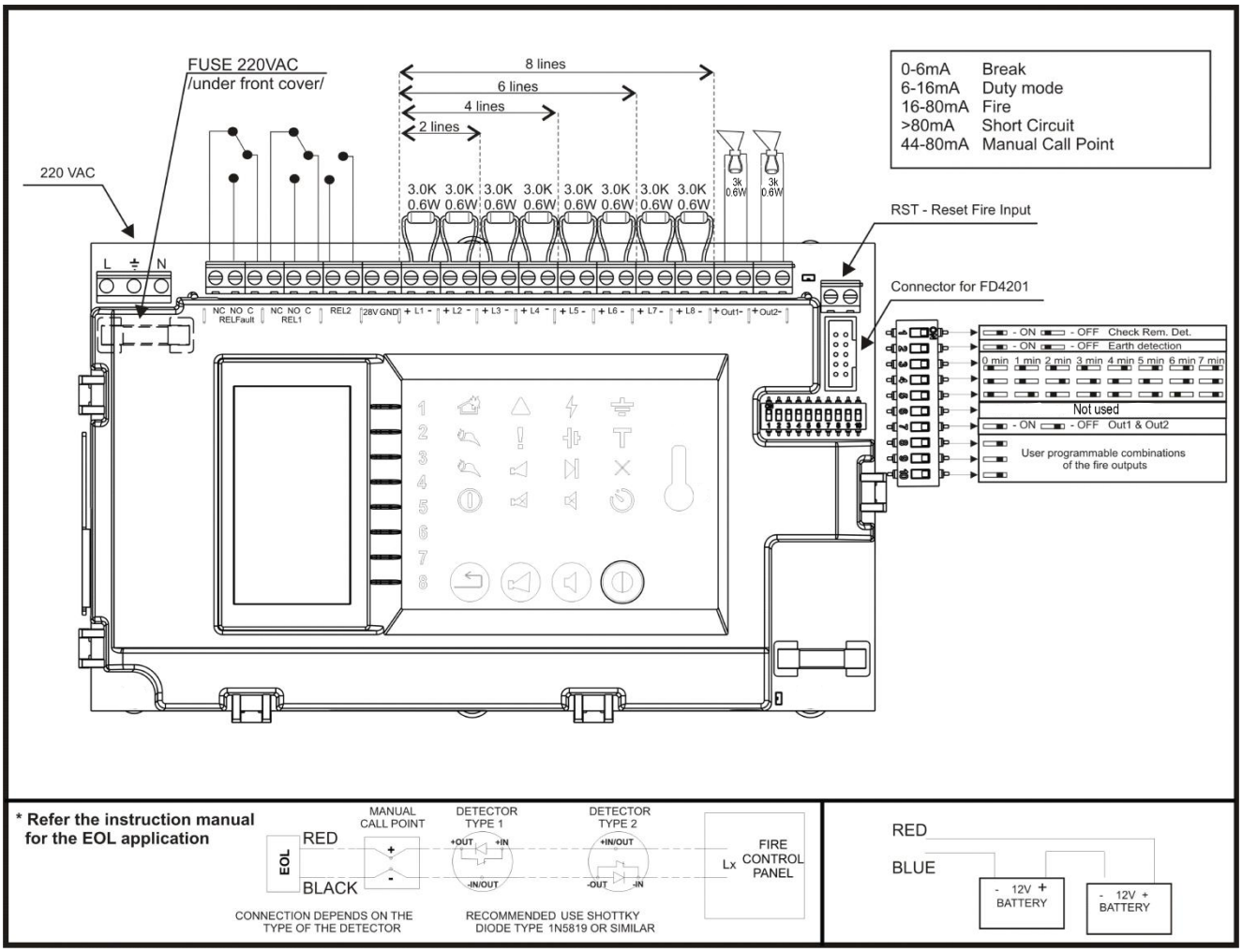
Leaflet

Appendix 2



Front panel of FS4000

Appendix 3



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