



OPERATIONAL MANUAL



ARTON-08F

FIRE ALARM CONTROL PANEL

CONTENTS

1	INTRODUCTION	5
2	PURPOSE	5
3	TECHNICAL SPECIFICATIONS	7
4	ITEMS SUPPLIED WITH THIS PANEL	8
5	DESIGN AND OPERATION	9
5.1	Design	9
5.2	Operation	9
5.2.1	<i>General overview</i>	9
5.2.2	<i>Access levels</i>	9
5.2.3	<i>Programming features</i>	11
5.2.4	<i>Alarm loops (AL)</i>	11
5.2.5	<i>Out1 Out2 high current programmable outputs</i>	11
5.2.6	<i>K1..K4 low current programmable outputs</i>	11
5.3	Main modes	11
5.3.1	<i>General overview</i>	12
5.3.2	<i>Fire mode</i>	12
5.3.3	<i>Fault mode</i>	13
5.3.4	<i>Disabled mode</i>	13
5.3.5	<i>Alarm mode</i>	13
6	SAFETY ISSUES	13
7	COMMISSIONING	14
7.1	Mounting	14
7.2	AL wiring	14
7.3	Light-sound alarm circuit wiring	14
7.4	220 V mains wiring	14
7.5	Storage battery connection	14
7.6	Authorized user mode	15
7.6.1	<i>General overview</i>	15
7.6.2	<i>AL disablement/enablement</i>	15
7.6.3	<i>Resetting zones, Fire, Fault and Alarm modes</i>	15
7.6.4	<i>Disablement of light-sound alarms</i>	15
7.6.5	<i>Disablement of Fire output signal</i>	15
7.6.6	<i>Disablement of Fault output signal</i>	16
7.6.7	<i>Testing light indicators and internal sounder</i>	16
8	PROGRAMMING GUIDE	17
8.1	General overview	17
8.1.1	<i>Entering the Programming mode</i>	17
8.1.2	<i>Exiting the Programming mode</i>	17
8.2	Description of programming	17
8.3	Fixing AL basic current	19
8.4	Section 1. Configuration of AL	18
8.5	Section 2. Out1 Out2 outputs' configurating	20
8.6	Section 3. K1..K4 outputs' configurating	23
8.7	Section 4. Sounders' configurating	25
8.8	Section 5. User settings configurating	26
8.8.1	Change of user permissions (user rights)	26
8.8.2	Change of authorized user access code	26
8.8.3	Change of engineer access code	26
8.9	Resetting panel configuration to factory defaults	26
8.10	Resetting engineer access code to factory defaults	26
8.11	Factory defaults	27
9	GUARANTEES OF THE MANUFACTURER (SUPPLIER)	28
10	CERTIFICATE OF RECLAMATIONS	28
11	SPARE PARTS AND ACCESSORIES LIST	28
12	MAINTENANCE	28

APPENDIX 1. Appearance of the panel	29
APPENDIX 2. Dimensions.....	312
APPENDIX 3. Layout of units, blocks and components inside the cabinet.....	32
APPENDIX 4. Main control PCB layout	33
APPENDIX 5. Description of light and sound indication of modes	36
APPENDIX 6. Recommended wiring diagrams	38

1 INTRODUCTION

1.1 The manual describes the purpose, technical specifications, installation sequence, programming, operation of ARTON-08F fire alarm control panel.

1.2 You should peruse the manual before installation, adjustment, programming and operating the panel.

1.3 This panel must only be installed, adjusted and programmed by a suitably skilled and technically competent person .

1.4 The following abbreviations apply in the manual:

SB – storage battery;

MC – main control PCB;

KIU – keyboard and indication unit;

PS – power supply PCB;

SM – standby mode;

BC – backup charger;

S/C – short-circuit;

O/C – open-circuit;

Panel – ARTON-08F fire alarm control panel;

CMS– central monitoring station;

Light/Sound – light-sound alarm;

AL – alarm loop.

2 PURPOSE

2.1 The panel has been designed for the centralized and stand-alone protection of various premises against fires by 24-h control of up to 4 fire alarm loops' status.

2.2 The panel complies with the requirements and norms of EN54-2:2003, EN 54-4:2003.

The panel is intended for continuous 24-hs operation in premises under the following environmental conditions:

- operating temperature range from – 5 to 40°C;
- relative air humidity up to 95 % at 40 °C;
- atmospheric air pressure 86 - 107 kPa.

2.3 The panel is intended for identifying and displaying the following statuses of alarm loops: Standby mode, Attention, Fire, Short-circuit, Open-circuit, AL disabled.

Note: The Attention status is issued while AL is being verified if AL operation algorithm involves verification, or - after the first detector triggering if AL operation algorithm implies waiting for the other detectors triggering).

2.4 The panel has been designed for identification and indication of the following types of faults and statuses for outputs, power supply and the panel in general:

- S/C of outputs;
- load break of Light, Sound, Fire, and Fault outputs;
- failure of voltage powering outputs and AL;
- A.C. mains power failure;
- critical discharge or storage battery failure;
- battery charger fault;
- system error.

2.5 The tamper button is triggered when the panel's lid is opened by an unauthorized user that causes the panel to go into the alarm mode.

2.6 The panel issues signals with the help of the following outputs (**Bold font**- names of outputs on MC PCB:

Light – light alarm “Light”;

Sound – sound alarm “Sound”;

Fire – Fire signal output on CMS;

Flt – output of Fault signal on CMS;

Norm – Norm signal output;

Alarm – Alarm signal output on CMS;

K1..K4 – low current programmable outputs;

Out1, Out2 – high current programmable outputs.

2.7 The panel can be connected with 2- and 4-wire alarm loops. Wiring of both active and passive detectors as well as combination wiring in AL of the panel is allowed.

2.8 The panel allows to make independent authorized disabling/enabling of any Alas well as short-term resetting of all AL.

2.9 The panel provides automatic charging of SB and protection against incorrect wiring (reversed polarity).

2.10 The panel provides the protection of all outputs against S/C with the automatic restoration of initial status after S/C elimination.

2.11 The multilevel access to controls is made according to the requirements of EN54-2:2003.

2.12 The panel provides programming from the in-built keyboard of the following parameters and functions:

- AL operation logics (with verification, without verification, 2 detectors' triggering);
- AL type (active, passive, combined, combined - passive detector's trigger priority, combined - active detector's trigger priority);
- fixation of basic current of AL (standby current);
- reset time at manual reset and verification;
- time of verification or waiting for 2nd detector trigger;
- increase current threshold in AL to detect active detector trigger;
- decrease current trigger in AL to detect passive detector trigger;
- setting of functional purposes for outputs;
- setting of outputs' operation mode;
- setting of outputs' activation time;
- setting of activation conditions of outputs by the panel's modes and by certain AL statuses on logic conditions AND/OR;
- setting of time of transitional processes of outputs;
- setting of types of outputs' load control;
- setting of users rights on AL control;
- access codes of users and engineer;
- resetting to factory settings.

3 TECHNICAL SPECIFICATIONS

3.1 The panel is 220 (+22-33) V mains-powered with frequency (50±1) Hz and/or 12 V hermetic non-serviced lead-acid storage battery powered, 7/7.2 A/h nominal capacity and 10,5 V terminal voltage of long-lasting discharge (SB is not supplied with the panel).

3.2 Max mains power consumption – 30 W.

3.3 Standby mains power consumption – ≤ 15 W.

3.4 Max SB current consumption – 1,0 A.

3.5 Standby max SB current consumption – 0,2 A.

3.6 Max SB current consumption when mains power is off and SB voltage < (10,5 - 1) V - 50 mA.

3.7 Voltage on contacts of open outputs at total output key load < 0,8 A is 8,8-14 V. Double pulsation amplitude does not exceed 0,5 V.

3.8 Max voltage on deenergized Light, Sound, Fire and Fault outputs at 3,3 kOhm load resistance (with resistors supplied with the panel) - ≤ 2,5 V.

Note. Presence of the voltage is connected with the need to control the outputs load circuit. With real loads (e.g., relay winding) the voltage value is close to zero.

3.9 Max number of loops connectable to the panel – 8.

3.10 Supply voltage on AL1-AL8 contacts at load absence – 15 (±1) V.

AL1-AL8 voltage at ≤ 20 mA current in each AL - ≥ 12 V.

3.11 Total line (wire) resistance of AL not considering EOL resistor impedance - < 220 Ohm.

3.12 Resistance of leakage between AL lines (if EOL resistor is disabled), and also between each AL line and enclosure - ≥ 50 kOhm.

3.13 Min current change in AL circuit (relatively to fixed basic AL current) interpreted by the panel as FIRE - +4 mA or – 1,2 mA.

3.14 AL current interpreted by the panel as O/C – from 0 to 3 mA.

3.15 AL current interpreted by the panel as S/C – > 24 mA.

3.16 The panel has protection against S/C in AL circuits and outputs with indication of a fault.

3.17 The panel responses to the AL status change that lasts at least 100 ms and does not issue messages about the change that lasts less than 50 ms.

3.18 The panel allows to interconnect up to 32 active detectors (SPD-3.1M, SPD-3.5, SPD-3.10, SPT-2B, SPT-3 etc.). The max standby current consumption by all active fire detectors that are in the AL, should not exceed 3 mA.

3.19 Automatic AL reset duration (time of switching-off) when AL is being verified or manually reset - > 5 sec. (You can set from 5 to 40 sec).

3.20 Expectation time of repeated activation in Attention mode after AL resetting, when the one has been detected the panel goes to Fire mode - (60±1) sec. You can set from 10 to 240 sec.

3.21 Max load current on the Light and Sound outputs – 300 mA.

3.22 Max load current on Out1 and Out2 outputs - 300 mA;

3.23 Max load current on Fire, Fault, Alarm, Norm, K1 – K4 outputs – 40 mA;

Note. *Total load current of all outputs should not exceed 0,8 A at maximum voltage on open outputs. This requirement is stipulated only by time decrease of stand-alone operation of the panel powered by SB when exceeding the value.*

3.24 Min current load values of the panel in SM for each output: Light, Sound, Fire, Fault and also in AL1-AL8 circuits – 3,5 mA (set by 3.3 kOhm resistors from spare parts and accessories package, see Section 12)

3.25 Technical readiness time after the panel has been powered – < 20 sec.

3.26 Average mean-time-between-failures - > 40000 hs.

3.27 Average lifespan - > 10 years.

3.28 Dimensions – 230x280x90 mm.

3.29 Weight without SB – 3,5 kg.

4 ITEMS SUPPLIED WITH THIS PANEL

4.1 After unpacking the panel you should inspect the exterior to make sure it is not mechanically damaged and check the kit for completeness that should comply with Table 4.1.

Table 4.1

Name	Quantity	Note
ARTON-08F fire alarm control panel	1	
Operational manual	1	
Spare parts and accessories	1	According to Section 12

Note. *In accordance to an individual order the kit may contain auxiliary units expanding the panel's functions.*

5 DESIGN AND OPERATION

5.1 Design

The panel consists of the following units:

- enclosure;
- main control PCB (MC);
- power supply PCB (PS);
- storage battery (not supplied with the panel);
- keyboard and indication unit (KIU);
- terminal block with holder to be connected to 220 V mains supply;
- power transformer.

The appearance of the panel is showed in Appendix 1.

Dimensions of the panel are showed in Appendix 2.

The location of units, blocks and components inside the enclosure is presented in Appendix 3.

The location and purpose of output terminals are adduced in Appendix 4.

5.2 Operation

5.2.1 General overview

The panel controls current in 8 fire alarm loops and provokes status's change of light indicators on the front panel, internal buzzer, turning on external main and auxiliary sounders and beacons, reporting CMS and activation of others adjustable outputs depending on the currents' value change, program settings, configuration of the panel and AL type (with verification, without verification, trigger - 2nd detectors). The panel also transmits alarm messages by internal interface to auxiliary communicators that transmit them to subscribers or to CMS.

The panel can operate in the following modes: Standby, Attention, Fire, Alarm, Fault, Disabled, Authorized user mode, Programming.

Each AL regardless of the others can operate in the statuses: Standby, Fire, Short-circuit, Open-circuit, Disabled, Attention (Verification). Optical indicators are located on the front of the enclosure that indicate modes of the panel and each loop status (see Appendix 5).

5.2.2 Access levels

Four control levels are available on the panel.

Level 1 – general user controls

The access of unlimited number of persons is possible on level 1. It is allowed on the level:

- testing of all optical indicators and internal sounder (by three times pressing the Select button);
- silencing the internal buzzer in Fire, Fault, Alarm modes (by pressing the Silence button).

Level 2 – authorized user controls

Authorized user access is limited by actions that do not require the use of a special tool or opening the panel's lid. The authorized user controls can be accessed by entering the access code. Each of 8 users has his unique code. The access code is the character sequence from [1] to [8], you should enter from 1 to 8 characters. The access code is entered with [1]...[8] buttons and confirmed by pressing the Select button.

Default access codes for all users are shown in Section 8.11.

Each user has access to control of one or several zones. A few users can have access to the same AL.

The following controls are available on the level:

- resetting Fire, Fault, Alarm, Attention modes;
- resetting all zones (temporal deenergising of all zones);
- disabling/enabling separate zones available to the user;
- disabling and then enabling sounders;
- disabling and then enabling of Fire output signal;
- disabling and then enabling of Fault output signal.

Level 3 – engineer controls (programming mode)

To access the programming mode enter the engineer access code (factory default [1][2][3][4][4][3][2][1]) and press the Select button. The engineer access code is a character sequence from [1] to [8] with length from 1 to 10 characters.

Level 4 – maintenance

The level involves the special auxiliary software (used at the manufacturing company or service centers).

5.2.3 Programming features

Configuring and setting of the following objects can be programmed:

- **AL**
 - AL operation algorithm (with verification, without verification, 2 detectors' trigger);
 - AL type (Active, Passive, Combined, Combined - passive detector trigger priority, Combined – active detector trigger priority);
 - Fixation of basic current of each AL (AL current in standby mode);
 - Time of AL reset in case of verification or manual reset (a value of the range: 5 sec, 10 sec, 15 sec, 20 sec, 25 sec, 30 sec, 35 sec, 40 sec);
 - Time of AL verification (a value of the range: 10 sec, 20 sec, 30 sec, 40 sec, 60 sec, 120 sec, 180 sec, 240 sec);
 - Current growth threshold to identify active detector trigger (from 1 to 8 mA with 1 mA pitch);
 - Current decrease threshold to identify passive detector trigger (from 0,8 to 3,6 mA with 0,4 mA pitch);
- **OUT1 and OUT2 high current programmable outputs (to 300 mA)**
 - functional purpose of Out1, Out2 (power output of 4-wire AL, output of auxiliary programmable light (sound) alarm or power output of auxiliary device (+12V));
 - modes of Out1 and Out2 (5 options); The setting determines the status of outputs in active and passive state;
 - activation time of Out1 and Out2 in the mode of auxiliary adjustable light or sound alarm (1 sec, 5 sec, 10 sec, 30 sec, 1 min, 3 min, 10 min, 30 min, 1 h, 3 h, 10 h, not limited);
 - Activation conditions of Out1, Out2 in the mode of auxiliary adjustable light or sound alarm (response to FIRE status in AL, response to FAULT status in AL, response to general FAULT status, response to “Detector trigger in AL” status, response to ALARM status);
 - AL mask, participating in logical condition of output activation on AND/OR;
 - Types of load control of Out1, Out2 (S/C alone, O/C alone, S/C&O/C, without load control);
 - Time of transitional processes at switching of outputs is the time of non-response to faults (150 msec, 200 msec, 250 sec, 300 msec);
 - Setting of frequency of output's pulse mode at appropriate mode setting (0,5 Hz, 1 Hz).
- **K1...K4 low current programmable outputs (to 40 mA)**
 - modes of K1...K4 outputs (5 options). This setting defines statuses of outputs in active and passive state;
 - time of active state of K1...K4 outputs in the mode of auxiliary adjustable light and sound alarm (1 sec, 5 sec, 10 sec, 30 sec, 1 min, 3 min, 10 min, 30 min, 1 h, 3 h, 10 h, not limited);
 - activation conditions of outputs: (response to FIRE status in AL, response to FAULT status in AL, response to general FAULT status, response to “Detector trigger in AL” status, response to ALARM status);
 - setting of AL participating in condition of output activation on AND/OR;
 - setting of load control types of the outputs (S/C alone, O/C alone, S/C&O/C, without load control);
 - time of transitional processes at switching of outputs is the time of non-response to faults (150 msec, 200 msec, 250 sec, 300 msec);
 - setting of frequency of output's pulse mode at appropriate mode setting (0,5 Hz, 1 Hz).
- **Light and sound alarms (Light and Sound outputs)**
 - modes of sound and light alarms. (statuses in active and passive state; steady or pulse modes);
 - time of active state (1 sec, 5 sec, 10 sec, 30 sec, 1 min, 3 min, 10 min, 30 min, 1 h, 3 h, 10 h, not limited);
 - load control type of the outputs (S/C alone, O/C alone, S/C&O/C, without load control);

time of transitional processes at switching of outputs is the time of non-response to faults (150 msec, 200 msec, 250 sec, 300 msec);

setting of frequency of output's pulse mode in active state at appropriate mode setting (0,5 Hz, 1 Hz).

- **Users**

- setting of user permissions (authorized user rights on separate AL control);
- change of user/engineer access codes.

You can also reset the panel's configuration to factory defaults in programming mode.

Note. *Details of the panel's programming mode appear in Section 8.*

5.2.4 Alarm loops (AL)

The operation algorithm of each out of 8 AL (response type on detectors triggering in AL) can be the following:

- **«Without verification».** On the detector going into alarm the light-sound alarm immediately turns on, the panel goes into Fire mode, and the Fire message is sent to CMS;
- **«With verification».** When the detector goes into alarm, AL goes to the Attention mode being deenergized for a fixed time (5 sec by default) (including 4-wire AL power supply). After the mains supply has been turned on the loop status is being analyzed so that the detector going into the Fire state, S/C or O/C causes the detector to go to the Fire state. If there are no faults in AL for (60±6) s the detector goes to the standby mode.
«With verification» AL type is recommended for protection against false alarms.
- **«Two detectors trigger».** When one detector is going to alarm state, AL goes to Attention mode and within fixed time is waiting for the 2nd detector activation in the AL. If within the fixed time (60±6 sec) the 2nd detector triggers in the AL, then the AL shall go to the Fire status, otherwise the AL shall go to SM.

The following types of AL can be set on the panel:

“Active”. The panel responds only to current increase in the AL, at the same time the panel concludes about detectors activation in the AL when the current increases in the AL at the fixed value (see Table 8.1) relatively to standby basic current.

“Passive”. The panel responds only to current decrease in the AL, at the same time the panel concludes about detectors activation in the AL when the current decreases in the AL at the fixed value (see Table 8.1) relatively to standby basic current. Manual call points or 4-wire N.C. detectors can work by the passive detector scheme.

“Combined”. The panel responds only to current decrease and increase in the AL, at fixed values relatively to standby basic saved current. Both active (2-wire current consuming) detectors and detectors operating as loop current decreasing can be connected to AL of this type.

“Combined – passive detector activation priority”. This type of AL differs from the combined one only by the following. When the AL operation algorithm is being set with verification or with waiting for 2 detectors activation in case of passive detector triggering (current decrease at the fixed value), AL immediately goes to Fire mode (escaping verification or waiting for the 2nd detector triggering). This type of AL allows to arrange such AL where manual passive call point activation provokes immediate transition to Fire mode, and active detector activation makes AL go to Attention mode.

“Combined – active detector activation priority”. This type of AL differs from the combined one only by the following. When the AL operation algorithm is being set with verification or with waiting for 2 detectors activation in case of active detector triggering (current increase at the fixed value), AL immediately goes to Fire mode (escaping verification or waiting for the 2nd detector triggering). This type of AL allows to arrange such AL where manual active call point activation provokes immediate transition to Fire mode, and passive 4-wire detector activation makes AL go to Attention mode.

5.2.5 Out1 Out2 high current programmable outputs

Each programmable output Out1 and Out2 independently of each other can operate as:

- 4-wire AL power output;
- Output of auxiliary light or sound alarm;

- Non-commutable power output of auxiliary devices (+12V, 300 mA max, S/C protected).

For 4-wire power output a mask (kit) of loops powering from the output is set. The other AL included to the kit shall be automatically reset when resetting the AL.

AL mask can be installed for output adjusted as one to auxiliary light and sound alarm. The loops can take parting activation of output with operation logics by AND/OR considering activation conditions.

To activate an output as sounder you can use the following activation conditions (from one to five):

- Fire in AL included to AL mask;
- Fault in AL included to AL mask;
- General FACP Fault;
- A detector trigger in the AL included to AL mask;
- Transition to FACP Alarm status.

Example. You can program one of outputs, e.g. Out1, with the following activation condition:

Out1=(Fire[AL1] AND Fire[AL2]) OR Fire[AL3]. At that the output shall go to active state if 2 loops AL1 and AL2 or one AL3 will go to Fire status.

5.2.6. K1..K4 low current programmable outputs

K1..K4 programmable outputs are designed to issue outgoing signals by complicated status conditions of AL and FACP.

For each output AL mask can be set for those loops that will be involved in activation of output with operation logics by AND/OR considering activation conditions.

To activate an output you should use from one to five conditions (event type):

- Fire in AL, included to AL mask;
- Fault in AL included to AL mask;
- General FACP Fault;
- A detector trigger in the AL included to AL mask;
- Transition to FACP Alarm status.

Example. You can program one of outputs, e.g. K11 with the following activation condition:

K1=(Fire[AL1] AND Fire[AL2] OR Fire[AL3]). At that the output shall go to active state if 2 loops AL1 and AL2 or one AL3 will go to Fire status.

Note. By default activation conditions of outputs are set thus that:

AL1 and AL2 provoke activation of K1 output;

AL3 and AL4 – K2;

AL5 and AL6 – K3;

AL7 and AL8 – K4.

5.3 Main modes

5.3.1 General overview

The panel can operate simultaneously in Fire, Fault, Alarm, Disabled modes that are indicated by various LED luminescence, different sound of internal sounder and by outputs statuses.

Luminescence of indicators differs with colour, repetition period (frequency of flashes) and porosity (period/duration of flash impulses) depending on the mode.

The internal buzzer sounds differently in Fire, Alarm and Fault modes.

Switching on of the corresponding mode indicators and AL indicators in Fire, Fault, Disabled modes coincides in frequency and phase.

The description of light and sound indication of all modes and statuses appears in Appendix 5.

5.3.2 Fire mode

The indicators of the corresponding zone and the Fire indicator synchronically flash with red colour, the internal sounder issues the Fire signal, the Fire output («Fire») activates reporting the signal to CMS and outputs to “Light” and “Sound” alarms activate in the Fire mode. In addition, “Out1”, “Out2”, «K1»..«K4» outputs can be activated if appropriately set.

Reset of the Fire mode can be made by any authorized user (on entering the access code) by pressing on the Reset button for 2-3 sec.

5.3.3 Fault mode

The panel identifies the following types of faults: AL S/C and AL O/C, S/C or load break of an output (at corresponding settings), AL/Output Power Supply Failure, 220 V Mains Failure, Critical discharge or Storage battery failure, Charger Fault, System error.

The general indicator Fault flashes in Fault mode, the internal buzzer issues the Fault signal, and the Fault output activates (switches off) transmitting the signal to CMS. Depending on the fault type the following indicators flash yellow:

- «Zone1» .. «Zone8» – AL fault;
- «Sounder» – fault of a light-sound alarm;
- «Fire output» – Fire output fault;
- «Fault output» – Fault output fault;
- «System» – system error.

The of the Fault mode is reset automatically (if the fault cause is removed) or by any authorized user (after entering the access code) by pressing the Reset button for 2-3 sec.

***Note.** The detailed description of light and sound indication of every fault type is shown in Appendix 5.*

5.3.4 Disabled mode

The Disabled mode is activated as a result of the following actions of an authorized user:

- AL disablement;
- Light and sound alarm disablement («**Light**», “**Sound**”);
- Fire output signal disablement («**Fire**»);
- Fault output signal disablement («**Fault**»);

The mode is indicated by the steady light of the general indicator Disabled and also correspondingly disabled Zone1...Zone8, Sounder, Fire output, Fault output indicators.

***Note.** The detailed description of light and sound indication of Disabled mode is shown in Appendix 5.*

5.3.5 Alarm mode

The panel goes into alarm in the following events:

- at the moment of the panel’s lid opening in the standby mode (triggering of tamper contact);
- after 4-time incorrect entering of access code. The Alarm indicator flashes in the mode, the Alarm output activates (turns off) reporting the signal to CMS and light and sound alarms («**Light**», «**Sound**») activate.

Reset of Alarm mode occurs after correct entering of access code by any user.

6 SAFETY ISSUES

6.1 **Attention!** All operations with the panel must be made by authorized users with closed panel’s lid.

6.2 The installation, mounting, connection and maintenance must be performed by **service personnel**.

6.3 It should be kept in mind that 220 V mains voltage in operating state is connected to input terminals that is dangerous for human life.

6.4 Installation, removing, wiring and repair of the panel should be made only when the A.C. mains is off.

6.5 The mounting works with the panel are allowed to be done with an electrical tool with 42 V max and 40 W max that has healthy isolation of current leading circuits from the electrical tool housing.

6.6 The fire safety rules should be kept when performing works with the panel.

6.7 The use of the panel without its enclosure earthing is forbidden.

6.8 The use of the panel in premises with aggressive admixtures causing corrosion is prohibited.

7 COMMISSIONING

7.1 Mounting

The panel should be sited in premises at a height to be convenient for operating and maintenance. The panel is designed to be mounted vertically. The marking for the panel's installation should be made in accordance with the mounting dimensions (Appendix 1). The connection of wires and cables should be made only through the holes at the bottom of the panel (Appendix 3).

***Note.** To prevent the panel's going to the Fault mode when the panel has been switched on without loads it is required to connect 3,3 kOhm resistors (supplied with the panel) parallel to terminals of all AL, outputs to light and sound alarms, outputs to CMS "Fire" and "Fault".*

7.2 AL wiring

Connect alarm loops to «Ch1»...«Ch8» contacts and «GND». Connect the plus wire of the AL to the contact «Chn», and the minus one – to contact « GND » (see Appendix 4).

The type and operation algorithm of loop can be set when programming the panel. The settings of the panel's configuration by default are shown in Section 8.11. The maximum resistance of AL, not considering the EOL resistor resistance, should not exceed 220 Ohm.

AL wiring diagrams (4-wire, 2-wire, active, passive, combined) appear in Appendix 6.

You should fix basic current for every new connected AL in the programming mode (see p.8.3).

7.3 Light and sound alarms circuit wiring

A light alarm should be connected to terminals «Light» and «GND». The plus contact of the alarm should be connected to contact «Light», and the minus one – to contact «GND » (see Appendix 4).

A sound alarm should be connected to terminals «Sound» and «GND». The plus contact of the alarm should be connected to contact «Sound», and the minus one – to contact «GND » (see Appendix 4).

Light and sound alarms with 12 V rated voltage and up to 300 mA current consumption can be connected to the panel.

***Note.** A resistor with from 1 to 10 kOhm resistance should be connected parallel to each pair of alarm's terminals in immediate proximity to the alarm to control circuit integrity of alarms.*

The panel operates in 5 modes of light and sound alarm.

The modes and other parameters should be set when programming the panel (Section 8, Table 8.7). The factory default setting is the pulsing mode with 1 Hz frequency.

7.4 220 V mains wiring

7.4.1 Attention! The mains wiring to the panel should be made only by service personnel.

7.4.2 The mains wiring to the panel can be done through the circuit with differential protection relay in main distribution board.

7.4.3 Connect the earth circuit with resistance not more than 4 Ohm to terminal «L» of the terminal block.

7.4.4 Check the 0,5 A fuse in the terminal block for presence and proper operation.

7.4.5 Connect the neutral mains cable to “~220 V” terminals so that the phase wire would be connected to «L» terminal and the null wire - to «N» terminal. Secure the circuit wire using a plastic binder.

7.4.6 Energize the panel. After that the panel performs test for not more than 20 s. Within this time all LEDs shall flash several times and the internal sounder shall shortly sound indicating its proper operation. While testing the panel also checks program and energy-independent data memory, initiates configuration, checks outputs, AL and power system for faults. When a fault has been detected while testing the Fault indicator flashes and internal sounder sounds (one long and two short signals). When the test is over the panel issues 3 short sound signals and returns to standby condition provided there are no faults and activated detectors in AL. If after the mains power has been switched on, none of LEDs are not lit, you should check the 0,5 A fuse in the terminal block for presence and proper operation.

7.5 Storage battery connection

Attention! You must connect a storage battery only after mains power has been on.

7.5.1 Connect the storage battery as it is shown on the figure in Appendix 3. Connect the black wire to the minus terminal, the red wire - with the plus terminal of SB.

***Note.** When connecting the storage battery the polarity should be kept. Incorrect polarity of connection leads to the «Fuse1 1.0A» failure.*

7.6 Authorized user mode

7.6.1 General overview

To access the panel's controls enter the access code. There are 8 programmable access codes for each of 8 users and one programmable engineer's access code.

Each user can have rights to control one or several AL, that allows to delimit responsibility for guarded premises.

To access the mode the access code of one of 8 users should be entered. The access code is entered with [1]..[8] buttons in Zone group and confirmed by pressing the Select button. After that if the entered code is correct, the Authorized user indicator turns on and the panel goes into the mode. To Exit the authorized user mode press the Cancel button 3 times or automatically if none of the buttons was pressed within 30 sec.

The following functions are available in the mode:

- disabling or enabling of zones;
- resetting of Fire, Fault, Alarm modes;
- resetting of all AL (temporal turning off of power for 5-6 sec. of all 2-wire and 4-wire AL);
- disabling (muting) or enabling (restoring) of output signals Light and Sound;
- disabling (muting) or enabling (restoring) of Fire output signal;
- disabling (muting) or enabling (restoring) of Fault output signal;
- testing the light indicators and internal sounder for proper operation.

7.6.2 AL disablement/enablement

To disable a switched on AL in the authorized user mode press for 2-3 sec the corresponding zone button ([1]..[8]). While the button is being pressed the internal sounder steadily sounds. The button should be kept pressed until the sound signal is silenced. When the sound has been muted the AL becomes disabled and the yellow light indicator of the AL and the Disabled general indicator switch on. As a result of the disablement the AL activates (the Fault output gets disabled).

After the panel has been deenergized and then energized again the status of AL disablement retains. Disablement and enablement of an AL can be made by pressing for 2-3 sec the button of corresponding zone. The internal sounder sounds while the button is being pressed. The button should be kept pressed until the sound signal is silenced. When the sound has been muted the AL gets enabled.

Disablement/enablement of an AL by a user is impossible if the user has not rights to control the AL. The user authorities can be set in the programming mode (see p. 8.7).

7.6.3 Resetting zones, Fire, Fault and Alarm modes

Resetting of the modes can be made in the authorized user mode by pressing for 2-3 sec the Reset button. In the same way as when the AL is disabled/enabled the internal sounder sounds while the button is being pressed. The button should be kept pressed until the sound signal is silenced.

7.6.4 Disablement of light and sound alarms (Light and Sound outputs)

To disable light and sound alarms in the authorized user mode pressing the [1] button while keeping pressed the Select button. Pressing the [1] button again while keeping pressed the Select button allows to enable the light and sound alarms when Fire or Alarm condition occur.

Disablement of light and sound alarm is indicated by the steady light of the yellow general indicator Disabled and Sounder indicator from the Disabled group.

7.6.5 Disablement of Fire output signal (Fire output)

Disablement of the Fire output signal («Fire») occurs automatically when resetting the Fire mode. For temporal disablement of the signal in the Fire mode the [2] button should be pressed in the authorized

user mode while keeping pressed the Select button. Making the same actions again allows to send the Fire signal to CMS in the Fire mode.

Disablement of the Fire output signal is indicated by the yellow Disabled indicator and the Fire output indicator from the Disabled group.

7.6.6 Disablement of Fault output signal

Disablement of the Fault output signal («**Fault**») occurs automatically when the fault has been eliminated or after the fault mode has been reset. For temporal disablement of the signal the [3] button should be pressed in the authorized user mode while keeping pressed the Select button. Making the same actions again allows to report the Fault signal to CMS in the Fault mode.

Disablement of the Fault output signal is indicated by the Disabled yellow indicator continuous light and the Fault output indicator's continuous light from the Disabled group.

7.6.7 Testing light indicators and internal sounder

To check all LEDs and internal sounder for proper operation press the Select button thrice. After that all LEDs shall flash 3 times and the internal buzzer shall sound. Verification is possible both on the 2nd access level (in the authorized user mode) and on the 1st access level (before entering user's code).

8 PROGRAMMING GUIDE

8.1 General overview

8.1.1 Entering the Programming mode

To access the programming mode enter the **engineer's access code** (factory default - [1][2][3][4][4][3][2][1]) by consecutive entering [1]...[8] buttons from the Zone group and confirm by pressing the **Select** button. Two short sound signals of different tonality from the internal sounder shall be heard after that and the Programming indicator shall be lit.

If you enter an incorrect access code 4 times in succession, the panel goes to Alarm mode.

***Note.** The entered access code before its confirmation can be reset by pressing the Cancel button. The code should be entered from the very beginning after resetting.*

8.1.2 Exiting the Programming mode

To exit the Programming mode enter [8][8][Select] using buttons from the Zone group. The panel shall reset and it shall go to standby mode provided there are no faults.

8.2 Description of programming

Programming the panel changes its parameter values. All parameters are grouped and divided into sections with each section having its code. The same type objects (with the parameter collection typical for the section) are grouped in each section.

Section 1 – configuration of AL. AL1..AL8 are included to the section. See Table 8.1.

Section 2 – configuration of Out1 and Out2 outputs. The section incorporates only 2 objects: Out1 and Out2 high current outputs. See Table 8.2.

Section 3 – configuration of K1..K4 outputs. There are 4 objects – K1..K4 low current outputs. See Table 8.3.

Section 4 – configuration of light and sound alarms. Outputs of “Light” and “Sound” alarms. See Table 8.4.

Section 5 – configuration of user settings (authorized user and engineer). 8 objects – users.

Section 6 – auxiliary settings.

Each parameter in the section has its own code.

E.g.: for Section 1 (configuration of AL):

Section 1. Object number: **1..8**; Code **1** – Setting of AL operation algorithm;

Section 1. Object number: **1..8**; Code **2** – Fixation of basic current;

Section 1. Object number: **1..8**; Code **3** – setting of AL type;

Section 1. Object number: **1..8**; Code **4** – setting of AL reset time.

Change of parameter values for each object, as a rule, is the consecutive entering of number sequence on the keyboard consisting of 5 figures:

[section code](1 figure) [object number](1 figure) [parameter code](1 figure)
[new parameter value] (2 figures) [Select].

Parameter codes and parameter values are shown in each section table.

E.g. You need to set the AL2 operation algorithm with verification. To do it you should enter [1][2][1] [1][2] [Select] in the programming mode. **Where:**

[1] (section code) [2] (number of object) [1] (parameter code) [1][2] (new parameter value)
configuration of AL AL number AL operation algorithm with verification

Besides the change of parameter values of objects the programming mode allows to review current parameter values. The current parameter value is displayed after entering the third figure of parameter code.

The object number is indicated by one of red indicators [1]..[8], and the parameter value (two figures) is indicated by the consecutive flashes of the corresponding green indicators [1]..[8] with short span between flashes. In 3-4 sec. the indication cycle is repeated again. The value of the selected parameter is defined by the sequence of green LED flashes. So, e.g., two flashes of green LED [1] correspond to the parameter value «11». The green LED flash [2], and after that the green LED [1] flash correspond to the parameter value «21» and so on.

If you enter the new value while the current parameter value is indicated then the new entered parameter value will be induced.

Correct entry of a new parameter value is confirmed by the 2-tone short sound signal. Entry of non-existing or impermissible parameter value is indicated by one long sound signal of low tonality, after that entering of parameter value can be made one more time.

To exit the 'parameter entering code' mode saving the new value in energy-dependent memory press the Select button. It will be confirmed by three short sound signals.

To return to the programming mode without saving changes made press the Cancel button or wait a minute (automatic return) if the button has not been pressed.

Note: Pressing the Cancel button at any moment of sequence entry leads to clearing of input buffer and resetting to the beginning of entering. So, if at any stage the incorrect code has been entered pressing the Cancel button leads to resetting the whole entered sequence. Correspondently, after pressing the Cancel button the section code, parameter code, parameter value should be entered.

Note:

The following parameters are the exceptions to the general rules:

- Section [1] parameter [2];
- Section [2] parameters [4] and [5];
- Section [3] parameters [4] and [5];
- Section [5] parameter [1].
-

For detailed description of the parameters configuration please refer to the corresponding sections.

8.3 Fixing AL basic current

Attention! This procedure is strongly required to be made when installing every new or making change to the existing alarm loop.

Basic AL current is the AL current defined in the panel as the AL standby mode current. The current is involved in identification of detectors' triggering in the AL.

Before this procedure is applied, the AL with a terminal element, where the basic current is to be fixed, should be wired to the panel while all detectors in AL should be in standby condition.

To fix the AL basic current in the 'parameter code entering' mode enter the following number sequence:

[1][2][N],

where [N] – zone number (1 .. 8).

When entering is complete the red indicator of the AL being measured shall be lit and the yellow indicator of the AL shall flash a few times signaling the measurement of AL drawing current. When the procedure is over all indicators shall be off and the internal sounder shall issue:

- 3 short sound signals if the setting of basic current in the AL has been successfully made;
- 1 long sound signal of low tonality if the measured AL current is beyond the limits of permissible current range (e.g. AL in S/C or O/C state).

After that the panel goes into the 'parameter entering code' mode.

8.4 Section 1. Configuration of AL

Table 8.1

Section	AL's number n	Parameter's code and name	Parameter's value	Description
1	n	1	AL operation algorithm	
			11	without verification (by default)
			12	with verification
			13	Two detectors' trigger
1	n	2	Fixation of AL basic current	
1	n	3	AL type	
			11	combined (by default)
			12	active
			13	passive
			21	combined – passive detector trigger priority
			22	combined – active detector trigger priority
			24	disabled
1	n	4	AL reset time	
			11	5 sec (by default)
			12	10 sec
			13	15 sec
			14	20 sec
			21	25 sec
			22	30 sec
			23	35 sec
			24	40 sec
1	n	5	AL verification time	
			11	10 sec
			12	20 sec
			13	30 sec
			14	40 sec
			21	60 sec (by default)
			22	120 sec
			23	180 sec
			24	240 sec
1	n	6	Current growth threshold to identify active detector trigger	
			11	1,0 mA
			12	2,0 mA
			13	3,0 mA
			14	4,0 mA (by default)
			21	5,0 mA
			22	6,0 mA
			23	7,0 mA
			24	8,0 mA
1	n	7	Current decrease threshold to identify passive detector trigger	
			11	0,8 mA
			12	1,2 mA (by default)
			13	1,6 mA
			14	2,0 mA
			21	2,4 mA
			22	2,8 mA
			23	3,2 mA

				3,6 mA
1	8	24 Feedback for intellectual detectors in AL		
			11	No feedback (by default)
			12	To make power outage in AL every second for 20 msec in Fire mode

8.5 Section 2. Configuration of «Out1» «Out2» outputs

Table 8.2

Section	Output's number Out n	Parameter's code and name	Parameter's value	Description
2	n	1	Output's functional purpose	
			11	4-wire AL power output (by default)
			12	Auxiliary adjustable light alarm output
			13	Auxiliary adjustable sound alarm output
			14	Output is not used
15	Output of 12V non-commutated power of auxiliary devices ВЫХОД			
2	n	2	Mode of output (if OutN – output to sounder)	
			11	disabled – passive state, continuous enabled – active state (by default)
			12	enabled– passive state, disabled – active state
			13	disabled – passive state, pulse mode – active state
			14	enabled– passive state, pulse mode – active state
15	enabled– passive state, pulse mode – active state, and disabled , if one of AL included to output activation condition is disabled by authorized user.			
2	n	3	Output's activation time (if OutN – output to detector)	
			11	1 sec
			12	5 sec
			13	10 sec
			14	30 sec
			21	1 min
			22	3 min (by default)
			23	10 min
			24	30 min
			31	1 h
			32	3 h
			33	10 h
34	not limited (till activation condition reset)			
2	n	4	Output's activation condition (Note 8.5.1)	
2	n	5	Mask of AL, involved to output's activation condition (Note 8.5.2)	
2	n	6	Type of output's load control	
			11	Control S/C alone (by default)

			12	Control S/C alone (fixing 1-10 kOhm resistor parallel to load is required)
			13	Control S/C and O/C
			14	No control
2	n	7	Time of transitional processes at output's switching	
			11	150 msec (default)
			12	200 msec
			13	250 msec
			14	300 msec
2	n	8	Frequency of pulse mode in output's active state	
			11	0,5 Hz
			12	1 Hz (by default)

Note 8.5.1

When output's activation condition is programmed the zone's red indicator indicates the number of output and [1]..[5] yellow LED light means events involved in the output's activation condition. At that steady yellow indicator light means entering activation condition.

Output's activation condition (if **Outn** is **output to sounder**):

- 1st LED (lit/not lit) – response to FIRE state in AL (enabled/disabled)
- 2nd LED (lit/not lit) – response to FAULT state in AL (enabled/disabled)
- 3rd LED (lit/not lit) – response to FAULT general state in AL (enabled/disabled)
- 4th LED (lit/not lit) – response to Detector's trigger state in AL (enabled/disabled)
- 5th LED (lit/not lit) y– response to ALARM general state in AL (enabled/disabled)

Example: if after entering [2][1][4] (activation condition of «**Out1**») [1]and[4] indicators are off, then «**Out1**» activates only after arising of “FIRE in AL” or “Detector's trigger in AL” events.

To change combinations involved in event activation condition press the appropriate buttons. Consecutive pressings result in turn-by-turn change of yellow indicator luminescence (enabled/disabled).

Pressing to the Select button results to going to programming mode with reset of changes made. Pressing the Select button results in going to programming mode with saving of the new activation condition for the output.

Note 8.5.2

If **Outn** is set as **power output of 4-wire AL** then the parameter sets mask of 4-wire AL powered from the output.

When the AL mask is being set, the red lit LED indicates the number if output, and steady light of yellow indicators [1] ... [8] means numbers of 4-wire AL powered from the output.

To change AL mask press the appropriate AL buttons, at that consecutive pressings result in turn-by-turn change of yellow AL LED luminescence – on/flash/off.

Pressing the Cancel button results in going to programming mode saving new AL mask in energy-independent memory.

If «**Outn**» is set as **output to light or sound alarm**, then the parameter sets loops involved in activation condition of «**Outn**».

In activation condition of each output from 1 to 8 AL with operation logics by AND/OR can be involved. When programming one of red LED displays the output number and light of [1]..[8] yellow indicators denotes the AL involved into activation condition of the output. The **steady** light of yellow indicator means entering to activation condition of the AL by **AND**, and flashing of zone yellow indicator denotes entering of the AL by **OR**.

Example: if on entering the number sequence [2][1][5] (AL mask set-up for loops involved into activation condition of Out1 output) [1] yellow indicator flashes and [3] and [4] yellow indicators are steadily lit, then the activation condition is the expression:

$$\mathbf{Out1 = AL1 OR (AL3 AND AL4)}.$$

If response to the Fire event is set in the activation condition of the output (see Note 8.5.1), then in this case the «**Out1**» output activates provided that AL1 or both loops AL3 and AL4 will go to the Fire condition.

To change combination of loops involved into the activation condition of loops press the corresponding zone button. Thus consecutive pressing causes turn-by-turn lighting up of yellow zone indicator (on/flash/off) that corresponds to the change of logical condition (**AND, OR, AL not involved to condition**). Pressing the [Cancel] button leads to going to the programming mode with resetting of the changes made. Pressing the [Select] button leads to going to the programming mode with saving of new activation condition for the output.

8.6 Section 3. Configuration of «K1» .. «K4» outputs

Table 8.3

Section	Output number Kn	Code and name of parameter	Parameter's value	Description
3	n	2	Setting of Kn output mode	
			11	disabled – passive state, enabled – active state (by default)
			12	Enabled – passive state, disabled – active state
			13	Disabled – passive state, pulsing mode – active state
			14	Enabled – passive state, pulsing mode in active state
			15	Enabled – passive state, pulsing mode in active state if one of AL involved to activation condition is disabled by an authorized user.
3	n	3	Setting of Kn output activation time	
			11	1 sec.
			12	5 sec.
			13	10 sec.
			14	30 sec.
			21	1 min.
			22	3 min.
			23	10 min.
			24	30 min.
			31	1 h
			32	3 h
			33	10 h
34	Not limited (till resetting of activation condition) (by default)			
3	n	4	Output's activation condition (see Note 8.5.1 in the previous section)	
3	n	5	Mask of loops involved to activation condition of the output, (see Note 8.6.1)	
3	n	6	Type of load control of Kn output	
			11	Control only «S/C» (by default).
			12	Control only «O/C» (1-10 kOhm resistor is required to be installed parallel to load)
			13	Control «S/C» and «O/C».
14	No control.			
3	n	7	Time of transition processes at Kn switching	
			11	150 msec (by default)
			12	200 msec
			13	250 msec
14	300 msec			
3	n	8	Frequency of output's pulsing mode	
			11	0,5 Hz
			12	1 Hz (by default)

Note 8.6.1

AL mask determines the AL involved to «Kn» activation condition.

From 1 to 8 alarm loops with AND/OR operation logics can be involved to activation condition of each output. When programming the parameter one of red LED displays the output's number, and [1]..[8] yellow indicators light indicates the loops involved to activation condition of the output. Thus the **steady** light of yellow zone indicator means the zone going to activation condition by **AND**, and flashing of zone yellow indicator means entering the activation condition of the output by **OR**.

Example: if on entering the number sequence [2][3][5] (AL mask setting for loops involved to activation condition of **K3** output) [1] yellow indicators is flashing and [3] and [4] yellow indicators are steadily lit then the activation condition for the **K3** output is the expression:

$$\mathbf{K3} = \mathbf{AL1} (\mathbf{AL3} \text{ AND } \mathbf{AL4}).$$

If response to the Fire event is set in the activation condition of the output (see Note 8.5.1), then in this case the «**K3**» output activates provided that **AL1** or both loops **AL3** and **AL4** will go to the Fire condition.

To change combination of loops involved into the activation condition of loops press the corresponding zone button. Thus consecutive pressing causes turn-by-turn lighting up of yellow zone indicator (on/flash/off) that corresponds to the change of logical condition (**AND, OR, AL not involved to condition**).

Pressing the [Cancel] button leads to going to the programming mode with resetting of the changes made. Pressing the [Select] button leads to going to the programming mode with saving of new activation condition for the output.

8.7 Section 4. Configuration of sounders.

N = 1- light alarm («Light» output)

N = 2 – sound alarm («Sound» output)

Table 8.4

Section	Output's number	Code and name of parameter	Parameter value	Description
4	N	2	Sounder mode	
			11	Disabled – passive state, enabled – active state
			12	Enabled – passive state, disabled – active state (parameter's value only for light alarm)
			13	disabled – passive state, pulsing mode – active state (by default).
			14	enabled – passive state, pulsing mode in active state (parameter's value only for light alarm)
			21	Enabled – passive state, pulsing mode in active state and disabled if one of AL is disabled by authorized user. (parameter's value only for light alarm)
4	N	3	Active state's time	
			11	1 sec
			12	5 sec
			13	10 sec
			14	30 sec
			21	1 min
			22	3 min (by default)
			23	10 min
			24	30 min
			31	1 h
			32	3 h
33	10 h			
34	Not limited (till resetting the activation condition)			
4	N	6	Type of load control of the output	
			11	Control only «S/C»
			12	Control only «O/C» (1-10 kohm resistor is required to be installed) parallel to load.
			13	Control «S/C» and «O/C» (by default)
			14	No control.
4	N	7	Time of transition processes at output's switching	
			11	150 msec (by default)
			12	200 msec
			13	250 msec
			14	300 msec
4	N	8	Frequency of pulsing mode in active state of the output	
			11	0,5 Hz
			12	1 Hz (by default)

The panel allows to set one of 2 modes of light-sound alarm output («L/S» output): pulsing or steady.

To view and change the mode of the light-sound alarm it is required to enter using number buttons:

[2][1][1]

As a result the red indicator **[1]** turns on, and the mode of the light-sound alarm's operation is defined by the yellow indicator light **[1]**:

Steady light – non-stop mode;

Flashing light – pulsing mode.

To consecutively change a light-sound alarm's mode it is required to press [1] button. Pressing the Cancel button causes the going into the programming mode with resetting of the changes made. Pressing the Select button causes the going into the programming mode with the new mode storage.

8.8 Section 5. Configuration of user's settings.

8.8.1 Change of user permissions (user rights)

The user access to control the certain loops is regulated by user permissions.

To view and change user permissions it is required to enter:

[5][N][1], where [N] – user's number (1 .. 8).

After that one of red indicators [1] .. [8] highlights the user's number and [1] .. [8] yellow indicators lights indicate those AL the user has rights on.

The user has rights to control a zone if the yellow indicator corresponding to the zone is on, and does not have rights if the corresponding indicator is off.

Removal/setting rights to control the AL is made by pressing the button with the corresponding zone number [1] .. [8].

Pressing the Cancel button leads to going into the programming mode with resetting the changes made. Pressing the Select button leads to going into the programming mode with saving the changes made.

8.8.2 Change of authorized user access code

To change the authorized user access code it is required to enter using the number buttons: [5][N][2], where [N] – user's number (1 .. 8).

After that one of red indicators [1]..[8] denoting the user's number starts flashing with frequency 1 Hz.

Further, enter the new user's code from 1 to 8 characters long using number buttons then press the Select button. If the entered code is accepted then 2 intermittent sound signals shall sound for a minute. During this time it is required to repeat the access code entering and press the Select button.

The successful change of the code is accompanied with 3 short sound signals. If entered codes do not coincide the panel shall issue one long sound signal of low tonality.

To deter unauthorized control of the AL it is **recommended** to change access codes set by default.

Example: to set the access code of the 2nd user that is equal [1][3][1][2] you should enter:

[5][2][2] – 2 short sound signals;

[1][3][1][2] [Select] – intermittent sound signals;

[1][3][1][2] [Select] – 3 short sound signals. The access code of the 2nd user is changed.

8.8.3 Change of engineer access code

Change of the engineer access code occurs in the same way as the change of the user's access code but to enter the procedure of password change it is required to enter [8][2] [Select] instead of [5][N][2]. Unlike authorized user code, maximum length of the engineer access code is extended to 10 characters.

8.9 Resetting panel configuration to factory defaults

This operation resets a panel configuration to the settings indicated in Section 8.11. For that it is required to consecutively press buttons [8][1] [Select] in the programming mode.

After that during 9-10 sec. all four red indicators "Zone" will flash. To confirm the decision made about resetting to factory defaults you should press the Select button. As a result the panel changes its configuration in accordance with default settings.

If during the delay none of the buttons has been pressed or any button except for the Select one has been pressed then the panel returns to the programming mode not downloading default parameters.

8.10 Resetting engineer access code to factory defaults

If the engineer's access code has been lost which is different to the default access code, then it is impossible to enter the programming mode in order to change the panel configuration. To change engineer's access code to the default code [1][2][3][4][4][3][2][1], follow the steps below:

- deenergize the panel from the 220 V A.C. mains and also disconnect the storage battery from the panel;
- close the contacts of the Reset joint of the main control PCB with a jumper strap (see Appendix 4) and then connect the panel to 220 V A.C. mains. On energizing the series of 3 short sound signals with the long interval between series shall sound;
- turn off the power supply of the panel then remove the jumper strap. On the following turning on the power supply the panel will be activated with the factory engineer access code.

8.11 Factory defaults

AL1 zone type of– fire, without verification.

AL2 zone type – fire, without verification.

AL3 zone type – fire, without verification.

AL4 zone type – fire, without verification.

AL5 zone type – fire, without verification.

AL6 zone type – fire, without verification.

AL7 zone type – fire, without verification.

AL8 zone type – fire, without verification.

Reset time of each AL – **5 sec.**

Verification time of each AL – **60 sec.**

Current growth threshold of active detector in each AL – **4,0 mA.**

Current drop threshold of passive detector in each AL – **1,2 mA.**

Feedback for intellectual detectors in AL – **no feedback.**

Functional purpose of Out1 and Out2 outputs – **4-wire AL power output;**

Load control of Out1 and Out2 outputs - **only S/C control;**

Time of transition processes at outputs switching – **150 msec;**

K1..K4 mode is disabled – passive state,

Continuously enabled – active state.

K1 output is active when there are Fire signals on AL1 and AL2.

K2 output is active when there are Fire signals on AL3 and AL4.

K3 output is active when there are Fire signals on AL5 and AL6.

K4 output is active when there are Fire signals on AL7 and AL8.

Activation time of output – not limited (till removing activation conditions);

Type of output's load control - **only S/C control;**

Time of transition processes at outputs switching – **150 msec;**

Mode of the LIGHT and SOUND alarms – **off – passive state, pulsing – active state;**

Time of activation – **3 min;**

Type of output's load control - **S/C and O/C control;**

Time of transition processes at outputs switching – **150 msec;**

Pulsing mode frequency in output's active state – **1 Hz;**

1st user. Access code – [1][1][1][1]. Rights on all AL.

2nd user. Access code – [1][1][1][2]. Rights on all AL.

3rd user. Access code – [1][1][1][3]. Rights on all AL.

4th user. Access code – [1][1][1][4]. Rights on all AL.

5th user. Access code – [1][1][1][5]. Rights on all AL.

6th user. Access code – [1][1][1][6]. Rights on all AL.

7th user. Access code – [1][1][1][7]. Rights on all AL.

8th user. Access code – [1][1][1][8]. Rights on all AL.

Engineer access code – [1][2][3][4][4][3][2][1].

9 GUARANTEES OF THE MANUFACTURER (SUPPLIER)

The manufacturer warrants the compliance of the panel with the requirements of technical conditions provided that the conditions of operation, transportation, storage and mounting set by the technical conditions are kept by the user. The guarantee term is 12 months from the date of commissioning, but not more than 18 months from the date of shipment to the customer's address.

10 CERTIFICATE OF RECLAMATIONS

Reclamations for the manufacturer can be sent with the manual where should be included:

- date of production, technical control mark, signature and stamp;
- fault type;
- place of the panel's installation;
- customer's address.

11 SPARE PARTS AND ACCESSORIES LIST

Table 12.1

#	Name	Quantity
1	Fuse 0.5 A	1
2	Fuse 1.0 A	1
3	Resistor 3,3 kOhm 0,25W	11
4	Resistor 2,4 kOhm 0,25W	8

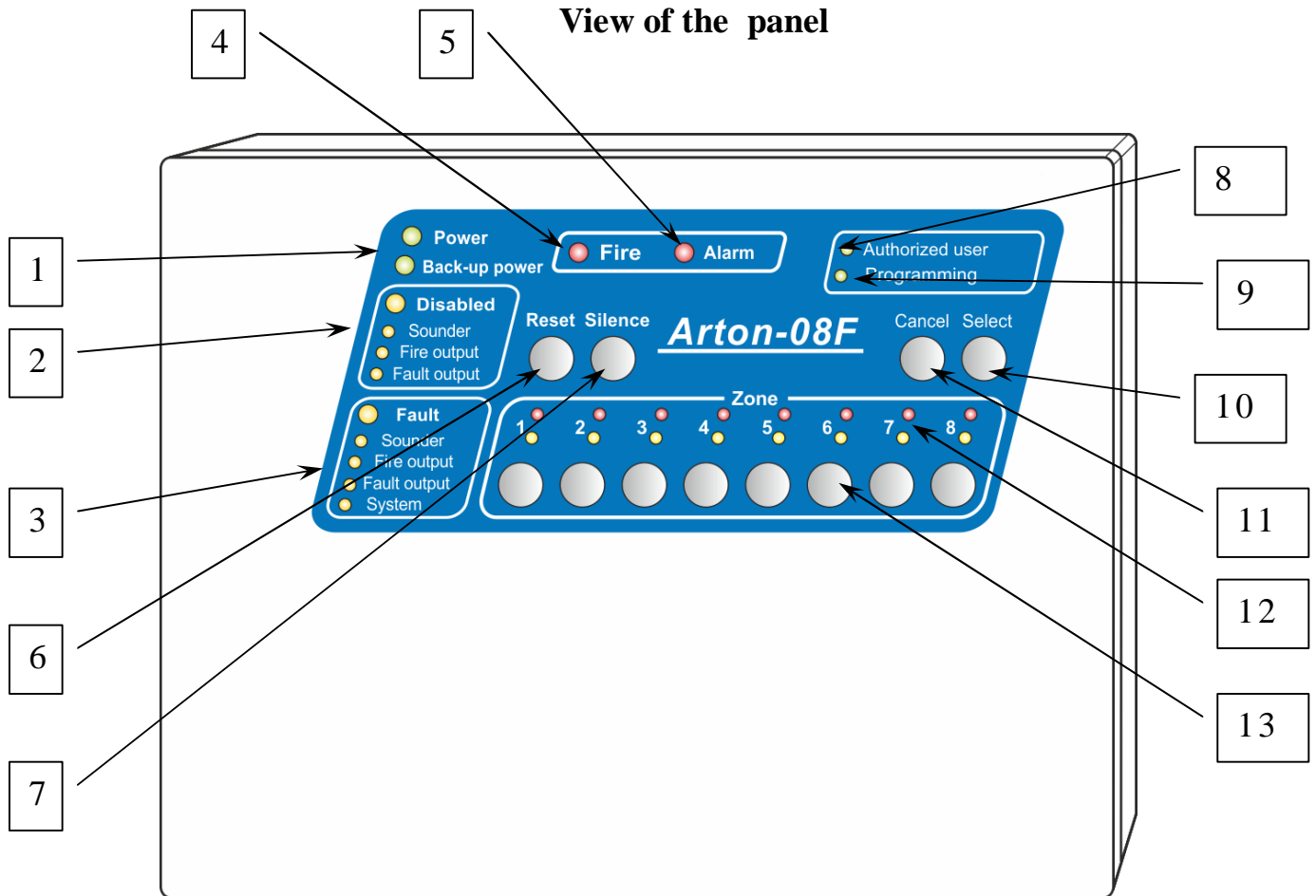
12 MAINTENANCE

12.1 Maintenance should be made at least once a year.

12.2 Maintenance works should be made by a worker from a serving organization and include:

- a) examination of the external status of the panel;
- b) checking for proper operation in accordance with the indications in Section 7 of the present document;
- c) checking reliability of the panel's fixing, state of external mounting wires, contact joints;
- d) checking parameters and fixation of current of loop standby mode;
- e) checking time of activation and operation modes of the light-sound alarm and programmable outputs.

APPENDIX 1



1 – 2-colour indicators “**Power**” and “**Back-up power**” are used for indication of the 220 V A.C. mains statu, storage battery and charger (green light – Norm, yellow light - Fault);

2 – group of yellow indicators of DISABLED mode.

It includes the **Disabled** general indicator and indicators of disablement of separate outputs:

Sounder – disablement of the light and sound alarms outputs;

Fire output – disablement of the Fire output;

Fault output – disablement of the Fault output;

3 – group of yellow indicators of the FAULT mode. It includes the Fault general indicator and indicators of the following faults:

Sounder – fault of the light-sound alarm output («L/S»);

Fire output – fault of the Fire output («Fir»);

Fault output– fault of the Fault output («Flt»);

System – system error.

4 – red indicator «Fire» is used for indication of FIRE mode;

5 – red indicator «Alarm» is used for indication of ALARM mode as the result of unauthorized access to the panel (opening of the lid) or repeated entering incorrect access code;

6 – **Reset** button is for resetting of FIRE, ALARM and FAULT modes;

7 – **Silence** button is for silencing the internal buzzer;

8 – Authorized user mode;

9 – Programming mode;

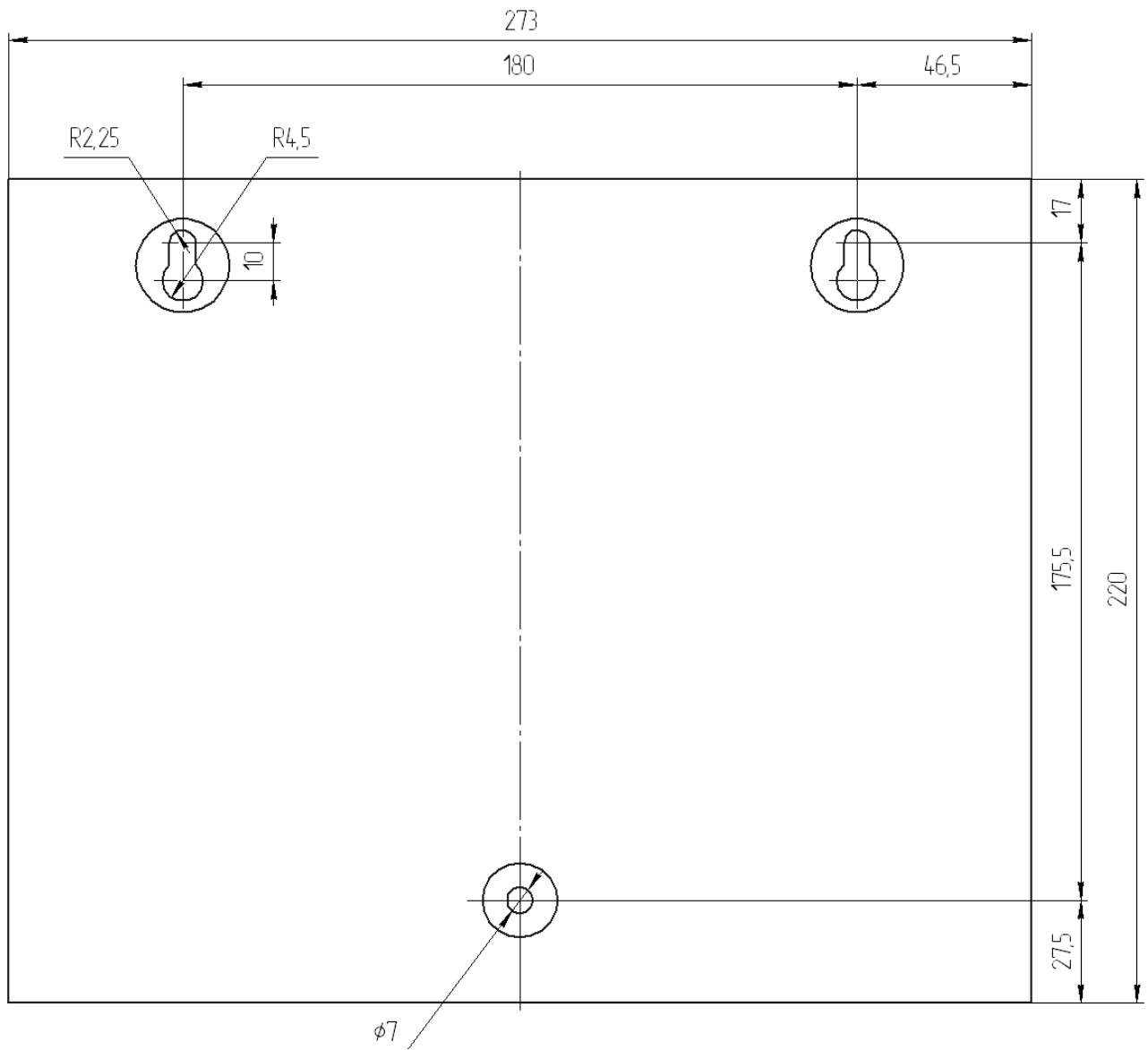
10 – **Select** button is used for acknowledgment of the access code entering. It is also used for checking the LEDs and internal buzzer for proper operation. It is used in the authorized user’s mode and while programming the panel;

11 – **Cancel** button is used to cancel the entered access code and also in the programming mode of the panel;

12 – group of 16 indicators. 8 red indicators in the upper line are used to indicate FIRE status. 8 indicators in the lower line are dual colour. Yellow light indicates AL status – FAULT and DISABLEMENT. Green light indicates parameter's value in the programming mode;

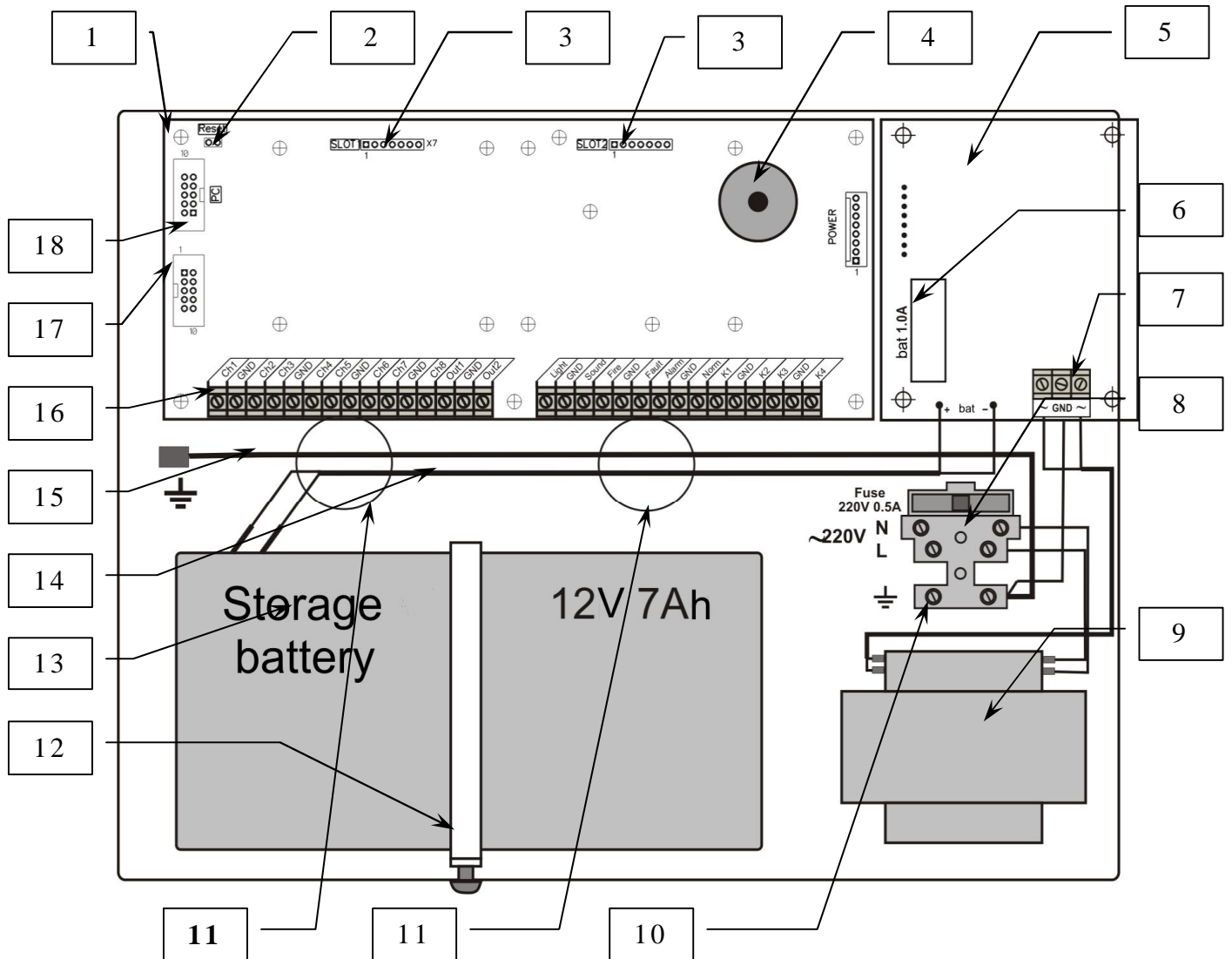
13 – Buttons «1»..«8» of the Zone group are for entering the access code, AL control in the authorized user's mode and adjustment of the panel in the programming mode.

APPENDIX 2
Dimensions



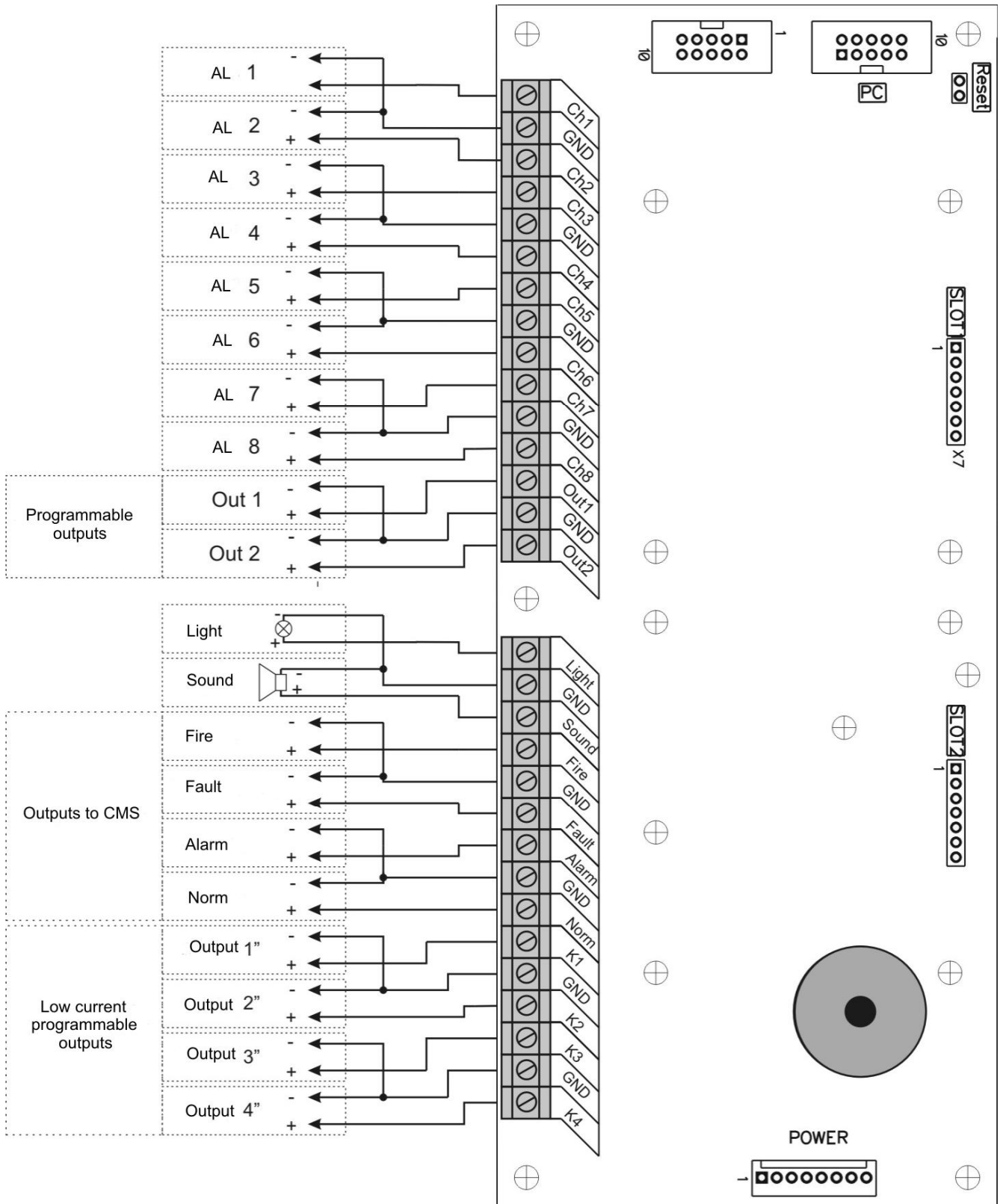
APPENDIX 3

Layout of units, blocks and components of the panel inside the cabinet



- 1 – main control PCB;
- 2 – «Reset» connector;
- 3 – interface joints for connection of expansion blocks;
- 4 – internal sounder;
- 5 – power supply PCB (PS);
- 6 – fuse in storage battery circuit (1.0 A);
- 7 – terminals for connection of secondary winding of the transformer and grounding;
- 8 – terminal block with fuse holder 0.5 A for connection of the panel to 220 V A.C. mains;
- 9 – mains transformer;
- 10 – grounding terminal;
- 11 – holes for introducing wires and cables;
- 12 – bracket with screw for fastening of SB;
- 13 – storage battery (SB);
- 14 – wires for connection of SB; 15 – grounding wire;
- 16 – terminals for external connections (see Appendix 4);
- 17 – connector of keyboard and indication block;
- 18 – connector for computer coupler.

Main control PCB layout



Terminals:

- GND** - common (minus) wire;
- Ch1..Ch8** - connection of AL;
- Out1, Out2** - programmable outputs (max load current should not exceed 300 mA). They can be programmed as 4-wire power outputs, outputs of ight-sound alarms or as non-commutable power output of auxiliary devices (+12 V);

- Light** - to connect light alarm (LIGHT);
- Sound** - to connect sound alarm (SOUND);
- Norm** – Norm output;
- Fire** – Fire output to CMS;
- Fault** – Fault output to CMS;
- Alarm** – Alarm output to CMS;
- Norm** – Norm output to CMS;
- K1..K4** – low current programmable outputs (max load current should not exceed 50

mA). Depending on the CP's settings they can be used as outputs of external indication of the status (Standby mode, Fire) or as outputs for transmission of the FIRE notification on logical condition (activation condition).

***Note.** To control the integrity of communication lines of outputs «Light» «Sound» «Fire» «Fault» it is necessary parallel to loads to connect resistors (from 2 kOhm to 10 kOhm - not indicated on the diagram). Resistors should be connected up from the side of load.*

APPENDIX 5

Description of light and sound indication of modes

	Status	Condition of common indicators						Zone N	Internal sounder
		Power	Back up power	Fire	Alarm	Fault	Disabled		
1.	Standby mode (Norm)	Green	Green	–	–	–	–	–	–
2.	FIRE	*	*	Red 1Hz	*	*	*	Red 1Hz	«Fire»
3.	ALARM	*	*	*	Red 2Hz	*	*	*	«Alarm»
4.	Verification of fire AL	*	*	*	*	*	*	Red 0,5Hz Porosity 8	*
5.	Fire AL disabled	*	*	*	*	*	Yellow	Yellow	*
6.	Fire AL open-circuit	*	*	*	*	Yellow (0,5Hz)	*	Yellow 0,5Hz	«Fault»
7.	Fire AL short-circuit	*	*	*	*	Yellow 1Hz	*	Yellow 1Hz	«Fault»
8.	220 V mains failure, SB is charged	Yellow 0,5Hz Porosity 8	Green	*	*	Yellow 0,5Hz Porosity 8	*	*	«Fault»
9.	220 V mains failure, U SB < 10,9 V SB is discharged	Yellow 0,5Hz Porosity 8	Green 1Hz	*	*	Yellow 0,5Hz Porosity 8	*	*	«Fault»
10.	SB is absent	Green	Yellow 0,5Hz	*	*	Yellow 0,5Hz	*	*	*
11.	220 V mains failure and U SB < 10,5V (full discharge of SB)	–	Yellow 0,5Hz Porosity 8	–	–	–	–	–	–
12.	Fault of charger		Yellow 2Hz			Yellow 2Hz	*	*	
13.	Short-circuit of outputs	*	*	*	*	Yellow 1Hz	*	*	«Fault»
14.	Short-circuit of light-sound alarm	*	*	*	*	Yellow 1Hz	*	*	«Fault»
15.	Short-circuit of Fire output	*	*	*	*	Yellow 1Hz	*	*	«Fault»
16.	Short-circuit of Fault output	*	*	*	*	Yellow 1Hz	*	*	«Fault»
17.	Open-circuit of light-sound alarm	*	*	*	*	Yellow 0,5Hz	*	*	«Fault»
18.	Open-circuit of Fire output	*	*	*	*	Yellow 0,5Hz	*	*	«Fault»
19.	Open-circuit of Fault output	*	*	*	*	Yellow 0,5Hz	*	*	«Fault»
20.	Absence of 12 V voltages or U _{AL}	*	*	*	*	Yellow 1Hz	*	*	«Fault»
21.	System error	*	*	*	*	Yellow 1Hz	*	*	«Fault»
22.	Light-sound alarm is disabled	*	*	*	*	*	Yellow	*	*
23.	Fire signal issuing for CMS is disabled	*	*	*	*	*	Yellow	*	*
24.	Fault signal issuing for CMS is disabled	*	*	*	*	*	Yellow	*	*

Note. The corresponding indicators are steadily lit in the Authorized user and Programming modes.

The Sounder, Fire output or Fault output indicators can be lit displaying fault or disablement of the corresponding outputs in addition to general indicators “Fault” and “Disabled” in the Fault and Disabled modes.

The following signs apply in the table.

- sign «-» in cells of the line (mode) denotes the absence of illumination of corresponding indicators or sounding of the internal sounder in the mode;
- sign «*» in cells of the line (mode) denotes that other modes can influence the condition of corresponding indicators or the internal sounder (as the panel can be simultaneously in several modes);
- scripts «Green», «Red», «Yellow» denote the colour of corresponding indicator light;
- scripts in cells of the table «1Hz», «2Hz», «0,5Hz» (if they are present) denote the frequency of the indicator's flashing and the absence of scripts of frequency denotes steady light of the indicator;
- script «Porosity 8» means the porosity of the indicator's flashing – **impulses movement period ratio per glow duration.**

Example: Script in a cell

Yellow

0,5Hz

Porosity 8

defines the indicator's flashing yellow with frequency 0,5 Hz (repetition period 2 sec) and porosity 8, that is the glow duration is in 8 times less of repetition period and is 0,25 sec.

- scripts "Fire", "Fault", "Alarm", "220 V is absent" in the last column mean the different soundings of the internal sounder.

Recommended wiring diagrams

Typical active detector circuit wiring
(models SPD-3.1M, SPD-3.5, SP-2.1, SPT-2B, SPT-3 and others)

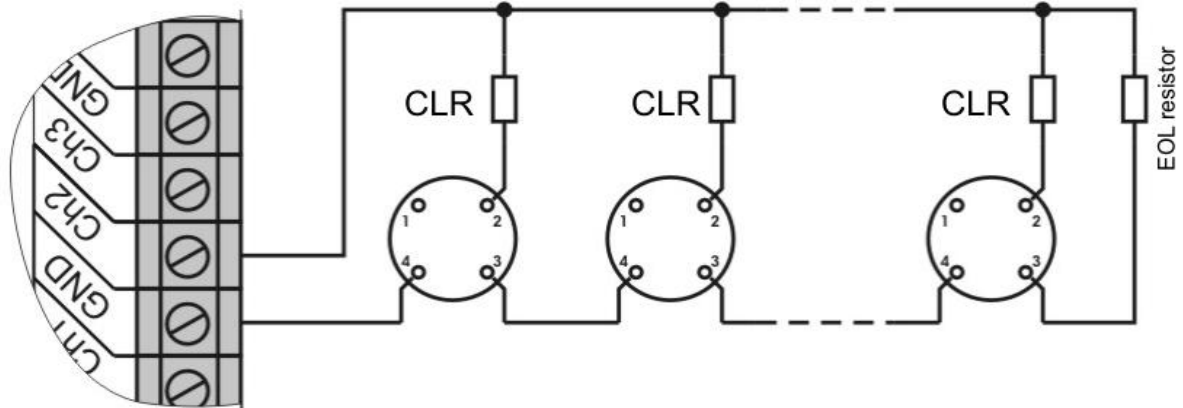


Figure 6.1

The number of detectors in AL should be such that the total current consumption of all detectors in standby mode would be not more than 3 mA. According to EN 54:2-2003 up to 32 detectors can be interconnected in one AL.

CLR=680Ohm-1,2kOhm
EOL resistor=3kOhm-3,6kOhm

Typical heat detector circuit wiring
(models TPT-2, TPT-3, SPT-1A, SPT-2A, SPT-3A)

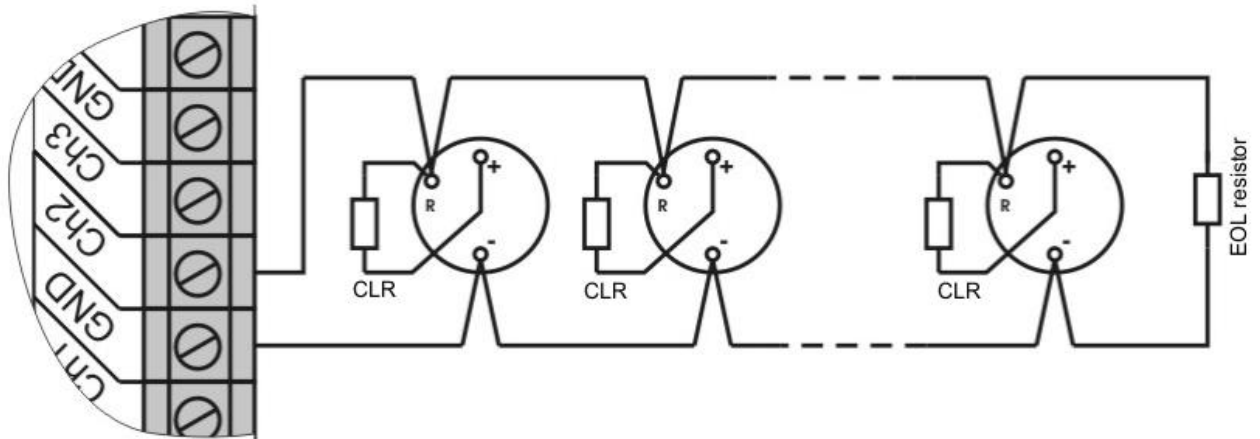


Figure 6.2

The number of detectors in AL should be such that the total current consumption of all detectors in standby mode would be not more than 3 mA. According to EN 54:2-2003 up to 32 detectors can be interconnected in one AL. Recommended CLR – 680 Ohm. EOL resistor – 3,3 kOhm.

CLR=680Ohm-1,2kOhm
EOL resistor=3kOhm-3,6kOhm

Example of combined circuit wiring

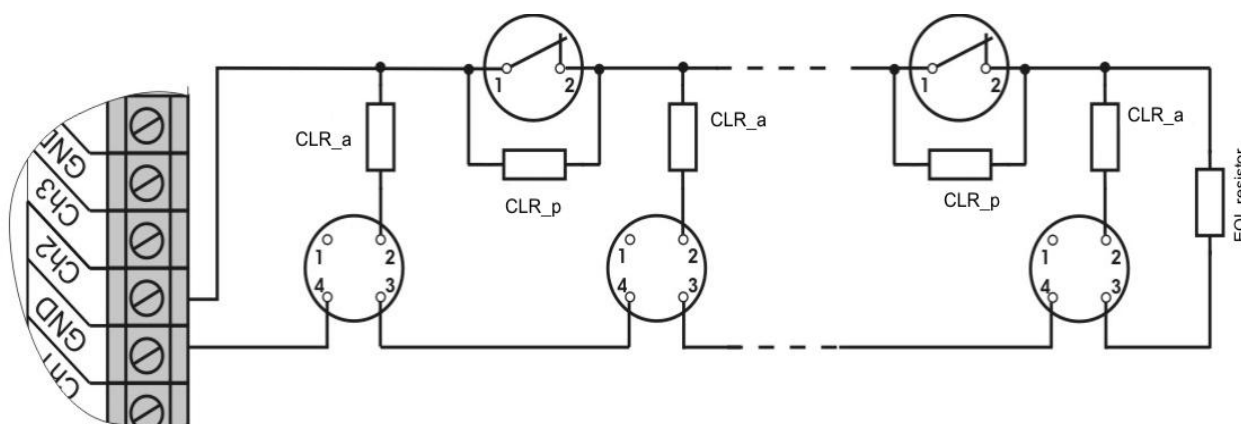


Figure 6.3

The number of detectors in AL should be such that the total current consumption of all detectors in standby mode would be not more than 3 mA. The maximum number of active detectors in one AL should be not more than 15. Up to 25 passive detectors can be interconnected in one AL.

CLR_a (active detectors) – 680 Ohm

CLR_p (passive detectors) – 1,2 kOhm

EOL resistor – 2,4 kOhm

Example of wiring of detectors like SPD-3.2, SPD-3.3 in 4-wire AL

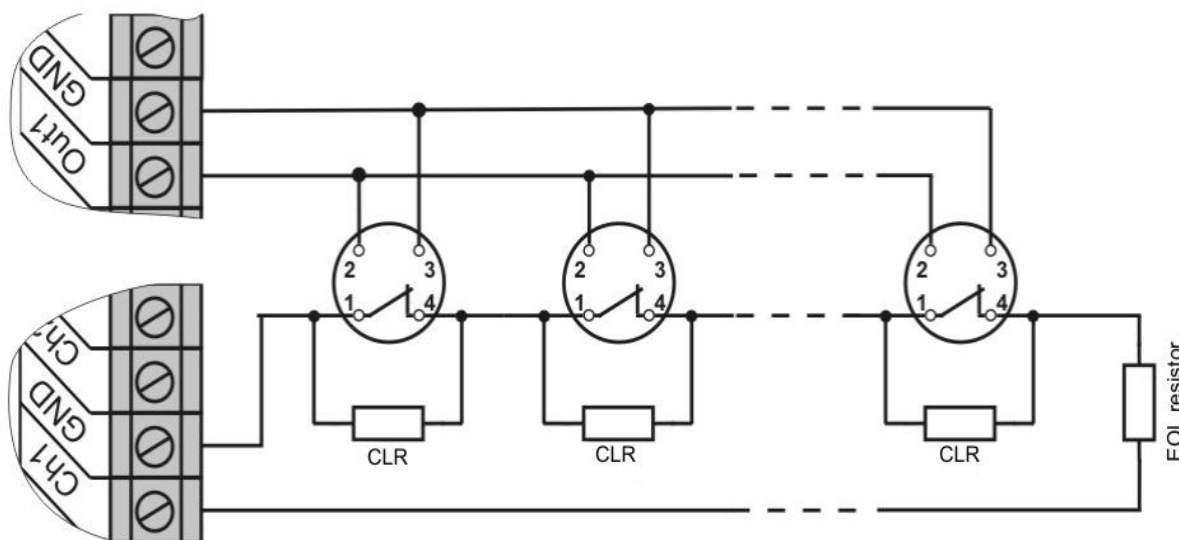


Figure 6.4

According to EN 54:2-2003 up to 32 detectors can be interconnected in one AL.

It is recommended to use detectors with inbuilt R_d resistors, and at the end of the loop - to use the B100M base.

CLR=680Ohm

EOL resistor=1,5kOhm

Example of wiring of detectors SPD-3.10 type with the B0 base

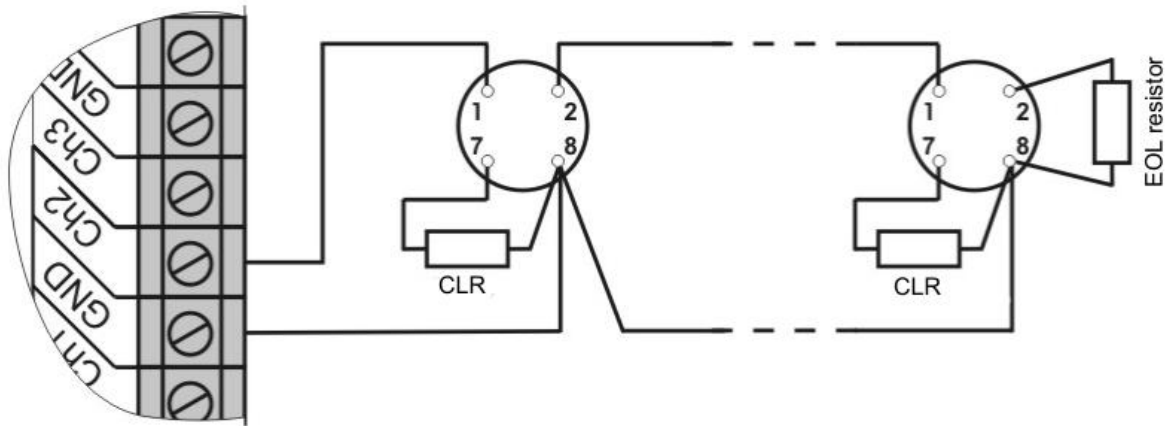


Figure 6.5

The number of detectors in AL should be such that the total current consumption of all detectors in standby mode would be not more than 3 mA. According to EN 54:2-2003 up to 32 detectors can be connected in one AL.

CLR=680Ohm-1,2kOhm
EOL resistor=3kOhm-3,6kOhm