

# FIRE ALARM CONTROL PANEL

## POLON 3000

POLON 3064, POLON 3128 and POLON 3256 variants

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### QUICK START GUIDE

IO-E388-101

Change II



The POLON 3000 fire alarm control panel, which is the subject of this **QSG**, meets the essential requirements of the following Regulations of the European Parliament and of the Council (EU) and European Union directives:

- CPR** CPR / 305 / 2011 Regulation (EU) of the European Parliament and of the Council of March 9, 2011 on establishing harmonized conditions for the marketing of construction products and repealing Council Directive 89 / 106 / EEC;
- LVD** Directive 2014 / 35 / EU relating to electrical equipment designed for use within certain voltage limits;
- EMC** Directive (EU) 2014 / 30 / EU on electromagnetic compatibility.

The POLON 3000 fire alarm control panel was issued a certificate of constancy of performance by JC CNBOP-PIB in Józefów, a notified body No. 1438 in the EU, confirming the compliance of the characteristics/technical parameters of the control panel with the requirements of PN-EN 54-2:2002+A1:2007 and EN 54-4:1997+A1:2002+A2:2006.

The product has a certificate of approval issued by CNBOP-PIB.

The possessed features/technical parameters exceeding the requirements of the above-mentioned standards and other features/parameters of the product specified in this manual, not specified by the above-mentioned standards, are confirmed by the Manufacturer.

The certificate , certificate of approval and declaration of performance are available on the website [www.polon-alfa.pl](http://www.polon-alfa.pl)

Please read this manual carefully before starting the assembly and operation.

Failure to follow the recommendations in this manual may prove dangerous or result in violation of applicable regulations.

The POLON-ALFA manufacturer shall not be liable for damages resulting from use that does not comply with this manual.



**PLEASE NOTE!** POLON-ALFA reserves the right to introduce changes.

The worn-out product, unfit for further use, should be handed over to one of the points engaged in the collection of waste electrical and electronic equipment.



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This manual allows you to familiarize yourself with the principles of safe use of the POLON 3000 fire alarm control panel.

**It is essential to read the Technical and Operational Documentation No. ID E388-001 (IMM) of the POLON 3000 control panel before installation and operation of the device.**

**OMM** contains crucial information's for installation designers, installers and maintainers, as well as instructions for configuring and checking the operation of the control panel after installation.

**Documentation is available on the website: [www.polon-alfa.pl](http://www.polon-alfa.pl)**

**At the customer request a full version of the OMM in paper form can be provided.**

Failure to comply with the recommendations contained in this Manual and in the documents referred to above may prove dangerous or result in a violation of applicable regulations.

POLON-ALFA is not liable for any damage resulting from use inconsistent with the above-mentioned documents.

## **1. Safety conditions**

The POLON 3000 modular fire alarm control panel is designed to protect life and property against fire hazards. The unit is designed for continuous operation in rooms with low dust, in the temperature range from – 5 °C to +40 °C and at relative air humidity up to 80 % at +40 °C.

Failure to comply with the safety requirements contained in the device's operating instructions may result in irreversible damage to the device and may result in material loss, injury and/or death.

### **1.1. Safety of installation and equipment**

POLON 3000 fire alarm control panels are classified as Class I equipment and may be used only in the case of application of additional anti-shock protection, in the form of protective earthing.

The insulation of the 230 V/50 Hz mains supply circuits is reinforced and withstands the test voltage of 2800 V, and the insulation of the low-voltage circuits (below 42 V) resists the test voltage of 700 V DC.

The wiring system should be made with cables with the required fire resistance and properly protected, with crossings through the boundaries of fire zones. In order to avoid unwanted impact, the required distances of the low-voltage installation from the electrical power and lightning protection system must be maintained. From the point of view of the system resistance to interference, it is recommended to use a protective earthing system. Backup batteries should be placed in the control panel at the final stage of installation. The components of the described device are sensitive to heat. The maximum ambient temperature should not exceed +40 °C. Do not cover the ventilation openings of the control panel. The space left around it should be large enough for air to flow freely. Air humidity in rooms where the device is operated should not exceed 95 %.

## 1.2. Repairs and Maintenance

Maintenance work and periodic inspections must be performed by authorized personnel of companies authorized or trained by POLON-ALFA. All repairs must be carried out by the manufacturer.

POLON-ALFA is not responsible for the operation of equipment maintained and repaired by unauthorized personnel.

## 1.3. Fuse replacement

The control panel construction is mainly based on automatic, electronic short-circuit protection systems or protection devices, intended to be replaced only under the manufacturer's service conditions. The exception is the protection of the batteries in the form of a safety fuse. When replacing a fuse link, use a replacement of the correct type and nominal value.

## 2. Technical parameters

|  |   |   |
|--|---|---|
| <b>General parameters</b>                          | Overall dimensions L x H x G<br>Weight (without batteries)<br>Housing tightness<br>Operating temperature range<br>Permissible relative humidity of operation<br>Transport temperature range<br><b>Max. Number of line elements supported by the control panel:</b> <sup>1)</sup><br>Variant: POLON 3064<br>POLON 3128<br>POLON 3256   | 339 x 402 x 90 mm<br>< 6 kg<br>IP 30<br>-5 °C ÷ +40 °C<br>95 % at +40 °C<br>-25 °C ÷ +55 °C<br>64<br>128<br>256   |
| <b>Power supply</b>                                | <b>Primary power supply (230V mains)</b><br>Voltage<br>Current<br>Power<br>MZ-30 power supply module<br><br><b>Backup power supply</b><br>2 batteries<br><br>Voltage<br>Charging current<br>Exceeded internal resistance of the batteries indication<br>Final discharge voltage<br>Operating time on backup supply<br>Control panel current consumption from backup power supply in detection:<br>- with optional module MK-30<br><br><b>Power output for external devices</b><br>Voltage<br>Available current max. | 88 ÷ 264 V AC – 50/60 Hz<br>< 1.0 A (for 230 V)<br>50 VA max.<br>24 V/ 2.2 A<br><br>2 x 12 V, 7 ÷ 18 Ah<br>7 ÷ 9 Ah internal<br>17÷18 Ah external<br>24 V<br>0.7 A<br><br>> 1.0 Ω<br>21 V ±5 %<br>72 h<br><br>approx. 48 mA (without output loads)<br>approx. 68 mA (without output loads)<br><br>24 V -15 % +20 %<br>0.5 A |
| <b>M50-30 module</b><br>(Control panel main board) | <b>Alarm outputs</b> (powered), monitored or alternatively as input lines:  |   |

|   |   |   |
|---|---|---|
|   | <ul style="list-style-type: none"> <li>- number</li> <li>- output voltage</li> <li>- load current, max.</li> </ul> Terminal resistor Rk   | 2<br>24 V $\pm$ 20 %<br>0.5 A<br>6.2 k $\Omega$ (or 4.3 k $\Omega$ +2 k $\Omega$ = 6.3 k $\Omega$ )                       |
|   | <b>Relay outputs</b> (dry-contact) with circuit continuity monitoring system <ul style="list-style-type: none"> <li>- number</li> <li>- voltage max.</li> <li>- load current, max.</li> </ul>   | 3<br>30 V<br>1.0 A  |
|   | <b>Computer connection Interface</b>  | USB   |
| <b>MLD-30 module</b><br>(Detection line module)   | <b>Addressable detection lines</b> <ul style="list-style-type: none"> <li>- number</li> </ul> Max. Number of elements per one line <sup>1)</sup> : <ul style="list-style-type: none"> <li>- type A (loop) line</li> <li>- type B (radial) line</li> <li>- line resistance, max.</li> <li>- line capacity, max.</li> <li>- max. line load current</li> </ul> | 2<br><br>64 (ref. POLON 3064),<br>128 (regarding. POLON 3128 and POLON 3256)<br>32<br>2 x 100 $\Omega$<br>300 nF<br>20 mA |
| <b>MK-30 module</b><br>(Communication Module)<br>- optional   | <b>Digital communication outputs</b> <ul style="list-style-type: none"> <li>- RS485 type</li> <li>- ETHERNET type (Modbus)</li> </ul>   | 1<br>1  |
| <b>Zones</b>  | Number of zones to which line elements are assigned by software, max.<br>Zone groups, max.  | 254<br>16   |
| <b>Output groups</b>  | Number of output groups, max.   | 64  |
| <b>Event memory</b>   | Number of events  | $\geq$ 4000   |
| <b>Resources of monitoring inputs and control outputs on detection lines</b><br>(which are present in elements such as: EKS, SAW, SAL, SAB, UCS, IGNIS, PZB, CDG, mCDG, for all variants of control panels POLON 3064, POLON 3128, POLON 3256 ) |   |   |
| <b>Control inputs</b>   | Number of inputs, max. <ul style="list-style-type: none"> <li>- detection line 1</li> <li>- detection line 2</li> </ul>   | 64<br>64  |
| <b>Control outputs</b>  | Number of outputs, max. <ul style="list-style-type: none"> <li>Detection line 1 <ul style="list-style-type: none"> <li>- POLON 4000 protocol</li> <li>- POLON 6000 protocol</li> </ul> </li> <li>Detection line 2 <ul style="list-style-type: none"> <li>- POLON 4000 protocol</li> <li>- POLON 6000 protocol</li> </ul> </li> </ul>                        | 160<br>256<br><br>160<br>256  |
| <b>Recommended<sup>2)</sup> or maximum<sup>2)</sup> numbers of inspection, control and signalling line elements on detection lines with POLON 6000 and POLON 4000 communication protocol</b>  |   |   |

|  |   |
|--|---|
| Number of EKS-6000 elements, up to 4 inputs / 4 outputs, POLON 6000 protocol, max. | 64  |
| Number of elements EKS-6080/6008, POLON 6000 protocol, max.                        | 32  |
| Number of elements EKS-6080/6008, POLON 6000 protocol, max.                        | 64  |
| Number of SAW-6001/6006 sirens, POLON 6000 protocol, max.                          | 51  |
| Number of SAB-6001/6006 sirens, POLON 6000 protocol, max.                          | 4   |
| Number of UCS 6000 panels, POLON 6000/4000 protocol, max.                          | 32  |
| Number of elements EKS-4001, POLON 4000 protocol, max.                             | 20  |
| Number of elements EWS-4001, POLON 4000 protocol, max.                             | 20  |
| Number of elements EWK-4001, POLON 4000 protocol, max.                             | 20  |
| Number of UCS 4000 panels, POLON 4000 protocol, max.                               | 2   |
| Number of IGNIS 2500 panels, POLON 6000 protocol, max.                             | 5   |
| Number of CDG panels, POLON 6000 protocol, max.                                    | 8   |
| Number of mCDG panels, POLON 6000 protocol, max.                                   | it results only from the current consumption and the number of inputs / outputs on the detection line <sup>1)</sup> |
| Number of remaining elements   |   |

<sup>1)</sup> The maximum number of elements on one detection line is additionally limited by the line load current limit (20 mA) and the number of active inputs / outputs in the monitoring and controlling elements. The load on the line depends on the type and number of elements used.

<sup>2)</sup> For detailed information, please contact the Technical Support Department of POLON-ALFA.

### 3. Construction of the control panel

The POLON 3000 control panel housing consists of a metal housing in which the control panel components are mounted, and a removable front cover. The cover can be removed after unscrewing the screws in the upper part of the housing with a screwdriver and sliding it upwards in order to disconnect the side hooks - *Fig. 3-1*.

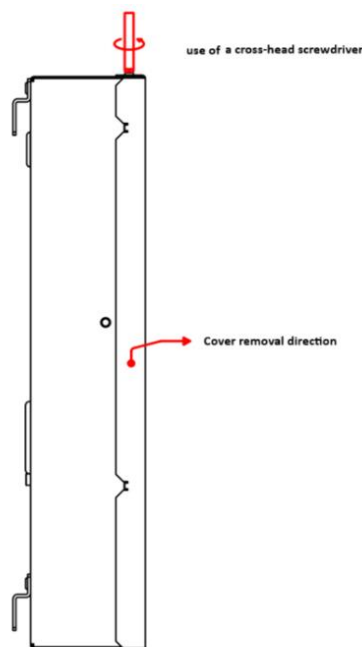


Fig. 3-1 Front cover removal

## 4. PSO-30 panel

### 4.1. User interface

The user interface is the front part of the PSO-30 panel, equipped with a set of buttons, optical indicators and LCD display. Indications of optical signalling devices, together with messages appearing on the LCD display, allow for a quick assessment of the fire hazard of the monitored facility and the operating status of the installed system. A view of the keypad of the PSO-30 panel is shown at Fig. 4-1. The description of the operation of individual buttons and optical indicators (lamps) is presented in the table 4-1.

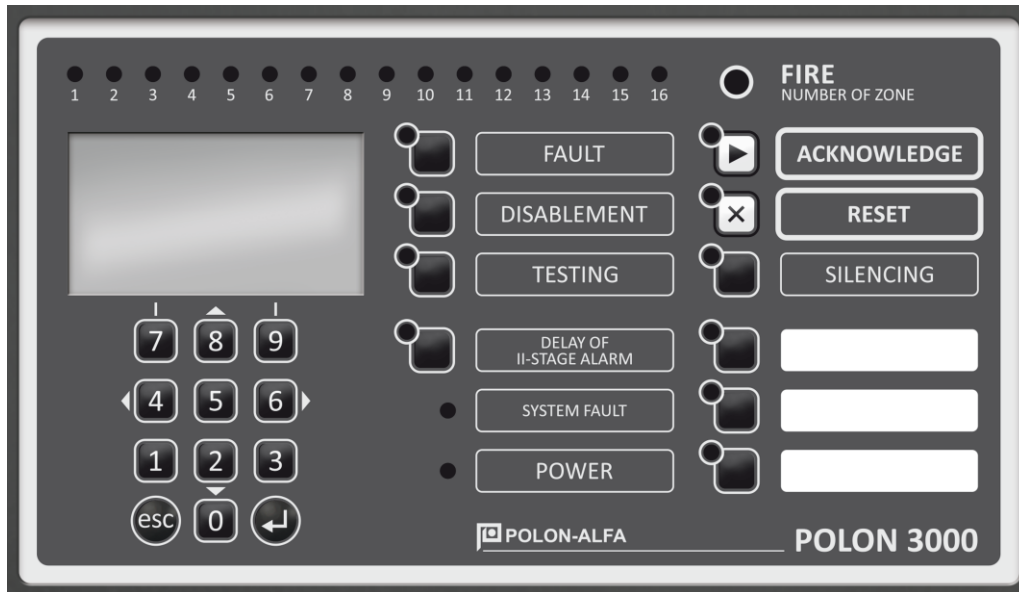


Fig. 4-1 PSO-30 panel keypad and indicators – user interface

Table 4-1 Indicators with description

| No. | Name / colour   | Signalling method | Description of the signalled state or function of the button   |
|-----|---|-------------------|--|
| 1   | <b>FIRE</b><br>- main indicator of fire alarm status<br><b>Zone No.</b><br>- 16 zone indicators<br>● /red | Flashing          | Fire detection - unconfirmed alarm condition<br><br>The flashing light indicates the zone in which the test alarm was triggered.<br><br>In the case of more than one zone, zones can be grouped, in which case one indicator will show a group of zones (the information on the display specifies the location of the detected threat).  |
|     |   | Continuous        | The main indicator switches to the continuous signalling mode after pressing the CONFIRMATION button.<br>Zone indicators indicate with a continuous light the numbers of the zones where the fire alarm occurred.<br>In the case of more than one zone, zones can be grouped, in which case one indicator will show a group of zones (the information on the display specifies the location of the detected threat). |



|    |   |            |   |
|----|---|------------|---|
|    |   |            |   |
| 2  | <b>FAULT</b><br>○ / yellow                    | Continuous | Collective fault indication of at least one circuit or function - fault status.   |
|    | Button  |            | Press to display a list of faults on the LCD display; button active from access level 1.  |
| 3  | <b>DISABLEMENT</b><br>○ / yellow              | Continuous | Collective indication of disablement, at least one input/output or function - blocking status.  |
|    | Button  |            | Display of disablement menu on LCD display; button active from level 1 access to read locking.  |
| 4  | <b>TESTING</b><br>○ / yellow                  | Continuous | Collective signalling of testing, at least one circuit or function - testing status.  |
|    | Button  |            | Display the testing menu on the LCD display; button active from access level 2.   |
| 5  | <b>SECOND STAGE ALARM DELAY</b><br>○ / yellow | Continuous | Indicates the 2nd level alarm delay enabled,  |
|    | Button  |            | off / on switches over to the alarm variant in PN mode (staff-absent mode, default one-stage variant) button active from the 2nd access level.  |
| 6  | <b>SILENCE</b><br>○ / yellow                  | Continuous | Blocking (disabled) all alarm sounders (outputs assigned to the alarm device group).  |
|    |   | Flashing   | Partial blocking (off) - for more than one output assigned to a group of alarm devices (at least one blocked output and at least one unblocked output).   |
|    | Button  |            | Quick access to DISABLEMENT menu for outputs configured as sounders control   |
| 7  | <b>ACKNOWLEDGE</b><br>○ / yellow              | Continuous | No acknowledgement of the alarm - timer T1 counts until the ACKNOWLEDGE button is pressed.  |
|    | Button  |            | Pressing the ACKNOWLEDGE button - acceptance of the fire alarm by the staff, switches the 2 stage alarm delay timer from T1 to T2 and (depending on the configuration) can cause silencing of the sounders; active from access level 1. |
| 8  | <b>RESET</b><br>○ / yellow                    | Continuous | Indicates that the alarm can be cleared   |
|    | Button  |            | Clear alarm status; button active from access level 2 onwards   |
| 9  | <b>SYSTEM FAILURE</b><br>○ / yellow           |            | Failure of microprocessor chip operation or configuration data  |
| 10 | <b>POWER SUPPLY</b><br>● / green              | Continuous | Signalling of efficient primary and backup power supply.  |
|    |   | Flashing   | Failure or absence of mains or backup power.  |
| 11 | LCD DISPLAY                                   |            | Display of messages related to the control panel status and configuration settings  |

|           |  |  |  |
|-----------|--|--|--|
| <b>12</b> | NUMERIC KEYPAD,<br>DIRECTION BUTTONS, esc.,<br>↵ enter<br><br>F1, F2, F3 |  | Intended for entering the access code and operating the control panel menu.<br><br>User buttons - programmable. Selected functions can be assigned to them in order to facilitate operation. |
|-----------|--|--|--|

The description of the control panel menu is presented in table Table 4-2 Control panel menu. The table shows the structure of the main menu, submenus and contains a short description of the available functions.

**Table 4-2 Control panel menu**

| Main menu                  | Sub-menu 1   | Sub-menu 2<br>(if available)   | Sub-menu 3<br>(if available)                               | Functional<br>description |
|----------------------------|--|--|--|---------------------------|
| <b>FAULTS</b>              | <i>Readout - displaying a list of all detected faults.</i> |  |  |                           |
| <b>DISABLEMENTS</b>        | <b>DISABLEMENT LIST</b>                                    | <i>Readout - display a list of all blockades.</i>  |  |                           |
|                            | <b>LINE ELEMENTS</b>                                       | <b>Detection line 1</b>  | <i>On/off locking of LINE 1 elements.</i>                  |                           |
|                            |  | <b>Detection line 2</b>  | <i>On/off locking of LINE 2 elements.</i>                  |                           |
|                            | <b>ZONES</b>   | <i>On/off zones disablements.</i>  |  |                           |
|                            | <b>OUTPUT GROUPS</b>                                       | <i>On / off output group disablements.</i>   |  |                           |
|                            | <b>INPUTS</b>  | <i>On/off inputs disablement.</i>  |  |                           |
|                            | <b>DETECTION LINES</b>                                     | <i>Enable/disable disablement of the detection lines.</i>  |  |                           |
| <b>TESTING</b>             | <b>ZONES</b>   | <i>On / off for testing the elements within selected detection zones (detectors, MCPs, inputs operating in the "fire alarm" mode).</i> |  |                           |
|                            | <b>INDICATORS</b>  | <i>On / off for test of optical indicators (lamps) and the control panel internal buzzer.</i>  |  |                           |
| <b>STATUS OF EQUIPMENT</b> | <b>ALARM DEVICES</b>                                       | <b>ON</b>  | <i>Readout of activated alarm devices.</i>                 |                           |
|                            |  | <b>FAULTY</b>  | <i>Readout for faulty alarm devices.</i>                   |                           |
|                            |  | <b>DISABLED</b>  | <i>Readout for disabled alarm devices.</i>                 |                           |
|                            | <b>AL. TRANSMISSION DEV.</b>                               | <b>ON</b>  | <i>Readout of the activated alarm transmission devices</i> |                           |
|                            |  | <b>FAULTY</b>  | <i>Readout for faulty alarm transmission devices.</i>      |                           |

|                           |                                |                              |  |   |   |
|---------------------------|--------------------------------|------------------------------|--|---|---|
|                           |                                | <b>DISABLED</b>              | <i>Readout for disabled alarm transmission devices.</i>  |   |   |
|                           | <b>FIRE PROTECTION DEVICES</b> | <b>ON</b>                    | <i>Readout for activated alarm devices.</i>  |   |   |
|                           |                                | <b>FAULTY</b>                | <i>Readout for faulty fire protection devices.</i>   |   |   |
|                           |                                | <b>DISABLED</b>              | <i>Readout for disabled fire protection devices.</i>   |   |   |
|                           | <b>DEVICE STATE MONITORING</b> | <b>ON</b>                    | <i>Readout for activated devices supervised by input lines operating in the "device status monitoring" mode.</i> |   |   |
|                           |                                | <b>FAULTY</b>                | <i>Readout for faulty devices supervised by input lines operating in the "device status monitoring" mode.</i>    |   |   |
|                           |                                | <b>DISABLED</b>              | <i>Readout for disabled devices supervised by input lines operating in "device status monitoring" mode.</i>      |   |   |
|                           | <b>DEV.TRIP CONTROL</b>        | <b>ON</b>                    | <i>Readout of activated alarm devices supervised by input lines operating in "device tripping control" mode.</i> |   |   |
|                           |                                | <b>FAULTY</b>                | <i>Readout for faulty devices supervised by input lines operating in "device tripping control" mode.</i>         |   |   |
|                           |                                | <b>DISABLED</b>              | <i>Readout for disabled devices supervised by detection lines operating in "device tripping control" mode.</i>   |   |   |
|                           | <b>CONFIGURATION</b>           | <b>TIMERS T1, T2, T3, T4</b> | <i>Readout for timers delay values (T1, T2, T3, T4)</i>  |   |   |
|                           |                                | <b>DETECTION LINES</b>       | <b>Detection line 1</b>  | <b>LINE TYPE</b>                              | <i>Possibility to change line type: loop/ open.</i> |
| <b>AUTO-CONFIGURATION</b> |                                |                              |  | <i>Readout of elements installed on Line1</i> |   |

|              |  |  |  |  |
|--------------|--|--|--|--|
|              |  | <b>Detection line 2</b>  | <b>LINE TYPE</b>   | <i>Possibility to change line type: loop/ open</i> |
|              |  |  | <b>AUTO-CONFIGURATION</b>  | <i>Readout of elements installed on Line2</i>      |
|              | <b>LINE ELEMENTS</b>                                     | <b>Detection line 1</b>  | <i>Readout for elements assigned to the detection line 1.</i>                                    |  |
|              |  | <b>Detection line 2</b>  | <i>Readout for elements assigned to the detection line 2.</i>                                    |  |
|              | <b>ZONES</b>   | <i>Readout for zone configuration (displaying the list of zones).</i>  |  |  |
|              | <b>ZONE- AL. VARIANTS</b>                                | <i>Readout for alarm variants configuration</i>  |  |  |
|              | <b>ZONE GROUPS</b>                                       | <i>The window for reading and configuring (programming) zone groups 1.16, which involves assigning the selected fire zone to a zone group.</i> |  |  |
|              | <b>OUTPUTS</b>   | <b>Detection line 1</b>  | <i>Readout for Outputs configured within Detection Line 1</i>                                    |  |
|              |  | <b>Detection line 2</b>  | <i>Readout for Outputs configured within Detection Line 2</i>                                    |  |
|              |  | <b>CSP</b>   | <i>Readout for configuration of outputs located on MSO-30 module in the control panel</i>        |  |
|              | <b>OUTPUT GROUPS</b>                                     | <i>Readout for output groups configuration</i>   |  |  |
|              | <b>INPUTS</b>  | <b>Detection line 1</b>  | <i>Readout for Inputs configured within Detection Line 1</i>                                     |  |
|              |  | <b>Detection line 2</b>  | <i>Readout for Inputs configured within Detection Line 2</i>                                     |  |
|              |  | <b>CSP</b>   | <i>Reading the configuration of the inputs located in the control panel on the MSO-30 module</i> |  |
|              | <b>CRITERIA - OUTPUTS ACTIVATION</b>                     | <i>Configuration readout for output groups activation criterions</i>   |  |  |
| <b>MK-30</b> | <i>Configuration readout for MK-30 module parameters</i> |  |  |  |

|                           |                                  |   |   |                                  |
|---------------------------|----------------------------------|---|---|----------------------------------|
|                           | <b>USER BUTTONS</b>              | <b>F1- programmable</b>   | <i>List of functions to program F1 button</i>                                   | <i>Button programming window</i> |
|                           |                                  | <b>F2- programmable</b>   | <i>List of functions to program F2 button</i>                                   | <i>Button programming window</i> |
|                           |                                  | <b>F3- programmable</b>   | <i>List of functions to program F3 button</i>                                   | <i>Button programming window</i> |
| <b>SETTINGS</b>           | <b>DATE, TIME</b>                | <i>Date and time setting window</i>   |   |                                  |
|                           | <b>CLOCK CALIBRATION</b>         | <i>Clock daily correction in the range of <math>\pm 0... 9.9</math> s with an accuracy of 0.1 s.</i>      |   |                                  |
|                           | <b>VOLTAGE CALIBRATION</b>       | <i>Buffering voltage adjustment (27.3 V factory default)</i>  |   |                                  |
|                           | <b>LCD CONTRAST</b>              | <i>LCD display contrast adjustment</i>  |   |                                  |
|                           | <b>LANGUAGE</b>                  | <i>Language selection - depending on the version of the program, Polish, English...</i>                   |   |                                  |
| <b>EVENT LOG</b>          | <i>Event log memory readout.</i> |   |   |                                  |
| <b>ALARM COUNTER</b>      | <i>Alarm log memory readout.</i> |   |   |                                  |
| <b>DELETION OF EVENTS</b> | <b>CLEAR ALARM LOG</b>           | <i>User window that allows you to erase stored alarm log memory (from the alarm counter)</i>              |   |                                  |
|                           | <b>CLEAR ALARM EVENTS</b>        | <i>User window that allows you to erase stored events log memory (without deleting the alarm counter)</i> |   |                                  |
| <b>SERVICE</b>            | <b>VER. PROGR. CONFIG.</b>       | <i>Readout for Software version and configuration ID</i>  |   |                                  |
|                           | <b>SERVICE STATUS</b>            | <b>Detection line 1</b>   | <i>Readout for contamination level of optical detectors on detection line 1</i> |                                  |
|                           |                                  | <b>Detection line 2</b>   | <i>Readout for contamination level of optical detectors on detection line 2</i> |                                  |
|                           | <b>TASKS</b>                     | <b>DOP-6001 TUNING</b>  | <i>Start of DOP-6001 automatic adjustment (tuning)</i>                          |                                  |
|                           |                                  | RESERVE   | <i>Sub-menu reserved for new functions</i>                                      |                                  |
| RESERVE                   |                                  | <i>Sub-menu reserved for new functions</i>  |   |                                  |

|              |                       |   |   |
|--------------|-----------------------|---|---|
|              | PARAM. MEASURED       | Detection line 1  | <i>Readout for sensed value by detectors on line 1</i>                        |
|              |                       | Detection line 2  | <i>Readout for sensed media value by detectors on line 2</i>                  |
|              |                       | CSP   | <i>Voltage readout at characteristic points of the MSO-30 controller</i>      |
|              | EL. LOCATION          | Detection line 1  | <i>Optical indication activation for selected element on detection line 1</i> |
|              |                       | Detection line 2  | <i>Optical indication activation for selected element on detection line 2</i> |
| ACCESS LEVEL | CHANGE OF ACCESS      | <i>Window that allows you to enter an access code and grant access to functions of level 2, 3 or 4. Return to level 1 is after entering the wrong code.</i> |   |
|              | CODE CHANGE - LEVEL 2 | <i>A window to change the default level 2 access code to user code.</i>   |   |
|              | CODE CHANGE - LEVEL 3 | <i>A window to change the default level 3 access code to user code.</i>   |   |
|              | CODE CHANGE - LEVEL 4 | <i>A window to change the default level 3 access code to user code.</i>   |   |

#### 4.2. Internal modules of the control panel

The control panel has a compact design. Most of the control panel components, except for the power supply, have been integrated in one main PSO-30 unit, consisting of several modules. The PSO-30 unit includes:

- the main controller of the control panel - module MSO-30,
- user interface - in the form of a front panel with a keyboard and LCD display,
- MLD-30 module for detection loops,
- MK-30 digital communication module (optional).

Functional modules MLD-30 and MK-30 are built-in directly on the PCB of the main MSO 30 controller-. Communication of the MLD-30 line module and MK-30 communication module with the MSO-30 main controller is carried out with digital serial transmission. The modules have independent controllers that manage data exchange and the tasks they are designed for. The arrangement of the modules inside the control panel is shown on Fig. 4-2 and Rys. 4-3 .

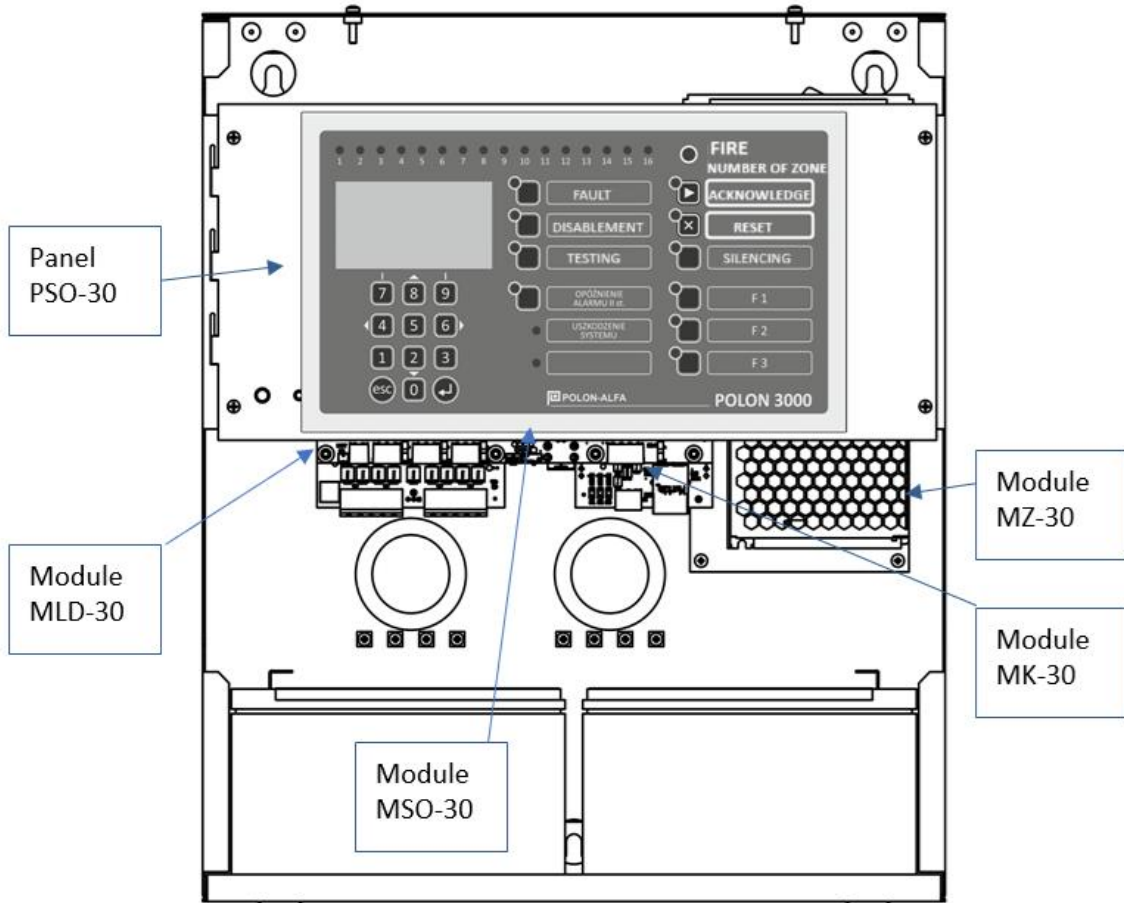
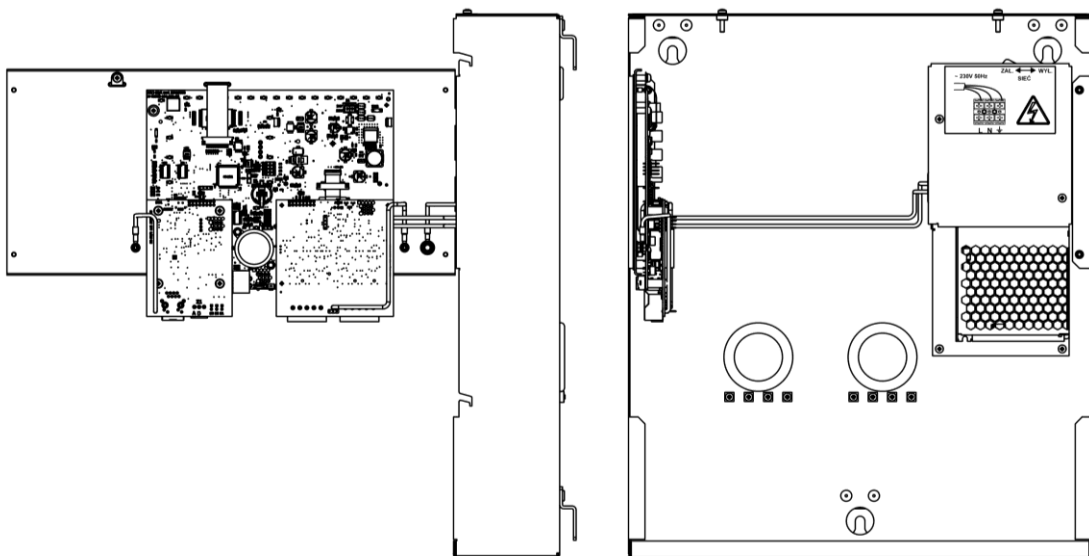


Fig. 4-2 Control panel modules



Rys. 4-3 Control panel with tilted panel PSO-30

## 5. Power Supply

### 5.1. MZ-30 power supply module

W skład modułu zasilającego wchodzi zasilacz sieciowy 50 W - 24 V / 2,2 A oraz układ filtrów przeciwzakłóceń z wyłącznikiem sieciowym i łączówką przeznaczoną do przyłączenia przewodów zasilania sieciowego 230 V. Dostęp do zacisków sieciowych pokazano na Fig. 5-1.

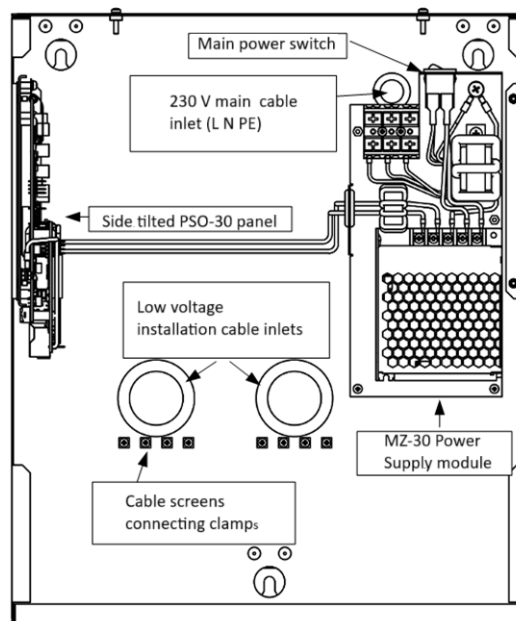


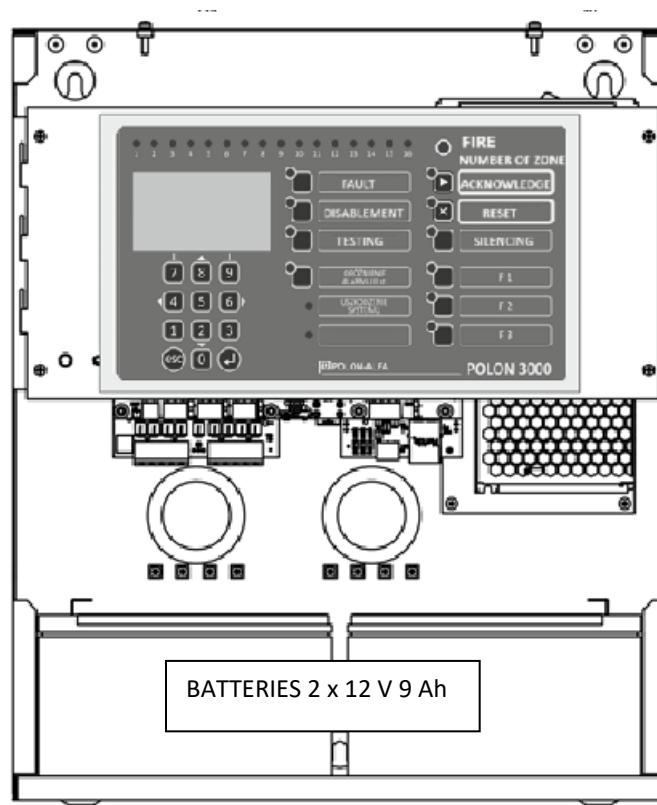
Fig. 5-1 View with the PSO-30 panel tilted and 230V connector cover removed

### 5.2. Backup power supply

Backup power is provided by 2 x 12V batteries with a capacity of 7 ÷ 9 Ah inside the control panel. If more capacity is required, it is possible to connect external batteries up to 18 Ah. Capacity is limited by charging device power efficiency.

The location of the batteries inside the control panel is shown at Rys. 5-2.





Rys. 5-2 Battery position in the housing

The batteries should be connected in series using a ready-made wiring harness according to the diagram shown at Fig. 5-3 **with the correct polarity of the poles  $\pm$** .

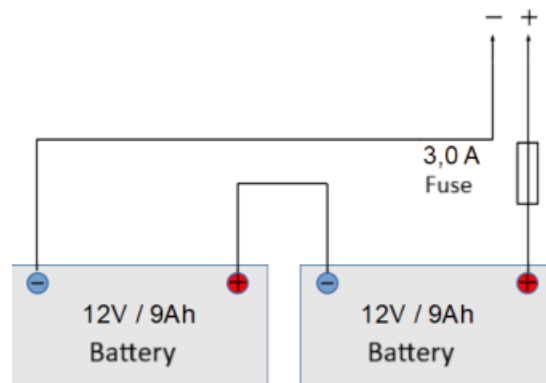


Fig. 5-3 Battery connection diagram

Switching over from the main supply source to the backup power supply is automatic, without causing a power interruption. The operating time of a battery-powered panel, with no main power supply, can reach 72 hours in the supervision state and an additional 0.5 hours in the alarm state, depending on the hardware configuration and connected loads. Installation, operation and disposal of batteries should be carried out in accordance with the instructions of the battery manufacturer. Used batteries must be recycled in accordance with applicable regulations.

**Automatic Power Shut-down.** There is natural decrease of supply voltage during batteries powered control panel operation. Reduction of the backup power voltage to about 22 V is indicated with sound. Further batteries voltage lowering and reaching the final discharge voltage below about 21 V will automatically shut down the control panel.

The return of the main power supply causes the control panel to switch on automatically. If the 230 V power supply is lost and fully charged batteries are connected, the control panel is started by pressing the SW2 button located on the MSO-30 module.

**Table 5-1**

| <b>Current consumption by the control panel from batteries during a failure of the primary power supply</b>  |   |          |             |
|--|---|----------|-------------|
| POLON 3000 control panel<br>(3064, 3128, 3256)   | Outputs state   | Stand-by | Alarm state |
| Basic Control panel<br>(PSO-30 + MLD-30)   | – outputs without load,   | 48 mA    | 52 mA       |
| Control panel with MK-30<br>module<br>(PSO-30 + MLD-30+ MK-30)   | – outputs without load,<br>– MK-30 no transmission.                           | 68 mA    | 72 mA       |
|  | – outputs without load,<br>– MK-30 with ETHERNET<br>transmission in progress. | 78 mA    | 82 mA       |
| For required battery capacity calculation, add: <ul style="list-style-type: none"> <li>– load on detection lines (2 detection lines depending on the load with line elements, max. 2 x 20 mA),</li> <li>– load value of powered outputs in the alarm state depending on the current consumption of the installed alarm devices)</li> <li>– other loads (if any), such as current drawn from the power output of external devices.</li> </ul> |   |          |             |

## 6. Service functions

The service functions of the control panel are helpful when starting up and servicing the system. The use of service functions requires entering the 4th access level.

Optical smoke detectors, depending on conditions, become dirty after some time. Despite the high adaptability, so that the sensitivity remains unchanged, after exceeding a certain level of contamination, they report the service status, which is signalled by the control panel. The approximate dirt percentage is displayed on the screen, after selecting “Service status” from the menu. The contamination values may differ significantly between the different types of detectors and control panels on which the contamination is read, due to the different calculation algorithms used.

## 7. Line Elements

Line elements are all available devices, e.g. detectors, manual call points, sirens, etc., operating on any detection line of the POLON 3000 control panel. Detection lines of the POLON 3000 control panel have been adapted to support line elements of the 4000 and 6000 series produced by POLON-ALFA.

### 7.1. Types of Elements of 6000 series

**Table 11-1**

| No. | Element type    | Working on the<br>detection line |      | Description                |
|-----|-----------------|----------------------------------|------|----------------------------|
|     |                 | 4000                             | 6000 |                            |
| 1.  | <b>DUT-6046</b> | +                                | +    | <b>fire warning device</b> |
| 2.  | <b>DOP-6001</b> | +                                | +    | <b>fire warning device</b> |

|     |   |   |   |  |
|-----|---|---|---|--|
| 3.  | TUN-6046<br>TUN-6043  | + | + | fire warning device  |
| 4.  | DTC-6046  | + | + | fire warning device  |
| 5.  | EKS-6000  | - | + | input/output element   |
| 6.  | SAW-6001  | + | + | tone sounder   |
| 7.  | SAW-6006  | + | + | tone-voice sounder   |
| 8.  | SAB-6001  | + | + | optical, tone sounder  |
| 9.  | SAB-6006  | + | + | optical beacon, tone-to-voice  |
| 10. | DUT-6046AD  | + | + | fire warning device with acoustic sounder device                                       |
| 11. | DUO-6046AD  | + | + | fire warning device with acoustic sounder device                                       |
| 12. | DOT-6046<br>DOT-6043  | + | + | fire warning device  |
| 13. | DUO-6046<br>DUO-6043  | + | + | fire warning device  |
| 14. | UCS 6000  | + | + | universal control panel  |
| 15. | AKC-6000  | - | + | Input/output device for addressable communication                                      |
| 16. | Devices containing the MKA module:<br>IGNIS 2500, PZB 6000 and<br>CDG 6000, mCDG 6000 indirectly through AKC-6000 | - | + | MKA - module for communication via the addressable line, compatible with 6000 protocol |

## 7.2. Types of elements of 4000 series

Table 7-2

| No. | Element type      | Working on the detection line |      | Description                      |
|-----|-------------------|-------------------------------|------|----------------------------------|
|     |                   | 4000                          | 6000 |                                  |
| 1.  | <b>DOR-4046</b>   | +                             | + *  | <b>fire warning device</b>       |
| 2.  | <b>DIO-4046</b>   | +                             | + *  | <b>fire warning device</b>       |
| 3.  | <b>TUN-4046</b>   | +                             | + *  | <b>fire warning device</b>       |
| 4.  | <b>DPR-4046</b>   | +                             | + *  | <b>fire warning device</b>       |
| 5.  | <b>DOT-4046</b>   | +                             | + *  | <b>fire warning device</b>       |
| 6.  | <b>DUR-4046</b>   | +                             | + *  | <b>fire warning device</b>       |
| 7.  | <b>DUR-4047</b>   | +                             | + *  | <b>fire warning device</b>       |
| 8.  | <b>DUR-4043</b>   | +                             | + *  | <b>fire warning device</b>       |
| 9.  | <b>DUO-6043</b>   | +                             | + *  | <b>fire warning device</b>       |
| 10. | <b>DIO-4043</b>   | +                             | + *  | <b>fire warning device</b>       |
| 11. | <b>DOR-4043</b>   | +                             | + *  | <b>fire warning device</b>       |
| 12. | <b>TUN-4043</b>   | +                             | + *  | <b>fire warning device</b>       |
| 13. | <b>ACR-4001</b>   | +                             | +    | <b>radio detector adapter</b>    |
| 14. | <b>ADC-4001M</b>  | +                             | +    | <b>conventional line adapter</b> |
| 15. | <b>EKS-4001</b>   | +                             | -    | <b>Input/output element</b>      |
| 16. | <b>EWS-4001</b>   | +                             | -    | <b>control element</b>           |
| 17. | <b>EWK-4001</b>   | +                             | -    | <b>control element</b>           |
| 18. | <b>SAL-4001</b>   | +                             | +    | <b>sounder</b>                   |
| 19. | <b>ROP-4001M</b>  | +                             | +    | <b>manual call point</b>         |
| 20. | <b>ROP-4001MH</b> | +                             | +    | <b>manual call point</b>         |
| 21. | <b>ROP-4007M</b>  | +                             | +    | <b>manual call point</b>         |
| 23. | <b>UCS 4000</b>   | +**                           | -    | <b>universal control panel</b>   |

\*) required element software version V6.0 or V7.0 or later

During the configuration of the control panel, a list of elements belonging to the system is created, the so-called list of declared elements. Elements can be declared manually or automatically by reading elements from the line (auto-configuration) using the POLON Studio application. Elements attached to a line without a declaration are detected and reported as undeclared.

### 7.3. Declaration of elements

The target declaration and configuration of elements must be made using the POLON Studio application, which allows you to perform "manual" declaration of elements or run auto-configuration and download data to a computer. The application allows you to make detailed settings and send the entire configuration to the control panel.

### 7.4. Parameter configuration

After auto-configuration is finished, the configurable parameters should be adapted to the requirements of the installation design. The parameters of the elements can be set or modified in the POLON Studio application from the beginning of creating the project or after sending the configuration from the control panel to the computer. The configuration of detectors (or fire alarm receiving zones) is related to a place (partition) in the protected facility. Therefore, it is necessary to create detection

zones and assign detectors to proper zones (and zones working in the *fire alarm*). **The control panel does not signal a fire alarm from an element (entrance) without an assigned fire zone.** The outputs of the elements (used) should be assigned to groups of outputs and the groups must have defined control criteria.

## 8. System configuration and programming

To configure the POLON 3000 system, it is necessary to download the POLON Studio application from the manufacturer's website and install it on the computer. The application enables convenient system design, configuration settings prepare and project archiving.

### 8.1. Hardware configuration

The POLON Studio application allows you to download the configuration from a connected control panel or make a new project of configuration settings. For a new project, select the project type (P3064, P3128, P3256) that is associated with the POLON 3000 control panel variation:

- POLON 3064,
- POLON 3124,
- POLON 3256.

and specify the name of the file to save the configuration. The program will automatically display the basic hardware configuration: housing and modules. For a control panel with optional communication module installed, it is advised to add the MK-30 module. Line elements can be added "manually" from the list, after selecting (highlighting) the detection line of the MLD-30 line module, by dragging and dropping on the displayed module terminals. Another practical method is to perform an automatic reading of elements from the panel's real operating detection loop. In this case, the control panel must be installed and a connection made to the computer via USB. After starting the POLON Studio application, connecting the computer to the panel, select "send/receive" and "connect" . Connection to the control panel will require selecting the proper USB port. When the port is opened, the ability to run auto-configuration is activated. Starting auto-configuration of the selected number and line type, will result in real-time display of messages on detected elements. In case of installation errors are present, proper messages are displayed to help fix the fault. Successful auto-configuration allows you to save the readings. Elements which were read they have factory default settings (if not configured).

The configuration of detection lines, line elements, control outputs, output groups, control criteria, control inputs, zones and alarm variants, and zone groups can be found in the IMM.

## 9. System installation

Before installing the control panel, remove the transport protection. Keep the securing components in case of the need to return the control panel for a warranty.

### 9.1. Installing the control panel on the wall

Install the control panel on the wall using three M5 screws and wall plugs with a diameter of at least 8 mm. Fig. 13-1 presents the necessary data to perform assembly operations.

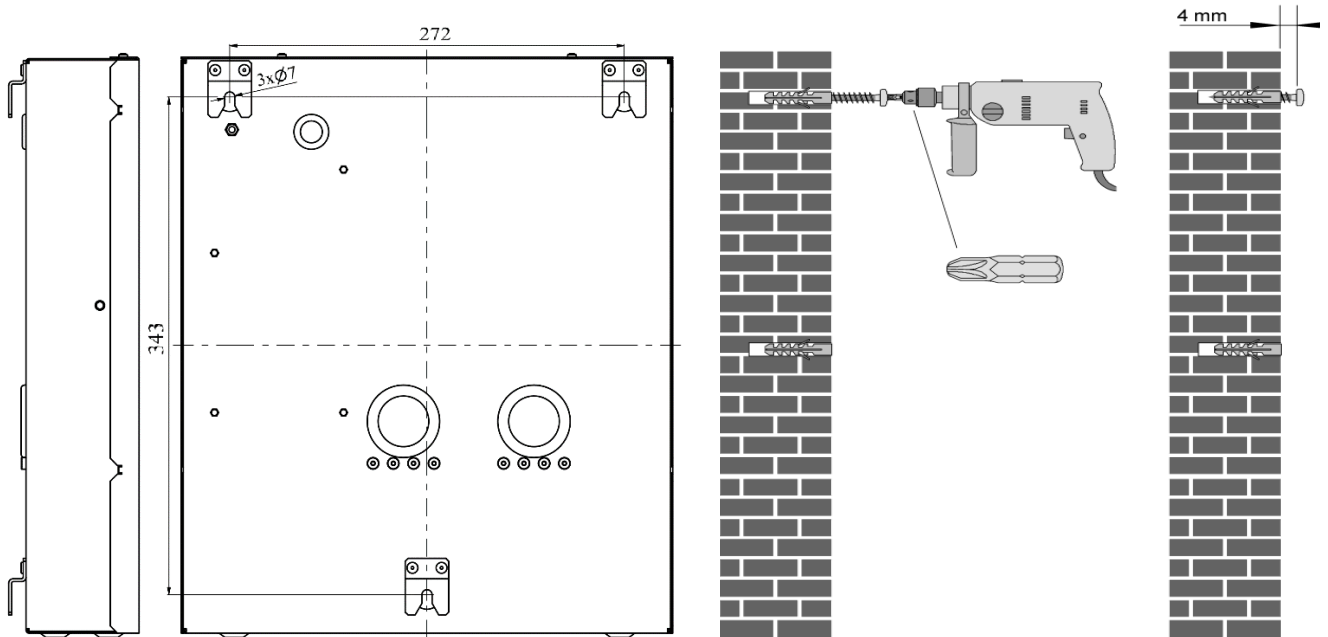


Fig. 13-1 View of the elements of fixing the housing on the wall

## 9.2. Connecting the power cables and batteries

The control panel has L, N PE (Fig. 5-1) terminals for connecting the mains supply. On the main board (MSO-30 module) there is a pair of terminals marked as ZL10 for connecting the battery harness "- AKU + ". Additionally, on the red (+) wire there is a socket with a 3 A fuse (car type). When connecting the wiring harness, pay special attention to the compliance of the polarity of the module terminals with the markings of poles (+) and (-) of the batteries.

## 9.3. Design recommendations

Considering reliability of installation operation, a loop system of routing for detection lines should be used. Radial lines should be used in exceptional circumstances (e.g. when a small number of detectors is to be moved to a considerable distance).

When designing an addressable detection line, you should assign each addressable line element with an address (element number) under which it will be identified by the control panel. Due to the good readability of the installation design and service facilities, it is recommended that the successively installed addressable line elements have successively increasing addresses - preferably assigned in accordance with the numbering algorithm by the control panel during automatic configuration (auto-configuration). It is recommended to use shielded cables in the POLON 3000 system. When designing the installation, it is necessary to meet all the requirements of the technical data, especially pay attention to the capacity of the addressable supervision line. The appropriate resistance of the detection line and the line resistance between adjacent short-circuit insulators should also be ensured.

## 10. Inspections and maintenance

### 10.1. Regulations for proper use

The reliability of the operation of the control panel depends on the maintenance of proper operating conditions, power supply voltage, the condition of the batteries and the performance of periodic tests. Periodic inspections should be carried out by an authorized maintenance technician, who is commissioned by the user to maintain the installation. Any malfunction should be immediately reported to the maintenance technician.

## 10.2. Periodic inspections and maintenance regulations

Periodic tests of the POLON 3000 system should be carried out at least once a year, in accordance with CEN/TS 54-14. Every six months, check the condition of the protective, earthing or neutral connection with the control panel housing and clean the battery terminals.

At least once a year, check the charge state of the batteries. To do this, switch off the mains voltage for about 2 hours with the mains switch and after switching it on again, check that the battery will be recharged within 5 hours and after that the system will automatically switch to buffering.

An efficiently operating system, subject to regular periodic inspections, does not require special maintenance. It is recommended to vacuum the external surface of the control panel from time to time.

## 11. Packaging, storage, transportation

**Packaging.** All components of the control panel are placed in individual packaging, limiting the possibility of free movement and excluding damage during handling and transportation.

The packaging include the following information: manufacturer's name or mark, item name and type, item Weight.

The packaging should also bear the following inscriptions: "CAUTION FRAGILE", "UP, DO NOT TURN", "PROTECT FROM WET" or corresponding signs according to proper regulations.

**Storage regulations.** The control panel modular components should be stored in closed rooms with a temperature of  $+5\text{ }^{\circ}\text{C} \div +40\text{ }^{\circ}\text{C}$  and relative humidity not exceeding 80 %, free from corrosive vapours and gases. During storage, components of the POLON 3000 control panel should not be exposed to heat, sunlight and heating devices.

**Transport.** Wszystkie elementy systemu POLON w opakowaniu należy przewozić krytymi środkami transportu, z uwzględnieniem wskazań transportowych podanych na opakowaniach oraz z zabezpieczeniem przed gwałtownymi wstrząsami i temperaturami otoczenia wykraczającymi poza przedział od  $-25\text{ }^{\circ}\text{C}$  do  $+55\text{ }^{\circ}\text{C}$ .

**12. Appendix A – line elements of the POLON 4000/6000 system**

| Item name  | Detection current  |
|--|--|
| DIO-4046 addressable ionization smoke detector   | 150 $\mu$ A  |
| DOR-4046 optical addressable smoke detector  | 150 $\mu$ A  |
| DUR-4046 universal addressable optical smoke detector  | 150 $\mu$ A  |
| TUN-4046 universal addressable heat detector   | 150 $\mu$ A  |
| DOT-4046 multi-detector addressable smoke and heat detector  | 150 $\mu$ A  |
| DPR-4046 multi-detector addressable smoke detector   | 170 $\mu$ A  |
| TUN-6046 point heat detector addressable   | 150 $\mu$ A  |
| DUT-6046 multi-detector addressable smoke and heat detector  | 150 $\mu$ A  |
| DUT-6046AD universal smoke and heat detector with sounder  | 1 mA   |
| DUO-6046, 6646, 6046K universal addressable smoke detector   | 150 $\mu$ A  |
| DUO-6046AD universal smoke detector with sounder   | 1 mA   |
| DTC-6046 universal smoke, heat and carbon monoxide detector  | 150 $\mu$ A  |
| DOT-6046 universal addressable smoke and heat detector   | 150 $\mu$ A  |
| DOP-6001 optical linear smoke detector   | 300 $\mu$ A  |
| ROP-4001M, ROP-4001MH manual call points   | 140 $\mu$ A  |
| ADC-4001 adapter (loaded with sideline):<br><ul style="list-style-type: none"> <li>- programmed in operating mode 1</li> <li>- programmed in operating mode 2</li> <li>- programmed in operating mode 3</li> <li>- programmed in operating mode 4</li> <li>- programmed in operating mode 5</li> <li>- programmed in operating mode 6</li> </ul> | 6.8 mA<br>16.0 mA<br>2.5 mA<br>0.5 mA<br>2.2 mA<br>1.33 mA |
| ACR-4001 radio detector adapter  | 6.0 mA   |
| ROP-4007, ROP-4007H Radio Manual Call Points   | -  |
| DUR-4047 optical radio smoke detector  | -  |
| EKS-4001 control and steering element  | 165 $\mu$ A  |
| EKS-4001W control and steering element   | 250 $\mu$ A  |
| EKS-6040, 6004, 6022, 6044, 6202, 6400 control and steering elements   | < 250 $\mu$ A  |
| EKS-6222P control and steering element   | 610 $\mu$ A  |
| EKS-6080 control and steering element  | 210 $\mu$ A  |
| EKS-6008 control and steering element  | 400 $\mu$ A  |
| EWS-4001 multi-output control element  | 150 $\mu$ A  |
| EWK-4001 multi-input control element   | 150 $\mu$ A  |
| SAL-4001 addressable sounder:<br><ul style="list-style-type: none"> <li>- powered by batteries or an external source</li> <li>- powered only from line <sup>1)</sup></li> </ul>  | 150 $\mu$ A<br>600 $\mu$ A                                 |
| SAW-6001/SAW-6006 addressable sounder  | 150 $\mu$ A  |
| SAB-6001/SAB-6006 addressable acoustic-optical siren   | 150 $\mu$ A  |
| UCS 4000/ UCS 6000 universal control panel   | 600 $\mu$ A  |
| PZB 6000 power supply of fire protection equipment   | 600 $\mu$ A  |
| IGNIS 2500 automatic fire extinguishing control panel  | 600 $\mu$ A  |
| CDG 6000, mCDG 6000 gas detection control panel  | 150 $\mu$ A  |

<sup>1)</sup> the signalling device without additional power supply must have a guaranteed current from the line/loop for alarming





**POLON-ALFA S.A.**

POLAND 85-861 Bydgoszcz, ul. Glinki 155 | [www.polon-alfa.pl](http://www.polon-alfa.pl)  
EXPORT DEP. phone no. +48 52 36 39 278, email: [export@polon-alfa.pl](mailto:export@polon-alfa.pl)  
SERVICE DEP. phone no. +48 52 36 39 390, email: [serwis@polon-alfa.pl](mailto:serwis@polon-alfa.pl)