

AUTOMATIC FIRE EXTINGUISHING CONTROL PANEL IGNIS 2500

INSTRUCTION

IO-E359-003-GB

Edition I



The IGNIS 2500 fire extinguishing control panel, which is the subject of this OMM, meets the essential requirements of the European Parliament as well as the EU Council and European Union directives as the following regulations:

CPR CPR/305/2011 European Parliament and the EU Council Regulation of March 9, 2011 establishing harmonized conditions for marketing of the construction products and repealing Council Directive 89/106/EEC;

LVD 2006/95/EC Electrical equipment designed for use within certain voltage limits Directive ;

EMC 2014/30/EU Electromagnetic compatibility Directive.

The product has received the Certificate of Constancy of Performance, issued by CNBOP-PIB, notified body No. 1438, confirming that the product has the characteristics/technical parameters required by standards PN-EN 12094-1:2006, PN-EN 54-2:2002+A1:2007, PN-EN 54-4:2001+A1:2004+A2:2007.

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

The product has a Certificate of Approval issued by CNBOP-PIB.

The manufacturer has issued a Declaration of Performance for the product.

The certificate, the Certificate of Approval and the Declaration of Performance are available on the website of www.polon-alfa.pl

Prior to starting assembly and operation, please read the contents of this OMM manual. Failure to follow the recommendations contained in this OMM may prove to be dangerous or result in violation of applicable regulations.

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



PLEASE NOTE! POLON-ALFA reserves the right to introduce changes to this manual

A worn out product, which is not suitable for further use, should be handed over to one of the points collecting electrical and electronic equipment waste.

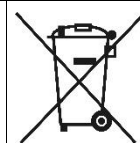



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POLON-ALFA S.A. 85-861 Bydgoszcz, Glinki 155		
Automatic fire extinguishing control panel IGNIS-2500 PN-EN 12094-1 PN-EN 54-2, PN-EN 54-4		
Essential characteristics of the product	Performance properties	Harmonized technical specification PN-EN 12094-1:2006 chapter
Response delay		
Activation status	Fulfils	4.8
Operational reliability		
Functional requirements	Fulfils	4
Structural requirements	Fulfils	5
Additional structural requirements for software-controlled FECP	Fulfils	6
Parameters to be fulfilled during a fire		
Signal processing and signalling	Fulfils	4.3
Receiving and processing input initiating signals	Fulfils	4.4
Extinguishing signal transmission	Fulfils	4.5
Activation of alarm devices	Fulfils	4.6
Strength		
Research	Fulfils	4.8
Optional functions		
Extinguishing signal delay	Fulfils	4.17
Signal indicating the effect of the extinguishing agent	Fulfils	4.18
Monitoring condition of the components	Fulfils	4.19
Emergency stop device	Fulfils	4.20

Discharge time control	Fulfils	4.21
Initiation of an additional discharge	Fulfils	4.22
Manual only mode	Fulfils	4.23
Initiating signals to devices within the installation	Fulfils	4.24
Activating devices outside the installation	Fulfils	4.26
Emergency stop devices	Fulfils	4.27
Extended discharge time control	Fulfils	4.28
Discharge of the extinguishing agent to a designated filling zones	Fulfils	4.29
Activation of alarm devices with different signals	Fulfils	4.30
Essential characteristics of the product	Performance properties	Harmonized standard PN-EN 54-2:2002 A1:2006 chapter
Effectiveness in fire conditions		
General requirements	Fulfils	4
General requirements for signalling	Fulfils	5
Fire alarm status	Fulfils	7
Reaction delay (reaction time to fire)		
Receiving and processing of alarm signals	Fulfils	7.1
Output related to the alarm state	Fulfils	7.7
Delay for outputs	Fulfils	7.11
Dependence on more than one alarm signal	Fulfils	7.12.3
Operational reliability		
General requirements	Fulfils	4
General requirements for signalling	Fulfils	5
Detection status	Fulfils	6
Fire alarm status	Fulfils	7
Damage status	Fulfils	8
Blocking status	Fulfils	9
Testing status	Fulfils	10
Structural requirements	Fulfils	12
Additional structural requirements concerning software-controlled panels	Fulfils	13
Marking	Fulfils	14
Durability of operational reliability: resistance to heat		
Cold resistance	Fulfils	15.4
Durability of operational reliability: resistance to vibration		

Shock resistance	Fulfils	15.6
Resistant to sinusoidal vibrations	Fulfils	15.7
Sinusoidal vibration strength	Fulfils	15.15
Durability of operational reliability: electrical stability		
Electromagnetic compatibility (EMC)	Fulfils	15.8
Resistance to voltage fluctuations	Fulfils	15.13
Durability of operational reliability: resistance to moisture		
Resistance to moist solid heat	Fulfils	5.5
Moist solid heat strength	Fulfils	5.14
Optional functions		
Signalling		
Total loss of supply voltage	Fulfils	8.4
Recording of the number of fire alarm condition activations	Fulfils	7.13
Control elements		
Interdependent alarming	Fulfils	7.12.3
Signal delays at the outputs	Fulfils	7.11
Testing status	Fulfils	10
Outputs		
Fire alarm devices	Fulfils	7.8
Fire alarm transmission device	Fulfils	7.9
Automatic fire protection device	Fulfils	7.10.1, 7.10.2
Damage signal transmission device	Fulfils	8.9
Essential characteristics of the product	Performance properties	Harmonized standard PN-EN 54-4:2001+ A1:2002+A2:2007 chapter
Power supply efficiency		
General requirements	Fulfils	4
Functionality	Fulfils	5
Materials, structure and workmanship	Fulfils	6
Operational reliability		
General requirements	Fulfils	4
Functionality	Fulfils	5
Materials, structure and workmanship	Fulfils	6

Documentation	Fulfils	7
Marking	Fulfils	8
Durability of operational reliability: temperature resistance		
Cold (resistance)		9.5
Durability of operational reliability: resistance to vibration		
Impact (resistance)	Fulfils	9.7
Sinusoidal vibration (resistance)	Fulfils	9.8
Sinusoidal vibration (strength)	Fulfils	9.15
Durability of operational reliability: electrical stability		
Electromagnetic compatibility (resistance)	Fulfils	9.9
Durability of operational reliability: resistance to moisture		
Moist solid heat (resistance)	Fulfils	9.6
Moist solid heat (strength))	Fulfils	9.14
Intended use: Panels for use in gas extinguishing devices installed in buildings, forming a complete and operating installation.		
For technical data, see documentation: ID-E359-001-GB		

This manual allows you to familiarize yourself with the principles of safe use of the IGNIS 2500 Automatic fire extinguishing control panel.

It is essential to read the Technical and Operational Documentation No. ID E359-001-GB (IMM) of the IGNIS 2500 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.com

[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

1.1. Protection against electric shock

The IGNIS 2500 automatic extinguishing control panels are classified as protection class I devices and can only be used with additional protection against electric shock such as neutral or protective grounding.

The insulation of the 230 V/50 Hz power network circuits is reinforced and withstands the test voltage of 2800 V, and the insulation of the low-voltage circuits (below 42 V) is resistant to the test voltage of 700 V DC. After connecting the power network cables the network connection must be protected with a factory-provided shield.

1.2. Safety of system and equipment

The wiring should be made of wires with the required fire resistance and properly secured when crossing the fire zone boundaries. The required distances of the low-voltage installation from the power and lightning protection systems should be kept in order to avoid unwanted interactions.

Due to the system's resistance to electromagnetic interference, it is recommended to use protective grounding.

Place the backup battery in the control panel at the final stage of installation.

Components of this device are heat sensitive. The maximum ambient temperature should not exceed 40 °C. The space left around should be large enough for air to flow freely. In rooms where device operates the air humidity should not exceed 95 %.

1.3. Operation of ionization smoke detectors

In case of cooperation between the control panel and ionization (isotope) detectors, their installation, disassembly and storage may only be performed by an "authorized installer", i.e. an organizational unit which - pursuant to Article 4 of the Atomic Law Act - has a permit from the President of the National Atomic Energy Agency for such activities. Repairs and maintenance

1.4. 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 devices maintained and repaired by unauthorized personnel.

2. Technical data

Table 2/1 Technical data

General parameters	Overall dimensions L x H x G	400 x 403 x 184.5 mm
	Weight (without batteries)	< 8 kg
	Housing tightness	IP 30
	Operating temperature range	-5 °C ÷ +40 °C
	Environmental class	A
	Permissible operating relative humidity	95 % at 40 °C
	Transport temperature range	-25 °C ÷ +55 °C
Power supply	Basic power supply (mains 230 V)	
	Voltage	230 VAC +10 ...-15 % – 50 Hz
	Current	<2.1 A.
	Power	100 VA max.
	Backup power supply	
	2 batteries	2 x 12 V, 7 ÷ 18 Ah
	Voltage	24 V
	Charging current in the configuration:	
	- with 2 MSG-25 modules	1.3 A
	- with 1 MSG-25 module	0.65 A
	Signalling too high internal resistance of the batteries	0.7 Ω
	Final discharge voltage	21 V -10 %
	Operating time on reserve power supply. max.*	72 h
	Outputs	
	Voltage	24 V -15 % +20 %
	Current available max.	4.2 A (batteries charged) 3.0 A (batteries being charged)
MSG-25 module	Number of modules	1 ÷ 2
	Current consumption (no load on outputs)	22 mA
Detection lines	Number of lines max.*	6
	The number of line elements per line	32
	Detector supervision current max.	2 mA
	Total line supervision current max.	7 mA
	Terminating resistor	5.6 kΩ
	Line resistance max.	2 x 100 Ω
Monitoring lines	Number of lines max.*	16
	Max. number of buttons EXTINGUISHING START, EXTINGUISHING STOP, EXTINGUISHING BLOCK	32
	Terminating resistor	6.2 kΩ
	Line resistance max.	2 x 100 Ω
Supervised potential outputs	Number of outputs max.*	10
	Current of outputs L7, L8 max.	2 A

	Current of outputs L9 ÷ L16 max. Terminating resistor Line resistance max. Active status voltage	0.7 A 6.2 kΩ 2 x 50 Ω ^{***}) 24 V ±20
Potential-free relay outputs	Number of outputs max. Current max. Voltage max.	6 1 A 30 V
External device power supply outputs	Any L9÷L16 output configured as 24V power supply Current max. Output voltage	0.7 A 24 V ±20 %
Optional modules for expanding the number of inputs and outputs		
MSS-25 module	Zone signalling module for the second extinguishing zone Number of modules Power consumption	1 24 mA
MKS-60 module (optional)	Number of modules, max.** Current consumption (no load)	2 15 mA
Monitoring lines	Number of lines Terminating resistor Line resistance max.	2 6.2 kΩ 2 x 100 Ω
Supervised potential outputs	Number of outputs Current max. Terminating resistor Active status voltage	2 0.5 A 6.2 kΩ 24 V ±20 %
Potential-free relay outputs	Number of outputs max. Current max.	2 1 A
MWS-60 module (optional)	Number of modules, max.** Current consumption (no load)	2 15 mA
Supervised potential outputs	Number of outputs Current max. Terminating resistor Active status voltage	4 0.5 A 6.2 kΩ 24 V ±20 %
MPK-60 module (optional)	Number of modules, max.** Current consumption (no load)	2 15 mA
Potential-free relay outputs	Number of outputs max. Current max.	4 1 A
MKA-25 module	Communication module with supervisory line of POLON 3000 and POLON 6000 systems Number of modules Power consumption	1 20 mA
Cooperation with devices		
Interface for connection with a computer	Control panel configuration Readout of events	USB

Types of push buttons installed on control lines	<ul style="list-style-type: none"> - PU-61 - EXTINGUISHING START, - PW-61 - EXTINGUISHING STOP, - PB-61 - EXTINGUISHING BLOCKADE, - PD-61 - ADDITION START. 	
Cooperation with fire alarm control panels	Fire alarm control panels of POLON 3000 and POLON 6000 system (with use of MKA-25 module)	
Types of fire-fighting systems:	<ul style="list-style-type: none"> - high pressure, - low pressure 	
Extinguishing zones	Number of zones Possibility to create multi-zone sets	1 ÷ 2 Yes
Event memory	Number of events	≥ 1000

3. Structure description

3.1. Basic features

The IGNIS 2500 has universal potential-free relay outputs, allowing to transmit basic status signals to most fire systems or monitoring stations.

It also has an optional possibility of cooperation with the POLON 3000 and POLON 6000 addressable systems, after applying the MKA-25 module. In addition to the detectors, an addressable detection line may contain up to 8 pcs of IGNIS 2500 control panels (in POLON 6000 system).

3.2. Panel housing

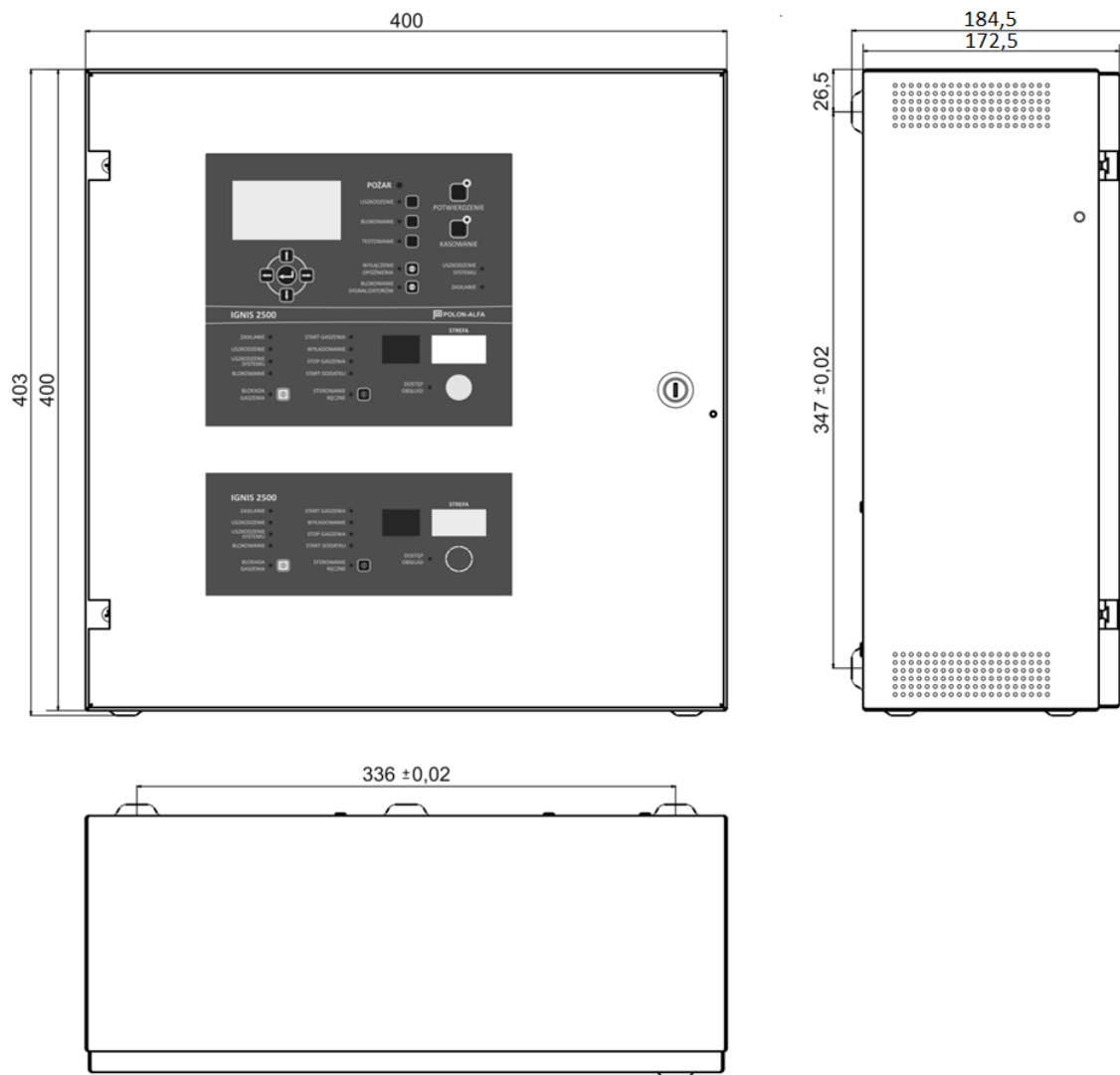


Figure 3.2/1 Dimensions of a two-zone control panel

3.3. User interface

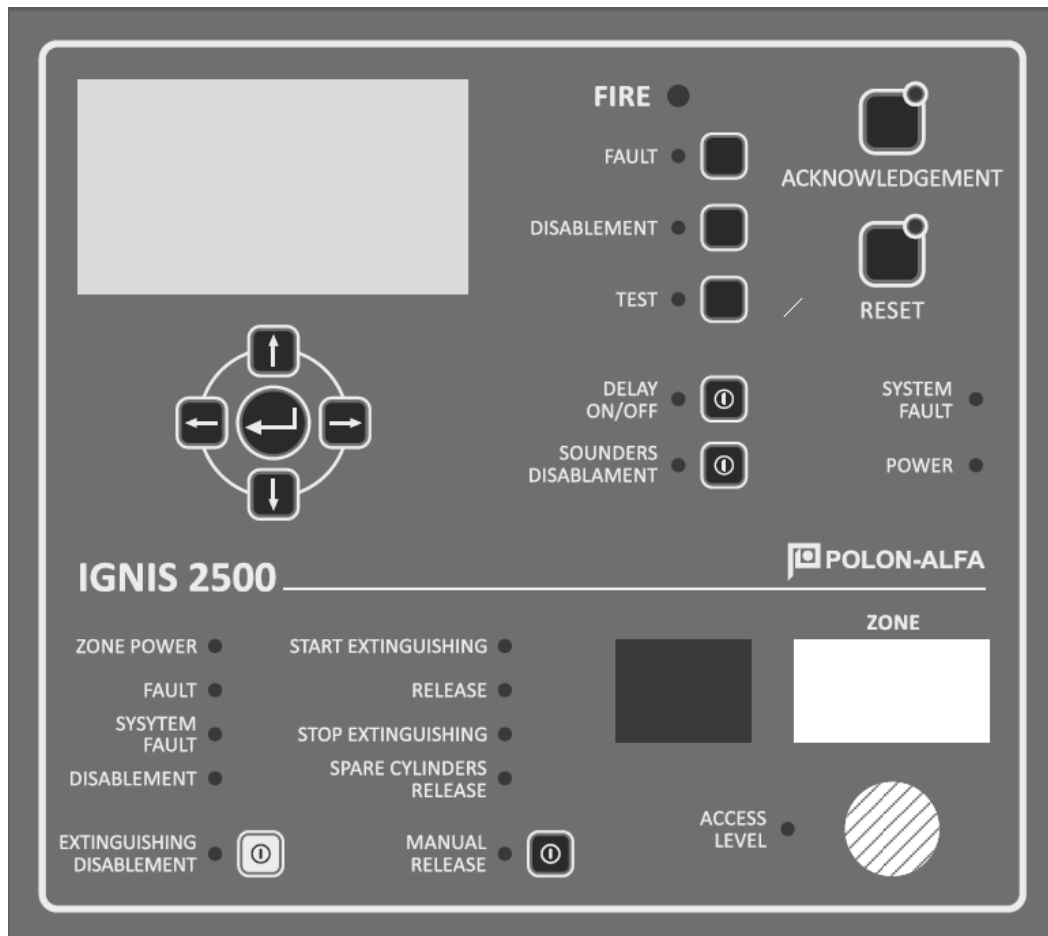


Figure 3.3/1 User interface of a single-zone control panel

Table 3.3/1. Optical signalling and handling elements

4.	No.	5.	Name/colour	6.	Signalling method	7.	Description of the signalled status
1			FIRE /red	Intermittent	Fire detection - unconfirmed alarm status		
				Continuous	The alarm status after pressing the ACKNOWLEDGEMENT button		
2			FAULT /yellow	Continuous	Collective fault indication of at least one circuit or function - fault state		
			Button		When pressed, the fault list is displayed on the LCD display; button active from the first access level		

3	BLOCKING /yellow	Continuous	Collective signalling of blocking at least one input/output or function - blocking status
	Button		Displays the blocking menu on the LCD screen; the button is active from the first access level to read blocking.
4	TESTING /yellow	Continuous	Collective signalling of testing of at least one circuit or function - testing status
	Button		Displaying the test menu on the LCD screen; button active from the second access level
5	DELAY OFF yellow	Continuous	Alarm transmission skipping the programmed delay - one-stage alarm variant.
	Button		Delay off/on; button active from access level 2
6	BLOCKING ALARM DEVICES /yellow	Continuous	Disabling all alarm signalling devices (outputs assigned to the alarm signalling group)
		Intermittent	Partial deactivation - in case of 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 the menu of blocking/unblocking the outputs configured for controlling acoustic signalling devices
7	ACKNOWLEDGEMENT /yellow	Continuous	No confirmation of the alarm - T1 time counted down until the ACKNOWLEDGEMENT button is pressed
	Button		Pressing the ACKNOWLEDGEMENT button - receiving a fire alarm by the staff, switches the second stage alarm delay countdown from T1 to T2 time and mutes the acoustic signalling devices; active from the first access level (without switching on the ignition).






8	RESET /yellow	Continuous	Signals that the alarm can be reset
	Button		Reset the alarm state; button active from the second access level
9	SYSTEM FAULT /yellow		Fault to the microprocessor system or configuration data
10	POWER /green	Continuous	Signalling of efficient primary and backup power supply.
		Intermittent	Defective or missing mains or back-up power.
11	LCD DISPLAY		Display of control panel status messages and configuration settings
12	← ↑ ↓ → DIRECTIONS BUTTONS ↵ Enter		Designed to operate the control panel menu as described in section 5 "Display functions and menu operation"

Table 3.3/2 Optical zone signalling devices

No.	Name/colour	Signalling method	Description
1	POWER SUPPLY /green	Continuous	Signalling of efficient primary and backup power supply.
		Intermittent	Defective or missing mains or back-up power.
2	FAULT /yellow	Continuous	Collective signalling of failure of at least one circuit or function related to the extinguishing zone
3	SYSTEM FAULT /yellow		Fault to the microprocessor system of the zone controller or zone configuration data
4	BLOCKING /yellow	Continuous	Collective signalling of blocking of at least one circuit or function - blocking status
5	EXTINGUISHING BLOCK /yellow	Continuous	Signalling that the extinguishing block is on
	Button		The button performs the function of switching on or off the extinguishing agent discharge block (or interrupting the flow).
6	EXTINGUISHING START /red	Intermittent	Status before activating the extinguishing system (alarming one detection line or alarm from the initiating line in the manual control only mode)

		Continuous	Activation status - start of the automatic extinguishing procedure as a result of alarming at least two interdependent control lines or activation from the initiating line in automatic operation mode or manual activation.
7	DISCHARGE /red	Continuous	The status of discharge, or release of extinguishing agent.
8	EXTINGUISHING STOP /yellow		8. State of stopping (pause) the extinguishing after pressing the EXTINGUISHING STOP button. It operates at the stage of warning against the discharge of the extinguishing agent. During signalling, the countdown of the extinguishing agent release delay time is stopped.
9	ADDITION START /red	Continuous	Signalling that the discharge of additional extinguishing agent is activated
10	MANUAL CONTROL /yellow	Continuous	Signalling of manual control only.
	Button		On/Off button for manual-only control mode.
11	DIGITAL DISPLAY (2 x 7-segment)		Displaying the countdown of the time remaining until the extinguishing agent is discharged
12	ZONE		A place for inserting a paper sheet with a description of the zone
13	Key switch (ignition switch)		Enabling the second access level
14	SERVICE ACCESS /yellow	Continuous	Second level of access
		Intermittent	> second access level or opening the panel door

Table 3.3/3. Functions of the direction buttons

9.	Button	10.	Function
11.		12.	Scroll down
13.		14.	Scroll up
15.		16.	Move the cursor to the right or enter a sub-menu
17.		18.	Exit from the sub-menu - entering a higher level
19.		20.	Entering a sub-menu, moving to the next window or field and confirming changes made in functional or configuration settings.

4. Safety conditions

Basic power supply

The main power supply for the control panel is the 230 V/50 Hz power network. The control panel power supply as well as buffering or charging of the attached battery bank is ensured by the internal power supply, generating constant voltage of 24 V. The control panel power supply allows the consumption of current up to 4.5 A. It should be connected to the MSG-25 module. For multiple modules, the MSG-25 should be connected to the module with the lowest address.

At the installation design stage, it should be checked that the total current to be taken from the control panel power supply does not exceed the above-mentioned value. When checking, it is necessary to take into account the sum of all currents taken simultaneously from the control panel terminals, including the control panel power supply current. You should also pay attention to the permissible current values of the individual outputs.

In case of using a greater number of e.g. alarm devices and exceeding the acceptable current value, an external power supply should be taken into consideration.

Backup power supply

In case of mains voltage failure, the control panel backup power supply is provided by a battery bank with the rated voltage of 24 V and capacity of 7 ÷ 18 Ah. Switching from the main power supply to the reserve supply takes place automatically, without causing interruption of the power supply.

The operating time of a battery-powered control panel without the main power supply can reach 72 hours in the detection state and additionally 0.5 hour in the alarm state, depending on the hardware configuration and connected loads.

The power consumption of the control panel for a given configuration should be estimated in order to calculate the battery capacity and the required time of operation on the backup power supply.

The accumulator battery is charged automatically by the charging device integrated with the MSG-25 module. The charging current is limited to approx. 0.65 A for a single-zone panel or 1.3 A for a control panel equipped with two MSG-25 modules. These modules are equipped with two connectors for connecting the batteries. Regardless of the number of MSG-25 modules used, the batteries should be connected to one output. When using two MSG-25 modules, the outputs should be connected in

parallel to double the charging current. The battery connection diagrams are shown in Figures 4/1 and 4/2.

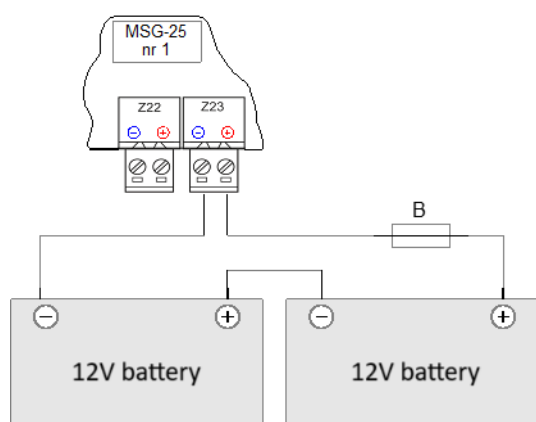


Figure 4/1 Connecting batteries
with one MSG-25 module

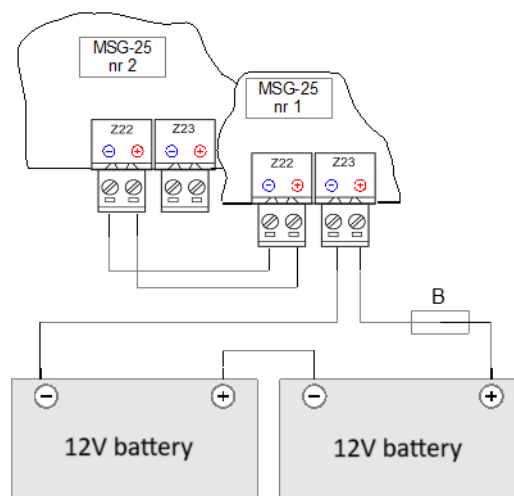


Figure 4/2 Connecting batteries
with two MSG-25 modules

When fully charged, the value of the charging current is close to zero, and the buffering voltage should be approx. 27.3 V at a temperature of <math><25\text{ }^{\circ}\text{C}</math> (value automatically set when switching to buffer state). In order to extend the efficiency of the batteries, automatic adjustment of the buffering voltage depending on the temperature inside the control panel was applied. The overall performance of the battery as well as the charging device is continuously monitored and damage is indicated. The battery is considered faulty (by the control panel internal control system) when the internal resistance of the battery increases and exceeds

The assembly, operation and disposal of batteries should be carried out in accordance with the instructions of the battery manufacturer. It is compulsory to recycle these batteries in accordance with applicable legal regulations.

Automatic power off. When the control panel is operated only from the battery bank - it causes gradual, natural reduction of the supply voltage. Decrease of reserve supply voltage to approx. 22 V is signalled acoustically. Further decrease of the battery bank voltage and reaching the final discharge voltage of approx. 21 V will automatically turn off the control panel. When the main power supply returns, the control panel is automatically switched on. If the 230 V power supply is lost and a charged battery pack is connected, the control panel is started by pressing the SW3 button "ACTIVATE BAT." available on the MSG module board.

4.1. Control panel mounting

The control panel should be mounted on the wall with three expansion bolts with a diameter of at least 8 mm. The arrangement of the control panel fastening holes is shown in Figure 4.1/1. Mounting is possible with the batteries removed.

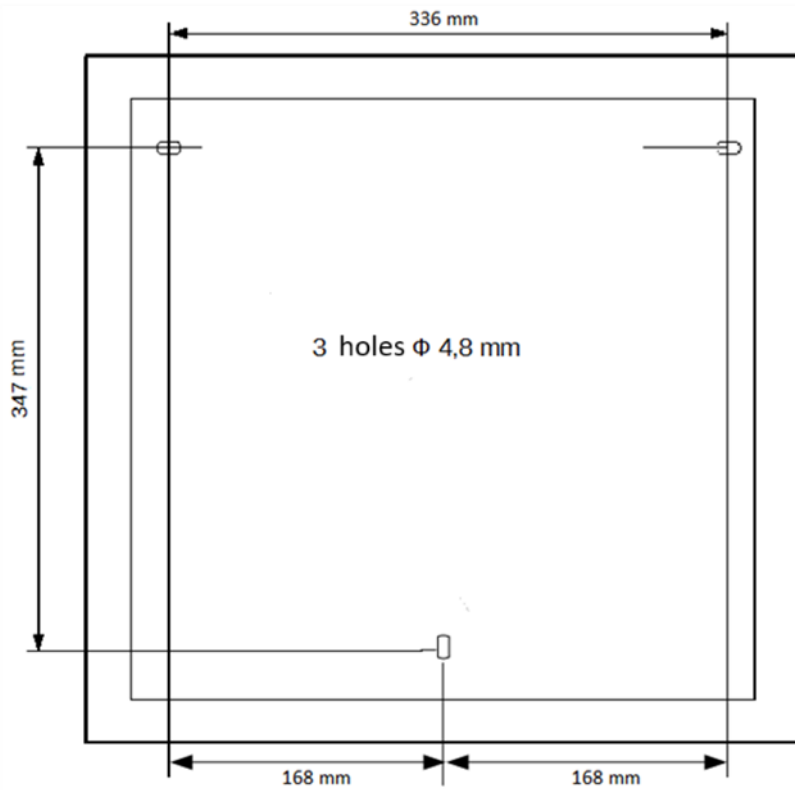


Figure 4.1/1 Mounting the control panel

4.2. Connection terminals for input and output circuits, hard-wired installation

The control panel is equipped with a set of connection terminals for connecting the wires of the alarm system, fire extinguishing system, external devices and the power supply. These terminals allow the connection of wires with a maximum cross-section of 1.5 mm² or 2.5 mm² for the L7 and L8 outputs.

The view of the connection terminals is shown in the module description.

Lines connected to the control panel terminal blocks should be routed in accordance with the rules adopted in telecommunications. They can be placed on the wall, under plaster, in the ground or as an overhead line. Detection lines must be continuous, ended with termination resistors. Lines cannot be installed along high power cables.

The installation wires can enter the control panel from a plug-in or surface-mounted installation. They are introduced by the shortest route (without length reserves), through the round cable grommets in the rear wall of the control panel, **separately mains, separately low-voltage cables**. The ends of unused cables should not be introduced into the control panel.

Mains power. For connecting 230 V/50 Hz mains and protective wire there are L, N and PE mains terminals in MZU-25 power supply module, protected by cover against accidental contact. It is recommended to use 2.5 mm² cross-section for the protective conductor.

Detection lines. Two pairs of terminals with marked polarity are used to connect the detection lines. It is recommended that the detection lines be conducted with a shielded cable with CNBOP certificate, e.g. YnTKSYekw 1 x 2 x 0.8.

Input and output detection and control lines. They should be made with a shielded cable, similar to the detection lines. During installation, ensure that the terminals are connected correctly in accordance with the polarity.

In the vicinity of module connectors and cable grommets coming out of the control panel, on the rear wall of the casing, there are rails intended for connecting shielding wires to the metal casing of the control panel.

5. Instructions for commissioning and checking the correct operation of the control panel after installation

Work to be done before commissioning

- installation of low-voltage lines: detection, inspection, control and 24 V power supply lines as well as supply of 230 V mains according to the design,
- installation of devices in detection lines, inspection and control lines, etc.,
- installation of the control panel,
- setting the control panel power switch on the power module to the "off" position,
- connection to the connectors of low-voltage lines entering the control panel,
- connecting the mains power to the L, N, PE terminals in the power module - CAUTION! Dangerous voltage!,
- making paper inserts with the description of zones and placing them in the zone fields on the control panel door,
- preparation of a list of linear elements with a description of the location.

Checking the electrical connections

- checking the correct position of configuration jumpers in the control panel modules,
- checking the correct connection of the line wires to the control panel connectors, paying attention to the polarity +, -,
- checking the connection of terminating resistors in the last sockets of the supervised lines (detection, control, potential),
- checking the correctness of connection of separating diodes in potential lines,
- installation of batteries,
- serial connection of two 12 V batteries with attention paid to the consistency of polarity markings +, - on the connector and battery terminals.

Start-up

- during the initial start-up of the control panel, disconnect the potential lines controlling external devices such as solenoid valves, alarm signalling devices, monitoring outputs, etc. by pulling out (disconnecting) the connectors in the control panel modules,
- switch on the control panel by means of the mains switch on the power supply module,
- perform software configuration of the control panel: declare modules, program inputs and outputs types, their operating modes, alarming variants, time parameters and set the control panel real time clock,
- read the faults detected by the control panel and remove any installation errors,
- test the optical indicators of the front board,
- perform an initial check of the line operation: detection - by triggering the alarm state, control - by activating or simulating possible states of supervised devices,
- check the correctness of activation of the potential outputs that control the actuating devices by observing the control LEDs on the module PCB (printed circuit board) at each potential line connector or by measuring the voltage at the output before and after activation,

- perform a test of correct operation of the output blocking function,
- perform a test of all line elements (detectors, MCP (manual call point), START, STOP buttons, signalling devices and other devices connected to the system), paying attention to the compliance of the location of the elements with the description in the zone area,
- after all faults have been eliminated and the system is in the ready state, connect the terminals of the disconnected potential lines one after the other for the time of the initial commissioning,
- check the operation of actuating devices cooperating with the control panel,
- check the operation of the alarm signal transmission and damage to the monitoring devices,
- change the default access codes to user codes (if necessary).

After starting the system, it is recommended to check and, if necessary, set the current date and time, and clear the event log.

The works can be considered completed when the above-mentioned activities have been performed and all the system devices are functioning properly and the control panel is operating in the detection mode (without signalling any faults or disablements) - the system can be handed over to the user.

6. 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.

Storage regulations.

The control panel modular components should be stored in closed rooms with a temperature of $+5^{\circ}\text{C} \div +40^{\circ}\text{C}$ and relative humidity not exceeding 80 %, free from corrosive vapours and gases. In case of longer storage, the control panel should be connected to the power supply for at least 1 hour every 6 months and its operation should be verified.

Transport.

Packaged units should be transported in covered means of transport, taking into account the transport instructions given on the packaging and protected against sudden shocks and ambient temperatures exceeding the range from -25°C to $+55^{\circ}\text{C}$.

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