“DMTech” Ltd., Pleven

Fire Extinguishing Control Panel
FP9000E

Installation, Commissioning and Operating Manual

FP9000E

FP9000E (MB)

FP9000E (MCP)

Rev 03:26

CONTENTS

1. Introduction

The **FP9000E** is a conventional fire extinguishing control panel designed for the control of active fire extinguishing systems using gas, powder, aerosol, water and other extinguishing agents.

The control panel is available in the following versions:

1. **FP9000E** – plastic enclosure;
2. **FP9000E (MB)** – metal enclosure version;
3. **FP9000E (MCP)** – metal enclosure with integrated manual release device and a key-operated switch for defining the access level of authorised personnel.

The FP9000E provides three fire detection zones – two extinguishing zones activated by automatic fire detectors and one conventional fire detection zone. The control panel supports **automatic and manual operating modes**, selectable via a **three-position key-operated switch**, allowing the operator to select the method of control of the extinguishing process.

The FP9000E fire extinguishing control panel is designed for extinguishing in **one protected area** and is capable of controlling solenoids, pressure switches and other actuating devices.

Up to **32 automatic fire detectors** can be connected to each fire detection line. More than **50 functional parameters** can be programmed and adjusted via the built-in display and keypad. Each line provides **five individual programmable parameters**, making the control panel universal and compatible with various types of conventional fire detectors.

In addition, evacuation delay times and discharge (pressure relief) valve activation times, the input contact type (**NC or NO**), as well as other extinguishing-related parameters can be configured. This provides high flexibility and allows the control panel to be used with different types of fire extinguishing systems.

All system status information and configuration menus are displayed via a **2×16 character LCD**, LED indicators and control buttons for operation and menu navigation. The **non-volatile memory** and the built-in **real-time clock** allow recording and review of up to **1600 event log entries**.

A **key-operated switch** for selection of the operating mode – **AUTO / MAN / DISABLE** – is integrated on the front panel of the control unit.

The control panel offers **quick and easy installation, configuration and commissioning**, as well as **simple and clear operating and maintenance procedures**.

2. Technical Specifications

Fire detection lines		
➢ **Lines:**		
• **Fire Extinguishing** – 2 fixed detection lines (**Line 1 and Line 2**)	**2**	
• **Fire Detection (Alarm Only)** – 1 fixed detection line (**Line 3**)	**1**	
• **Maximum number of fire detectors per line**	**32**	
• **Type of detection line**	**two-wire line**	
• **Maximum loop resistance**	**100 Ω**	
➢ **Current thresholds of detection lines**		
• **Open Circuit**	**from 1 to 12 mA**	**Programmable**
• **Standby Mode**	**from 2 to 60 mA**	**Programmable**
• **Fire Alarm**	**from 12 to 99 mA**	**Programmable**
• **Short Circuit**	**> 100 mA**	
➢ **Functional characteristics of fire detection lines:**		
• **Number of verification checks before entering Fire Condition**	**1, 2 или 3**	**Programmable**
• **Earth fault detection and indication**	**yes**	**Selectable / Programmable**
Monitored balanced inputs		
➢ **Manual Release:**		
• The “Manual Release” input is normally open (NO)..	**1**	
➢ **Hold:**		
• The “Hold” input can be configured as: #normally open input; #normally open output.	**1**	**Selectable and programmable**
➢ **Low Press:**		
• The “Low Pressure” input can be configured as: #normally open input; #normally open output.	**1**	**Selectable and programmable**
➢ **Mode Select:**		
• Входът „Mode Select/Избор на режим “ е нормално отворен.	**1**	
➢ **On/Off Exting (Включване/Изключване на гасенето):**		
• The “Mode Select” input is normally open (NO).	**1**	
Voltage signalling outputs		
➢ **S1 (Sounder 1) – Supervised:**		
• **Type**	relay	
• **Electrical characteristics**	24 V DC/ 0,5A	
➢ **S2 (Sounder 2) – Supervised:**		
• **Type**	relay	
• **Electrical characteristics**	24 V DC/ 0,5A	

➢ **EXT (Гасене, EN 12094-1) – Наблюдава се:**		
• **Type**	relay	
• **Electrical characteristics**	24 V DC/1.5A 15min., 24 V DC/3A 100s.	
• Регулируемо време за задействане на изхода от 5 до 900 секунди.		**programmable**
Relay outputs:		
➢ **Stage 1 relay (FIRE STAGE 1) – Not supervised**		
• **Type**	Potential-free relay	**NO**
• **Electrical characteristics**	3A/125 V AC, 3A/30 V DC	
➢ **Stage 2 relay (FIRE STAGE 2) – Not supervised:**		
• **Type**	Potential-free relay	**NO**
• **Electrical characteristics**	3A/125 V AC, 3A/30 V DC	
Unsupervised outputs. OC type (Open Collector), intended for signalling purposes.		
➢ **OK1 (The panel is in extinguishing disabled / inhibited state):**		
• Electrical characteristics	30mA	
➢ **OK2 (Manual mode selected):**		
• Electrical characteristics	30mA	
➢ **OK3 (Low pressure event):**		
• Electrical characteristics	30mA	
➢ **OK4 (Hold activation event):**		
• Electrical characteristics	30mA	
➢ **Fault relay output:**		
• Quantity	1	
• Type	Potential-free relay	**NC / NO**
• Electrical characteristics	3A/125 V AC, 3A/30 V DC	
POWER		
➢ **Mains power supply**		
• Voltage	**(110-252)V AC**	
• Frequency	**50/60 Hz**	
• Maximum power from the mains supply	**55W / AC**	
• Mains power consumption in standby mode:	**15 mA / 230V AC**	
➢ **Battery power supply**		
• Number of batteries	**2**	
• Battery type	**Lead-acid, gel**	
• Nominal battery voltage	**12V DC**	
• Rated capacity (C20)	**FP9000E 5Ah** **FP9000E (MB) 5/7/9Ah** **FP9000E (MCP) 5/7/9Ah**	
• Internal battery resistance	**R_i: < 0.3Ω**	
• Charging voltage	**27,4 V DC**	Temperature-compensated
Battery power consumption in standby mode		
• Normal standby condition	**< 50 mA / 24 V DC**	
Standby operating time on battery power:		

• 12V/ 5Ah	**90 hours**	
Actuating device power supply		
• Voltage	**(21-27) V DC**	
• Maximum current (including controlled output current)	**2A**	
Protective fuses		
• Mains power supply	• **4.0 A, fuse-protected**	
• Battery power supply	• **6.3 A, fuse-protected**	
• External device power supply	• **1.85 A, automatic protection**	
• Controlled outputs	• **1.1 A, automatic protection**	

Functional characteristics	
• **Line supervision**, including monitored balanced inputs and controlled outputs for **fault conditions** (short circuit and open circuit), with **automatic reset**;	
• **Detector removal (head removal) monitoring** with **automatic reset**;	
• **Indications for fire, activated, extinguishing, fault, disablement and test mode**;	
• **Configurable delay of controlled and common extinguishing outputs** from **1 to 60 seconds** after detection of the **Activated** condition;	
• **Built-in sounder** – monotone, continuous, with **mute function**;	
• **Test mode for each detection line** (fire detection);	
• **Individual disablement of each fire detection line**;	
• **Option to disable the controlled output S1 (Sounder 1)**;	
• **LCD display, 2×16 characters, and keypad** for panel control and indication;	
• **Non-volatile event memory**, storing **up to 1600 events**, including **event type, date and time**;	
• **Selectable display language** for textual information;	
• **Comprehensive test modes and configuration options** for lines, outputs and panel parameters.	
➢ **Overall dimensions (W × H × D)**	**FP9000E 310x240x90 mm** **FP9000E (MB) 335x253x85 mm** **FP9000E (MCP) 380x285x85 mm**
➢ **Net weight (without batteries)**	**FP9000E 1,3 kg** **FP9000E (MB) 2,7 kg** **FP9000E (MCP) 3,3 kg**
➢ **Degree of protection (IP rating)**	**IP30/ EN 60529**
➢ **Operating temperature**	**- 5ºC до +40ºC**
➢ **Relative humidity**	**до 95%**
➢ **Storage temperature**	**- 10ºC до +60ºC**

The control panel complies with the following standards:
• EN12094:2003
• EN 54-2:1997
• EN 54-2:1997/A1:2006
• EN 54-2:1997/AC:1999
• EN 54-4:1997
• EN 54-4:1997/A1:2002
• EN 54-4:1997/A2:2006
• EN 54-4:1997AC:1999
• EN 50130-4:2011
• EN 55022:2006/A1:2007
• EN 60950-1:2006/A11:2009

3. FRONT PANEL – CONTROL AND INDICATION

- **LED INDICATION**

Индикатор		Функция
“POWER”	green	**Steady green light** – Power supply present.
“ACTIVATE”	red	**Flashing** – **Fire Stage 1 / Fire condition (EN 54-2)**.
“RELEASE”	red	**Steady light** – **Fire Stage 2 / Activated condition (EN 12094)**.
“FAULT”	yellow	**Steady yellow light** – General fault indication.
“SYS FAULT”	yellow	**Steady yellow light** – **System fault due to processor failure**. The panel must be repaired by an **authorised service centre**.
“POWER”	yellow	**Steady yellow light** – **Mains power supply or battery fault / loss**.
“TEST”	yellow	**Steady yellow light** – **Line test mode active**.
“DISABLE”	yellow	**Steady yellow light** – **Disabled component** (detection line or controlled output).
“OUTS”	yellow	**Steady yellow light** – **Short circuit or open circuit** on supervised sounder lines **S1 or S2**.
“DELAY OUT”	yellow	**Steady yellow light** – **Pre-set delay active** for relay outputs connected to the additional **M9000R relay module**.
“BUZZER SILENCE”	red	BUZZER SILENCE indicator Steady red light. The built-in buzzer is silenced.
“SOUND SILENCE”	red	SOUND SILENCE indicator Steady red light – Fire sounder outputs are silenced.
“MAN”	yellow	Manual extinguishing mode indicator. Steady light – The extinguishing process is controlled manually only.
“DISABLE EXT”	yellow	Extinguishing disabled indicator. Steady light – The extinguishing process is disabled / inhibited. Flashing – Input line fault (short circuit or open circuit).
“HOLD”	yellow	Steady light - The indicator is illuminated continuously when the HOLD input (extinguishing hold) is activated. Flashing - Input line fault (short circuit or open circuit).

“AUTO”	yellow	In the event of a Fire Alarm Stage 2, the extinguishing process will be initiated automatically or may be manually controlled by pressing the MANUAL RELEASE button.
“PRESS”	yellow	Steady light – The indicator is illuminated continuously when the LOW PRESSURE input is activated. Flashing – Input line fault (short circuit or open circuit).
“FLOW”	yellow	Steady light – The indicator is illuminated continuously when the FLOW CONTROL input is activated. Flashing – Input line fault (short circuit or open circuit).
“VALVE”	yellow	Steady light – The indicator is illuminated continuously when the extinguishing output is activated. Flashing – Output line fault (short circuit or open circuit).
“1 2 3”	red	Individual fire indicators – Steady light when the corresponding line is in the Fire condition.
“**1 2 3**”	yellow	Individual line fault indicators – Steady light when the corresponding line is in the Fault condition. The indicator also provides indication when the line is disabled or in test mode, in conjunction with the respective status indication.

- **БУТОНИ**

Бутон	Състояние на централата	Ниво на достъп	Действие
	Fire Activated	Level **2**	“**RESET**” – Exit from fire and extinguishing conditions
	Fire Activated	Level **2**	**„SOUND SILENCE“ –** Silencing of active Fire outputs
	Fire, Activated, Fault	All access levels	**„BUZZER SILENCE“** – Silencing / enabling of the panel internal audible indicator (buzzer).
	Standby mode, Fire, Fault, Test and Disablement	Levels **1** and **2**	Enter Information and Control mode.
	Information and control	Levels **1** and **2**	• Display of the previous Fire text message. • Display of the previous item on the display. • Adjustment of the selected parameter.
	Fire	Levels **1** and **2**	• Scroll to the next Fire message. • Display next Fire message
	Information and control	Levels **1** and **2**	• Display of the previous item on the display. • Adjustment of the selected parameter.
	Options	Level **3**	
	Fire	Levels **1** and **2**	• Display next Fire message. • Scroll to the next Fire message.
	Information and control	Levels **1** and **2**	• Navigate to the next menu item. • Move cursor. • Change the selected parameter.
	Options	Level **3**	
	Information and control	Levels **1** and **2**	• Exit the function without saving the parameter changes – command not executed. • Exit the current menu and return to the higher-level menu in the hierarchy.

Manual activation button – MANUAL RELEASE for FP9000E control panel (MCP).

The MANUAL RELEASE button is intended for forced (manual) activation of the fire extinguishing process, independently of the automatic detectors, provided that control permission is granted.

The button is protected by a transparent protective cover to prevent accidental activation. When pressed, a command is sent to the control panel to activate the fire extinguishing system in the corresponding zone.

Deactivation is performed using a key supplied with the control panel. The key is inserted into an opening located at the lower part of the button, and by pressing the button upwards, the manual release is deactivated..

Key switch – ENABLE CONTROL (OFF / ON) for FP9000E control panel (MCP).

The **ENABLE CONTROL** key switch is used to **enable or disable control of the extinguishing process**.

• **OFF** – Control of the main functions of the control panel is disabled. **Access level 1.**
• **ON** – Control of the main functions of the control panel is enabled. **Access level 2.**

The switch is **key-protected** and is intended for use **by authorised personnel only**.

Key-operated mode selector switch – AUTO / MAN / DISABLE

This switch defines the **operating mode of the extinguishing control panel**:

• **AUTO (Automatic mode)**
The extinguishing system is **automatically activated** upon operation of **automatic fire detectors** or the **MANUAL RELEASE** button.

• **MAN (Manual mode)**
Automatic activation is **inhibited**.
Fire extinguishing can be activated **only by the MANUAL RELEASE button**.

• **DISABLE (Disabled)**
The extinguishing function is **completely disabled**.
Neither automatic nor manual activation is permitted.

The switch is **key-operated** and provides **control of the operating mode by authorised personnel only**.

4. DEFAULT PARAMETERS

The extinguishing control panel provides users with default parameters, listed in the table below. These parameters are stored and saved via the “Default par.” (Default Parameters) menu.

Fire alarm lines		
➢ **Current thresholds in the lines:**		
• Open circuit	**от 4 mA**	
• Normal (Standby)	**от 5 до 16 mA**	
• Fire	**от 17 до 99 mA**	
• Short circuit	**> 100 mA**	
➢ **Functional characteristics of the lines:**		
• Number of checks before entering the Fire condition.	**2**	**programmable**
• Check and logging of earth fault (ground fault).	**ON**	**programmable**
Supervised balanced inputs		
➢ **Manual activation:**		
• The "Manual Release" input is:	**Normally open (NO)**	
➢ **Hold:**		
• The " Hold " input is:	**Normally open (NO)**	**programmable**
➢ **Low pressure:**		
• The "Low Press." input is:	**Normally open (NO)**	**programmable**
➢ **Mode selection:**		
• The "Mode Select" input is:	**Normally open (NO)**	
➢ **Extinguishing enable / disable:**		
• The "On/Off Exting" input is:	**Normally open (NO)**	
The output provides voltage.		
➢ **EXT (EN 12094-1):**		
• Output activation time:	10 second	**programmable**
Functional characteristics		
• Evacuation delay time:	60 second	**programmable**

5. INSTALLATION AND CONFIGURATION OF THE CONTROL PANEL

5.1 Mounting of the control panel.

- Unpack the control panel;
- Install the wall plugs at the designated mounting points for the control panel;
- Secure the control panel to the wall plugs using the three mounting holes on the chassis.

It is recommended that the control panel is not installed near sources of heat (radiators, air conditioners, etc.).

- The connection cables shall be routed through the opening provided in the enclosure.

5.2 Description of the PCB terminal block.

The FP9000E front panel **is mounted on a chassis. Connections to the** main power supply unit**, the** indication board**, and the** earthing points **are factory-installed.**
The connection cables for the zones and control devices **must be routed through the opening located** above the rows of terminals**.**
The terminals are designed for conductors with a cross-section of up to 2.5 mm²**.**
The conductors must be inserted from the upper side of the terminals**.**

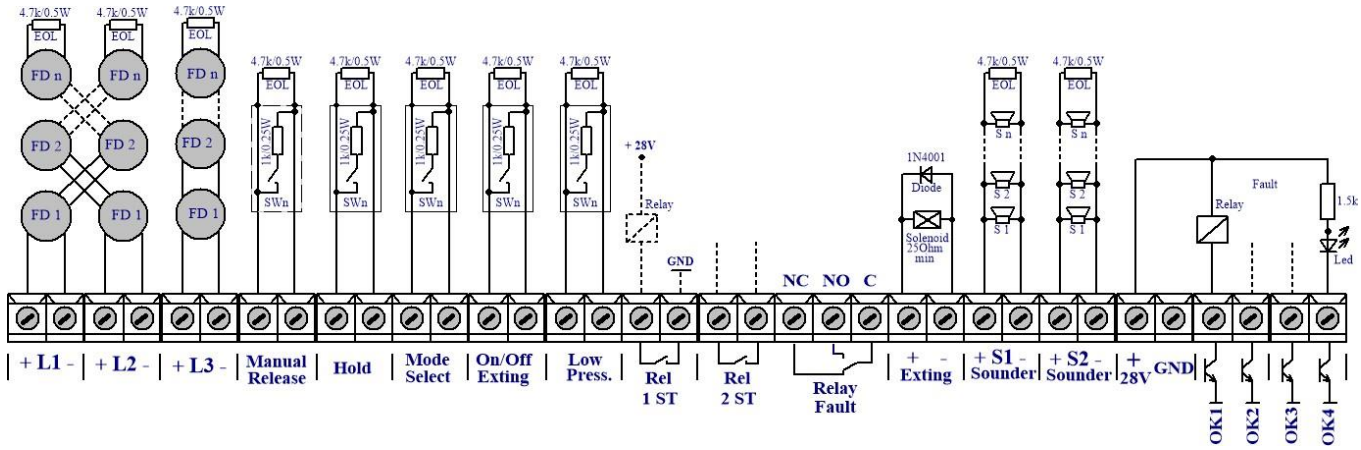


Fig. 2

INPUTS

- **L1, L2 – Extinguishing lines**

Terminals for connection of automatic fire detectors within the protected extinguishing area.
In automatic operating mode, when both lines (L1 and L2) enter the Fire condition, the control panel enters Fire condition – Stage 2 and initiates the fire extinguishing procedure.

- **L3 – Conventional fire alarm line**

Terminals for connection of automatic fire detectors and manual call points in the areas adjacent to the protected extinguishing area.
This line is intended only for fire detection and alarm signalling and does not participate in extinguishing activation.
When a detector or a manual call point on line L3 is activated, the control panel enters Fire condition – Stage 1.

- **Manual Release – Manual Activation**

A supervised balanced input for manual activation of the extinguishing sequence in the protected area by means of a manual release device.
One or more manual release devices may be connected to this input.

- **Hold – Inhibit / Hold Function**

A supervised balanced input used to hold (delay) the fire extinguishing process in the protected area.
The signal may be provided by a manual hold button, door contact, pressure switch, or other external device.
The active state of the input – NC (normally closed) or NO (normally open) – is configurable via the control panel setup menu.

- **Mode Select – Operating Mode Selection**

A supervised balanced input for selecting the operating mode of the extinguishing function via an external contact.
The supported operating modes are:

- **Manual mode** – selected when the contact is closed;
- **Automatic mode** – selected when the contact is open.

- **On/Off Extinguishing – Extinguishing Enable / Disable**

A supervised balanced input for remote enabling or disabling of the extinguishing function via an external device.

The active state of the input is **NC (normally closed)**.

- **Low Press. – Low Pressure**

A supervised balanced input for monitoring the pressure of the extinguishing agent.
The signal is provided by a pressure switch contact, weighing device, or other measuring equipment and indicates a pressure drop (for example, due to gas release from the cylinders).
The active state of the input – **NC or NO** – is configurable via the control panel setup menu.

OUTPUTS

- **Rel 1ST (NO / COM) – "Fire – Stage 1" Relay Output**

A dry-contact relay output that is activated when the control panel enters Fire – Stage 1 condition.

- **Rel 2ST (NO / COM) – "Fire – Stage 2" Relay Output**

A dry-contact relay output that is activated when the control panel enters Fire – Stage 2 condition.

- **Relay Fault – Fault Output**

A relay output with C / NO / NC contacts, activated upon any fault condition within the control panel.
During normal (standby) operation without faults, the relay is energized and contacts C–NO are closed.

- **Exting – Extinguishing Output (EN 12094-1)**

A supervised output for activation of the solenoid valve that initiates the automatic fire extinguishing sequence in the protected area.

- **S1 – Audible Alarm – "Fire – Stage 1"**

A supervised audible output activated upon Fire – Stage 1, detected in zone L1, L2, or L3.

- **S2 – Audible Alarm – "Fire – Stage 2"**

A supervised audible output activated upon Fire – Stage 2, when both zone L1 and zone L2 are activated simultaneously.

- **+28V / GND, 1.0 A – Auxiliary Power Supply**

An output for powering external devices with a nominal voltage of 28 V DC and a maximum current of 1.0 A.

- **OK1 – "Extinguishing Disabled" Indication**

An open-collector output that changes its state when the extinguishing function is disabled (Off Exting), regardless of whether the command is issued via an input or via the front-panel switch.

- **OK2 – "Manual Mode" Indication**

An open-collector output that changes its state when the control panel is set to Manual mode, selected either via an input or via the front panel.

- **OK3 – "Low Pressure" Indication**

An open-collector output that is activated upon a Low Pressure event received from the Low Press. input.

- **OK4 – "Hold" Indication**

An open-collector output that is activated upon a Hold event received from the Hold input.

5.3 Connection of Fire Detectors

Lines 1 and Line 2 are intended for fire detection within the extinguishing area.
The procedure for initiating the extinguishing sequence in the protected area is triggered only when both **Line 1 and Line 2 are activated simultaneously**, provided that the control panel is operating in **Automatic mode**.

If the control panel is set to **Manual mode**, the extinguishing sequence will not be initiated. In this case, the control panel will enter **Fire – Stage 1** condition and will wait for **manual activation** after confirmation of the need for extinguishing.
The extinguishing process will **not** be activated if only one of the extinguishing zones – **Line 1 or Line 2** – is activated.

Line 3 is a conventional fire detection zone intended for connection of automatic fire detectors and manual call points located in areas adjacent to the protected zone.
Activation of **Line 3** causes the control panel to enter **Fire – Stage 1** condition and activates the corresponding **Fire – Stage 1 relay output** on the control panel (printed circuit board).

Fire detectors are connected to the extinguishing control panel via a **two-wire insulated line** with a total electrical resistance of up to **100 Ω**.
The recommended conductor cross-section depends on the line length and shall be selected so as to ensure correct system operation.

Prior to connecting the fire detection lines to the control panel, a **preliminary resistance check** is recommended.
With correct installation of a single line equipped with an end-of-line element, the measured resistance between the positive (+) and negative (–) conductors of the cable entering the control panel shall be **4.7 kΩ (±10%)**.

When measuring the resistance between each conductor and **Earth**, no electrical continuity shall be present.

The lines shall be connected to the terminals of the respective input modules **"+Lx"** and **"–Lx"**, where **"x"** denotes the line number.
The specified **polarity shall be strictly observed**.

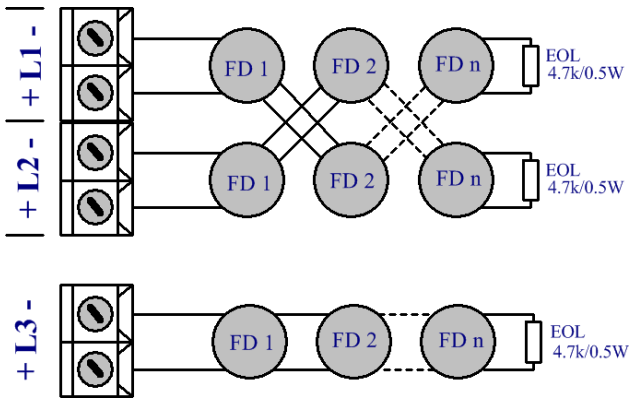


Fig. 2

A single line allows the installation of up to 32 fire detectors, regardless of their type.
For unused lines, the EOL (End-of-Line) element shall be installed directly at the terminals; otherwise, the lines may be indicated as faulty.

Programming and Configuration of Fire Detection Zones

For each fire detection line individually, the following parameters can be configured via the control panel menus:

- **Open Circuit Current**

The open-circuit current threshold can be adjusted from **1 mA to 12 mA**.
The factory default setting is **4 mA**.
This function provides flexibility when installing the panel in both existing and new installations, using detectors and end-of-line devices of various types.

- **Fire Current Threshold**

The current threshold for the **Fire** condition is adjustable from **12 mA to 99 mA**.
The factory default setting is **16 mA**.
This function allows the use of conventional fire detectors of any type and manufacturer.

- **Number of Verification Checks**

This setting allows the selection of **1, 2, or 3 verification checks** before the line enters the **Fire** condition.
The default setting is **2 checks**.

- **1 verification check**
  The panel enters the **Fire** condition immediately after fire alarm activation.
  This setting is recommended for lines with **manual call points**.
- **2 verification checks**
  After the first activation, the panel resets the line for **3 seconds** and waits for a second activation within the next **60 seconds**.
  If activation occurs within this period, the control panel enters the **Fire** condition.
  This setting is recommended for lines with **automatic fire detectors** in order to reduce false alarms.
- **3 verification checks**
  After the first activation, the control panel resets the line for **3 seconds** and waits for a second activation within the next **60 seconds**.
  If activation occurs, the panel resets the line again for **3 seconds** and waits for a third activation within the following **60 seconds**.
  If activation occurs, the control panel enters the **Fire** condition.
  This setting is recommended for lines with **automatic fire detectors** to provide increased reliability during **Pre-alarm and Extinguishing** operation.

Activation of Relay Outputs in Line Fire Condition

Additional relay outputs may be activated when a fire condition is detected on a specific line.
An optional **M9000R relay module** with **2 / 4 / 6 / 8 relays** can be added to the panel and configured via the **line configuration menu** to operate in response to a fire alarm on the corresponding line.

5.4 Connection of Sounders

Multiple audible sounders may be connected to each supervised output **Sn** – *Fig. 3*.
The maximum number of sounders that can be connected in the circuit depends on their total current consumption, which shall not exceed **0.5 A**.

Before connecting the last audible sounder in the circuit, a **4.7 kΩ resistor** shall be connected **in parallel** with it.
All connections are made via terminals mounted on the printed circuit board

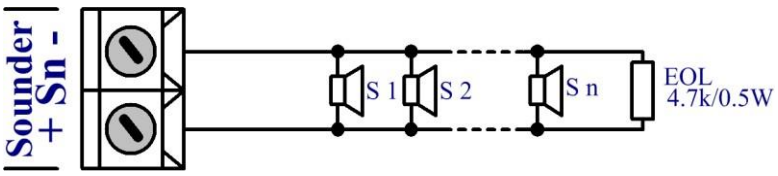


Fig. 3 – Connection of Audible Sounders to the Output

There is a difference in the activation logic of the **S1** and **S2** sounder circuit outputs.

- **S1 sounder output** is activated in **Fire – Stage 1** operating mode, when any of **Zone 1, Zone 2, or Zone 3** is activated.
- **S2 sounder output** is activated in **Fire – Stage 2** fire alarm condition, when:
  - **Zone 1 and Zone 2** are activated;
  - the **Manual Release** button is operated.

5.5 Connection to Supervised Inputs

The supervised inputs are used to control the operation of the control panel:

- **Manual Release**,
- **Hold***,
- **Mode Select**,
- **On/Off Extinguishing**,
- **Low Press***.

All inputs are **balanced and supervised** for **open-circuit and short-circuit faults**.
An **EOL resistor of 4.7 kΩ** shall be installed at the end of the line, and a **1.0 kΩ resistor** shall be connected **in series** with the contact.

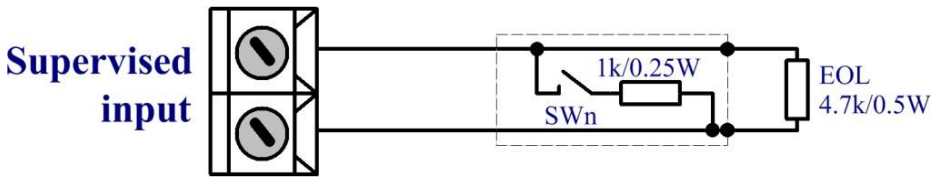


Fig. 4 – Connection of Supervised Inputs

*For the **Hold** and **Low Press** inputs, the contact may be **normally open (NO)** or **normally closed (NC)**, depending on the switching logic required for the specific installation.
The selection of the contact logic is configurable via the control panel menus under **"Extinguishing Module"**.

5.6 Solenoid Connection – Extinguishing Circuit Wiring

A solenoid valve or other device for activating the extinguishing system automation shall be connected to the **"Exting"** terminal via a **two-wire line**.
The line is **balanced and supervised** for **open-circuit and short-circuit faults**.
For normal operation (standby mode), the solenoid shall have a resistance in the range of **25 Ω to 2 kΩ** (*Fig. 5*).
A **diode** shall be connected at the end of the solenoid circuit to suppress the electromagnetic field generated by the solenoid when it is de-energized, preventing interference with the operation of the control panel.

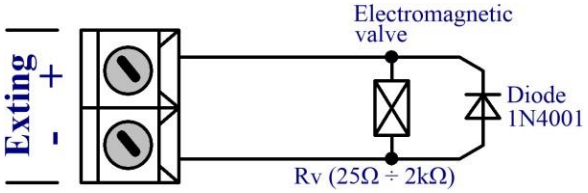


Fig. 5 – Wiring diagram for a solenoid valve with an active coil resistance from 25 Ω to 2 kΩ

When the active resistance of the actuator coil is below 25 Ω, the wiring configuration shown in Fig. 6 shall be used.
An EOL resistor of 1.5 kΩ and a series diode shall be installed, through which the solenoid valve

or other extinguishing system actuator is powered.

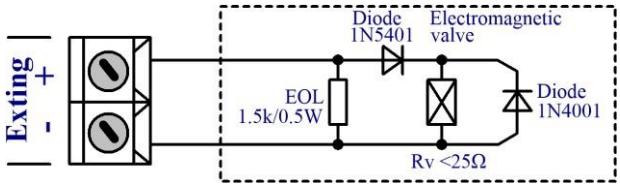
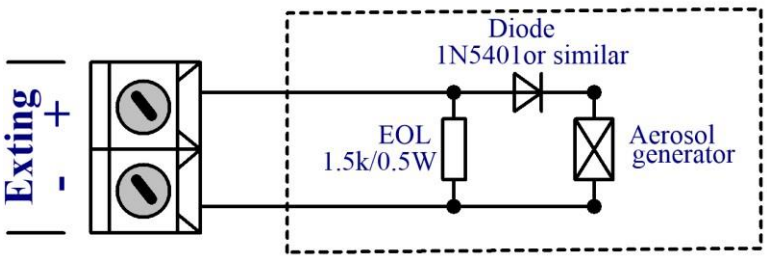


Fig. 6 – Wiring diagram for a solenoid valve with an active coil resistance of less than 25 Ω

When activating **aerosol generators**, the wiring configuration shown in **Fig. 7** shall be used. When multiple aerosol generators are to be controlled, the use of the **M9000-EXT module** is recommended.



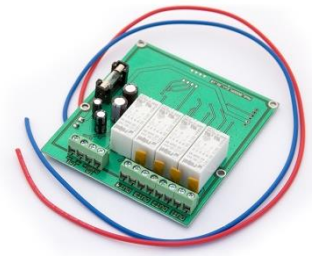


Fig. 7 – Wiring diagram for an aerosol generator actuator M9000-EXT – Extinguishing Module with 4 Relay

The module is installed as part of the fire protection system and is intended for control of **aerosol fire suppression devices** via **four supervised relay outputs** (**24 V DC / 3 A – 0.1 s**), connected **in series**.

This configuration ensures the required **full activation energy** is delivered to all aerosol generator actuators at the moment of activation.

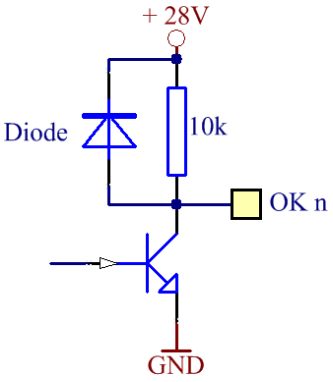
The module prevents **voltage and current drop** during simultaneous activation of multiple actuators, which could otherwise compromise proper operation, by taking into account the **high impulse energy demand** at the moment of activation.

5.7 Open-Collector Output Wiring

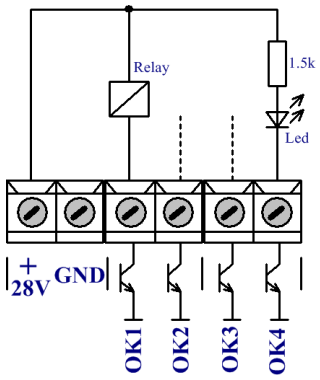
Open-collector outputs are used for connection of external indication devices or for control of automation equipment.

- **OK1** – The output changes its state when the control panel is in **DISABLE (Off Extinguishing)** mode, activated either via an input or via the front-panel switch.
- **OK2** – The output changes its state when the control panel is in **MANUAL activation** mode, selected either via an input or via the front-panel switch.
- **OK3** – The output changes its state when a **Low Pressure** event (**Low Press.**) is activated via the panel input.
- **OK4** – The output changes its state when a **Hold** event (**Hold**) is activated via the panel input.

The internal structure and examples are shown in Fig. 8.



a) Internal schematic of the open-collector (OC) output



b) Examples of relay or LED connection

Fig. 8

5.8 Fault Relay Output

Fault relay outputs with changeover contacts are provided for fault condition indication (**REL Fault**).
In the event of any fault condition within the control panel, the **REL Fault** output is activated immediately**,** regardless of the type of fault.
The output cannot be disabled or delayed**.**
REL Fault terminals "REL Fault/C"**,** "REL Fault/NO"**,** and "REL Fault/NC" are potential-free relay contacts**.**
In the absence of a fault, continuity is present between "REL Fault/C" and "REL Fault/NO"**.**
When a fault condition occurs, continuity is present between "REL Fault/C" and "REL Fault/NC"

5.9 Mains Power Supply Connection

The mains power supply of the control panel is provided by connecting the main power cable to the **230 V** terminal.
Connect the supply cable to the terminal with the mains fuse, observing the following designations:

- **P** – live conductor (**Phase**);
- **N** – neutral conductor (**Neutral**);
- **Earth** – protective earth conductor.

The earthing shall be carried out in accordance with electrical safety regulations, with a total earth loop resistance of **less than 10 Ω**.
It is mandatory to connect the main power cable to the **central terminal** of the fire control panel.

The cable shall be **double insulated** and have a cross-sectional area of **not less than 0.5 mm²** for the supply conductors and **1.5 mm²** for the protective earth conductor.

The other end of the power cable shall be connected to the electrical mains via a **junction box**.
The mains power supply of the control panel shall be provided via a **dedicated circuit**.

The main power supply unit is equipped with an **LED indicator** for power presence.
The LED lights **green** whenever the control panel is supplied either by the **primary power source (~230 V AC)** and/or by the **standby power supply (2 × 12 V DC)**.

5.10 Connection of Standby Batteries / Accumulators

The battery terminals are mounted on a terminal block located in the lower part of the control panel.
The standby power supply of the panel is provided by **two 12 V DC batteries** with capacities of **4.5 / 5 / 7 / 9 Ah**.
Use the cable supplied in the **spare parts kit** to connect the batteries **in series**, and after observing the correct polarity, connect the battery leads to the **main control board** – see **Fig. 9**.

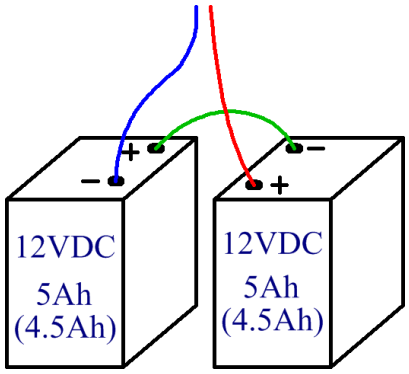


Fig. 9 – Series connection of batteries

6. COMMISSIONING THE CONTROL PANEL

- Check the connection to the electrical mains;
- Check the correct connection of all peripheral devices;
- Insert the fuse into the terminal;
- Connect the power cables to the batteries, ensuring that the batteries are connected in series.
- Connect the red wire to the positive terminal of the battery and the blue wire to the negative terminal.
- The total voltage of the two batteries shall be greater than 17.6 V; otherwise, the panel will not recognize them.
- The panel monitors the battery temperature and controls the battery charging mode;
- If all connections are correct and the line parameters are within the factory settings, the panel enters Standby mode;
- Check the current on all lines via the “Line Current” menu in the main menu.
- It is recommended that the standby current be in the range of 2 mA to 5 mA above the open-circuit current threshold.
  Example:
- With factory settings, the open-circuit current is 4 mA. When measuring the standby current, the recommended line current is 6 mA to 9 mA.
- If linear, non-standard, or other special fire detectors are used, the “Open Circuit” and “Fire” current thresholds shall be adjusted to ensure correct detection by the control panel;
- Configure the assignment of outputs and the corresponding delays, if required;
- If necessary, program and adjust other parameters of the panel, the lines, and the extinguishing functions via the relevant menus.
- Parameter programming may also be performed prior to wiring;
- If required, set the control panel clock;
- Reset the event log.

7. ACCESS LEVELS

The **FP9000E** control panel implements **four access levels** for different indication and control functions.

Access Level 1

This access level is intended for all persons who may be expected to initially discover and respond to **fire, activation, or fault indications**.
All visual indications of the control panel are visible.

The following functions are available:

- silencing of the built-in buzzer;
- display of silenced **Fire**, **Activation**, **Fault**, and **Disabled component** messages;
- display of line status information.

Access Level 2

This access level is intended for persons responsible for safety, who are **trained and authorized** to operate the control panel in the following states:

- Standby;
- Activation;
- Fire;
- Fault;
- Disabled component;
- Test.

At **Access Level 2**, the following functions are available:

- exit from / reset of **extinguishing** or **fire** condition;
- silencing of outputs activated during a fire condition;
- silencing of the built-in buzzer.

Switching from Access Level 2 to Access Level 1

For **FP9000E** and **FP9000E (MB)** control panels, switching between access levels is performed via a **button combination** and corresponding information displayed on the screen.
The selection is made from the **second menu** of the main menu – **"Access Level"**.
After entering the menu, use the **Enter** button and the **Up / Down** buttons to select the required **Access level**. Confirm the selection by pressing **Enter** again.
The selected access level, when the panel is in **Standby mode**, is displayed in the **upper right corner of the display**.

- **For FP9000E (MCP) control panels:**
  OFF – Access Level 1
  ON – Access Level 2

The switch is **key-protected** and intended for use **by authorized personnel only**.

Access Level 3
Access Level 3 is entered by **password entry** via the control panel menu.
The following control panel functions are available:

- all functions available at **Access Levels 1 and 2**;
- replacement of a blown fuse;
- configuration of all parameters in the **"Settings"** menu.
  Please note that while in the **Settings** menu, the control panel is **not operational**.

Access Level 4
This access level is intended for persons who are **trained and authorized by the manufacturer** to repair

the control panel and modify its **software/firmware**.
Special tools or credentials are required to access this level.

8. OPERATING MODES

8.1. Normal Operating Mode

The extinguishing control panel is in **normal operating mode (standby mode)** when only the **POWER ON** LED on the front panel is lit **green**.
The internal buzzer and all other status LEDs are switched off.
The extinguishing mode selector key is set to **Automatic**, **Manual**, or **Disabled**.

8.2. Fire – Stage 1 / EN 54

The extinguishing control panel enters **Fire – Stage 1** mode when a fire alarm is generated by a detector or a manual call point in **only one** of the fire zones – **Zone 1, Zone 2, or Zone 3**.
During **Fire – Stage 1**, the following are activated:

- **S1 audible output** and the internal buzzer;
- **Fire – Stage 1 relay output**;
- The **FIRE** LED (red) of the zone in which the fire is detected, and the **ACTIVATED** LED on the front panel, flashing red.

The user may silence the internal buzzer by pressing the **SILENCE BUZZER** button.
The **S1** output may be silenced by pressing the **SILENCE SOUNDERS** button – the yellow LED lights up.

The extinguishing process may be started **manually** by pressing the **MANUAL RELEASE** button on the front panel, provided that the extinguishing mode selector key is set to **MANUAL** or **AUTOMATIC**.
After activation, the red LED lights continuously.

8.3. Fire – Stage 2 / EN 12094 Activated

The extinguishing control panel enters **Fire – Stage 2** if one of the following sequences occurs:

- **Fire – Stage 1** is activated by **Zone 1** and a second fire alarm is generated by **Zone 2**;
- **Fire – Stage 1** is activated by **Zone 2** and a second fire alarm is generated by **Zone 1**;
- **Fire – Stage 1** is activated by **Zone 3**, followed by fire alarms from **Zone 1 and Zone 2**;
- The control panel is in normal operating mode and the **MANUAL RELEASE** button is pressed (the extinguishing mode selector key is set to **MANUAL** or **AUTOMATIC**).

During **Fire – Stage 2**, the following are activated:

- **S2 audible output** and the internal buzzer;
- **Fire – Stage 2 relay output** of the fire alarm system;
- The **FIRE** LEDs (red) of the zones detecting fire and the **ACTIVATED** LED, continuously lit red on the front panel;
- The **evacuation time countdown** starts, indicating the remaining time before extinguishing begins; the **ACTIVATED** LED lights red;
- The extinguishing devices are activated – the **RELEASED** LED lights red.

The **S2** output **cannot be silenced**.
The user may silence the internal buzzer only by pressing the **SILENCE BUZZER** button.
Pressing the **HOLD** button (connected to the supervised **HOLD** input on the main board) resets the evacuation time.
Switching the key switch to **DISABLE/OFF** position and activating the **ON/OFF Extinguishing** input terminates the initiated extinguishing process.

8.4. Extinguishing

Extinguishing is the process of releasing extinguishing agents through dedicated automatic devices in response to a fire alarm in the protected areas.
Extinguishing starts after completion of **Fire – Stage 2** and after expiration of the configured **EVACUATION TIME**.
The **"Exting"** output is then activated for the duration preset in the **EXTINGUISHING TIME** menu or according to the factory default setting.
During extinguishing, the following occur:

- The extinguishing timer runs, counting down the remaining time; the **ACTIVATED** LED lights red;
- The extinguishing devices are activated – the **RELEASED** LED lights red;
- The **"Exting"** output is activated.

Once extinguishing has started, **no intervention is possible**, and the process **cannot be stopped**.

8.5. Fault Condition

The control panel enters **FAULT** mode in the event of a system fault, such as short circuit or open circuit, loss of primary or standby power, processor error, etc.
During **FAULT** mode, the following are activated:

- Internal buzzer with an audible signal;
- Fault output.

LED Indication

- The **FAULT** indicator lights up, and depending on the fault type:
    - **System fault** – **SYS FAULT** LED lights continuously yellow;
    - **Fire detection line fault** – the corresponding fault indicator flashes yellow:
        - **Short circuit** – 1 Hz (slow flashing);
        - **Open circuit** – 4 Hz (fast flashing);
    - **Controlled output fault** – **OUTS** LED flashes yellow;
    - **Mains power fault** – **POWER FAULT** LED lights continuously yellow;
    - **Local network or transmission device fault** – **COMUN** LED lights continuously yellow.
- If the audible signal is silenced using the **BUZZER SILENCE** button, the LED indicator lights continuously red.

Audible Indication

- The internal buzzer is activated with an intermittent signal.

Text Message Indication

- Fault status messages are displayed with priority on the main screen.

If more than one fault is present, use the navigation buttons to enter the **FAULT** menu, where all registered faults can be viewed.

Active Buttons

- **BUZZER SILENCE** button:
    - deactivates the internal buzzer if activated by a fire condition;
    - reactivates the internal buzzer if the panel is in Fire or Fault condition and the buzzer was previously silenced.
- **INFO / CONTROL** button:
    - when pressed, the panel enters **Information and Control** mode.

8.6. Disabled Component State

The panel enters **Disabled Component** state after a manual operation disabling a specific component – a fire detection line and/or a controlled output **S1**.
This state is managed via the **Information and Control** screens.
The **Disable** menu is the **third item** in the main menu.

After selecting the required line and/or controlled output using the navigation buttons, toggle the **Enabled / Disabled** status to activate or deactivate the disable function.
A disabled line is **powered off** and is not monitored for **Fire** or **Fault** conditions.
A disabled controlled output is **switched off** (the actuator cannot be activated) and is not monitored for faults.

LED Indication

- **DISABLE** LED lights continuously yellow;
- **"1 2 3"** zone indicator flashes yellow for the disabled line;
- **"S1"** flashes when the controlled output is disabled.

Audible Indication

- Not affected by the disabled component state.

Text Message Indication

- Information about lines and controlled outputs in **Disabled** state is displayed on the screen. When "Enabled" is selected, the disabled component is active in **Disabled** mode.

8.7. Testing

The control panel enters **fire detection line test mode** via a manual operation using the **"Line Test"** menu.
The state is managed via the display.
The **"Line Test"** menu is the **fourth item** in the main menu.

After selecting the required line, use the button to toggle between **"Enabled"** and **"Disabled"**, thereby enabling or disabling the **Test** function.

When line testing is initiated, the following changes apply:

- When a **Fire** event is registered on the line, **audible and visual indications** as well as the associated **controlled and fault relay outputs** are **not activated**; the control panel does **not** enter a fault condition;
- Events occurring on the line are **not recorded** in the non-volatile event log;
- The line is automatically **reset** (power is removed for **3 seconds**) every **60 seconds**.

LED Indication

- The **TEST** indicator lights **yellow**;
- The **"1 2 3"** zone indicator of the line in **Test** mode flashes **yellow and red**.

Audible Indication

- Not affected by lines in **Test** mode.

Text Message Indication

- Information about lines in **Test** mode is displayed on the screen. When **Enabled**, a line is in **Test** mode; when **Disabled**, no line is in **Test** mode.

8.7.1. LED Indication Test

LED indication testing is performed via the **"Test Indication"** menu.
By pressing the **LED TEST** button, illumination of all LEDs is activated.
The only exception is the **System Fault** indicator, which must not be illuminated.
Press ESC the button to stop the test
If button ESC is not pressed, the control panel automatically returns to **Standby mode** after **30 seconds**.

9. SYSTEM STATUS, INFORMATION AND CONTROL

The control panel is equipped with a display and keypad for parameter monitoring, configuration, status supervision and modification, event log viewing, and other functions.
More than 100 active screens for configuration and control of the panel can be accessed via the menus.
The following operations can be performed via the menus:

Main Menu *(Access Level 1 or 2)*

- Viewing all zones in **Fire** condition;
- Viewing all **Faults**;
- Changing the **access level** between Level 1 and Level 2;
- Viewing and activating (**Access Level 2**) the **Disable** state;
- Viewing and activating (**Access Level 2**) the **Line Test** state;
- Viewing the current of the **fire detection lines**.

System Functions *(Access Level 2)*

- **LED indication test**;
- **Real-time clock setup** – year, month, day, hour, minute, correction;
- Viewing the **event log** (up to **1600 events**).

Settings *(Access Level 2 + Password)*

- Configuration of **panel parameters**: language, network address, enabling/disabling earth fault monitoring;
- Configuration of **fire detection lines** – individual settings per line:
  - open-circuit current;
  - **Fire** current threshold;
  - enabling/disabling the number of verification checks before entering **Fire** condition;
- Configuration of **extinguishing functions**:
  - evacuation time;
  - solenoid valve extinguishing time;
  - **Hold** input configuration;
  - **Low Pressure** input configuration;
- **Factory settings** menu;
- Changing the **password** for access to the settings menus;
- **Clearing the event log**.

Important Notes for Menu Operation

- Menu navigation is performed using the **four active information and control buttons** (see *Controls and Indicators*).
- If there is **no user activity for more than 30 seconds**, the panel automatically returns to **Standby mode**.
- If access to a specific menu is not possible, verify that the **correct access level** is set.
- Note that in **Settings** mode, processing of the **fire detection lines is suspended**.
- After exiting the **Settings** menu, the control panel performs **initialization** and stores the newly entered parameters.

10. Scope of Delivery

• **FP9000E Fire Extinguishing Control Panel**	**1 бр.**
• **End-of-line element for lines** – resistor **4.7 kΩ / 0.6 W**	**10 бр.**
• **Resistor 1.5 kΩ (1.0 kΩ) / 0.25 W**	**5 бр.**
• **Fuse 6.3 A**	**1 бр.**
• **Fuse 4.0 A**	**1 бр.**
• **Battery interconnection jumper cable**	**1 бр.**
• **Packaging**	**1 бр.**

11. WARRANTY OBLIGATIONS

The manufacturer guarantees that the product complies with BDS EN 12094, EN 54-2:1997 + A1:2006, and EN 54-4:1997 + A1:2002 + A2:2006.

The warranty period is 36 months from the date of sale, provided that:

- the conditions for storage and transportation have been observed;
- commissioning is performed by authorized personnel;
- the operating requirements specified in this manual are complied with;
- the defects are not caused by natural phenomena or power supply network failures.

If warranty service is required, please contact the manufacturer or an authorized service partner to obtain instructions for the return and handling of the defective product..

1922 – CPR – 1803 CE 22