

"DMTeh" Ltd. Pleven

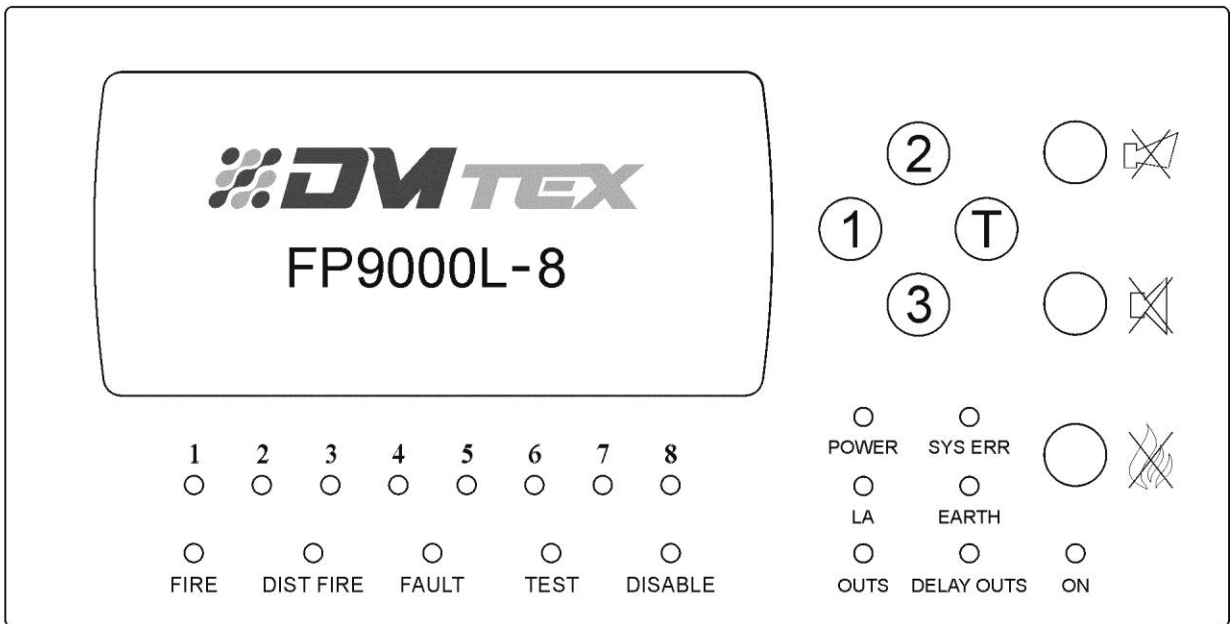
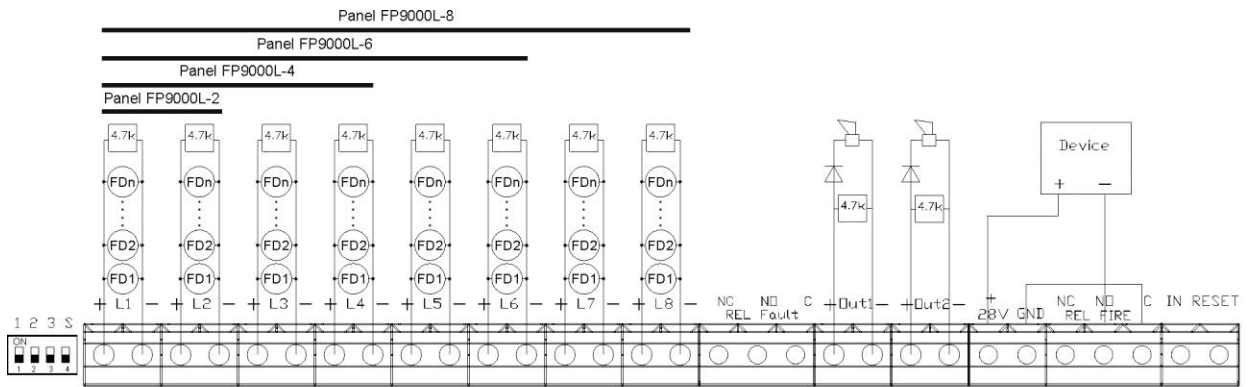
Fire conventional panel

FP 9000L - 2/4/6/8



Installation, setup and operation.

Rev 03:18



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1. INTRODUCTION

FP9000L-2/4/6/8 is a conventional Fire alarm panel with 2, 4, 6 or 8 lines. Certified to standards EN 54-2 and EN 54-4. Each line can be connected to 32 detectors. The panel has 4 relay outputs, 2 of which are controllable and one relay. The outputs may have a delay of seven minutes. Panel to add and expansion relay module M9000R - 2/4/6/8. All the panel conditions information is LED indicators.

Quick and easy - installation, setup and starting. Simple and clear procedures for operation and maintenance of the system.

2. TECHNICAL PARAMETERS

<u>LINES</u>		
➤ Lines:		
• Number of lines	2,4,6 or 8	Optional
• Maximum number of fire detectors in a line	32	
• Type of the joining line	biconductional	
• Plume maximum resistance	100 Ω	
➤ Current thresholds in the lines:		
• Interruption	to 4 mA	
• Duty mode	from 4 to 16 mA	
• Fire	from 17 to 70 mA	
• Fire direct /without delay outputs/	from 40 to 70 mA	
• Short circuit	> 70 mA	
➤ Lines functional characteristics:		
• Verification quantity before entering Fire mode:	2	
• Verification and regestrating fault in a earth conductor	yes	selectively
<u>OUTPUTS</u>		
➤ Independent relay output in case of fire alarm:		
• Quantity	1	
• Type	switching	NC / NO
• Electrical characteristics	3A/125V AC, 3A/30V DC	
➤ Controllable output in case of fire alarm:		
• Quantity	2	
• Type	potential relay	
• Electrical characteristics	(19-28)VDC/ 0,5A	
➤ Additional relay outputs (modul M9000R 2/4/6/8) in case of fire alarm:		
• Quantity	2/4/6/8	
• Type	potential-free	NO

• Electrical characteristics	3A/125V AC, 3A/30V DC	
➤ Independent relay output in case of failure:		
• Quantity	1	
• Type	potential-free, switching	NC / NO
• Electrical characteristics	3A/125V AC, 3A/30V DC	
➤ Delay outputs:		
• Time delay of switching outputs	0 ÷ 7 minutes	
POWER SUPPLY		
➤ Mains power		
• Voltage	(187-252)V AC	
• Frequency	50/60 Hz	
• Maximum power to mains power	38W / AC	
➤ Battery power		
• Battery quantity	2	
• Type of the battery	Lead, gel	
• Battery rated voltage	12V DC	
• Reted power C20	1.3Ah, 4.5Ah, 5 Ah	
• Charger voltage	27,6 VDC	temperature compensated
Consumption of battery power in standby mode		
• Configuration with 2 lines	< 40 mA to 24 VDC	
• Configuration with 4 lines	< 50 mA to 24 VDC	
• Configuration with 6 lines	< 60 mA to 24 VDC	
• Configuration with 8 lines	< 70 mA to 24 VDC	
Time needed in security mode when mains power supply is down with battery 12V/ 5Ah		
• Configuration with 2 lines	120h	
• Configuration with 4 lines	90h	
• Configuration with 6 lines	80h	
• Configuration with 8 lines	72h	
Time needed in security mode when mains power supply is down with battery 12V/1.3Ah		
• Configuration with 2 lines	32h	
Executive devicess powering		
• Voltage	(19-28)V DC	
• Maximal current (including the controllable outputs current)	1A	
Fuses		
• Mains power 230V AC	4,0 A fusible	
• Battery power	4,0 A fusible	
• Powering external devices	1,85 A automatic	
• Controllable outputs	1,1 A automatic	
Functional characteristics		
• Control of the lines and controllable outputs for fault conditions (short circuit and		

interruption) and automatic reset;	
• Ability to delay controllable and general outputs for fire for a period of 0 to 7 minutes after the registration of state Fire,with DIP switch.;	
• Built-in sounder in case of fire – monotonal, continuous with the possibility of exclusion;	
• Test mode of each (fire alarm) lines;	
• Ability to Disable each of the fire alarm lines;	
• Ability to Disable controllable outputs for fire;	
• Interface for communication with external devices RS485 and networking / optional /;	
• Possibility for GPRS communication and remote control and monitoring / optional /;	
• Possibility Ability to add module relay M9000R-2/4/6/8. The module expands the outputs of the Panel.	
➤ Over all size	310x240x80 mm
➤ Weight without batteries	1,25 kg
➤ Safety degree	IP30/ EN 60529
The panel meets standarts:	
• 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. CONTROLS AND INDICATION

➤ **LED indicators**

Indicators	Function
“POWER”	Constant green light
“FIRE”	Common indicator - flashing or constant red light in Fire condition
“DIST FIRE”	Flashing or continuous red light in case of a remote station Fire while working in a network of more than one panel.
“FAULT”	A common failure indicator. Upon failure of any type a yellow light will start flashing
“SYS FAULT”	A system failure due to stoppage of the CPU. A constant yellow light will light up. Needs to be repaired at an authorized service.
“POWER FAULT”	In case of fault or loss of an AC or battery power supply a steady yellow light will light up.
“TEST”	When in line test condition a constant yellow light will light up.

“DISABLE”	When in Disabled component / line or controllable output / a steady yellow light will light up.
“OUTS”	Illuminates with steady yellow light at short or interruption of output devices power supply line
“DEL OUTS”	Continuous yellow light at preset delay of connected outputs
“BUZZER SILENCE”	Indicator to the button "BUZZER SILENCE", in suppressing local telltale, a steady red light will light up.
“SOUND SILENCE”	Indicator to the button "SOUND SILENCE", when suppressing Fire outputs, a steady red light will light up.
“LEVEL ACCESS”	Indicator to visualize the level of access. If the lights have access level 2. If no lights Access Level 1.
“EARTH”	Indicator case of damage grounded conductor.
“1 2” “1 2 3 4” “1 2 3 4 5 6” “1 2 3 4 5 6 7 8”	Individual indicators for Fire and line failure - Fire is lit with red light, fault lights up with yellow light. When disabled and line test there is an indication of the respective condition.

➤ **BUTTONS**

Button	Panel condition	Access level	Действие на органа за управление
“RESET” 	Fire	Level 2	Exit from Fire condition.
“SOUND SILENCE” 	Fire	Level 2	Where activated outputs for Fire - silence of the same outputs.
“BUZZER SILENCE” 	Fire и Failure	All Levels	Suppression / activation of the local sounder
T	Led Test	Levels 1 and 2	Test LED indicators and sound indicator.
	Confirmation	Levels 1 and 2	Confirmation of lines and outputs to test and disable
1	Information and management	Level 1 and 2	Keyboard entry mode: - Changing the access level; - Disable mode; - Test mode. Choice of line or controllable output in test and disable.

2	Information and management	Levels 1 and 2	Keyboard entry mode: - Changing the access level; - Disable mode; - Test mode.
3	Information and management	Levels 1 and 2	Keyboard entry mode: - Changing the access level. - Disable mode - Test mode

5. PANEL INSTALATION AND SETUP

5.1 Panel assembly.

- Unpack the panel;
- Mount the dowels at the appointed place for fixing the panel;
- Attach the panel to the dowels through the three holes on the chassis

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

- The connecting wires are mounted, using the hole in the box.

5.2. Connecting Fire detectors.

➤ **Fire detectors are installed** to the panel with the help of two-wire insulated line of total resistance up to 100Ω. The recommended conductor cross-section is depending on the length of the lines, which are:

- | | |
|----------------|-------------------------------|
| ◆ Up to 1000 m | cable 2 x 0,5 mm ² |
| ◆ Up to 1500 m | cable 2 x 1,0 mm ² |

Upon accession to the Fire alarm line to the panel, a check on the resistance is recommended. In case of proper installation in one line (fitted with finite element) between the plus and minus of the cable entering the panel, resistance should be measured 4,7k (+/-10%). When measuring the two wires to "Earth", there should not be a link.

The connection is made to the terminals of the relevant modules - "+Lx" and "-Lx" (where "x" is the line number) when observing the indicated polarity. (Fig.1)

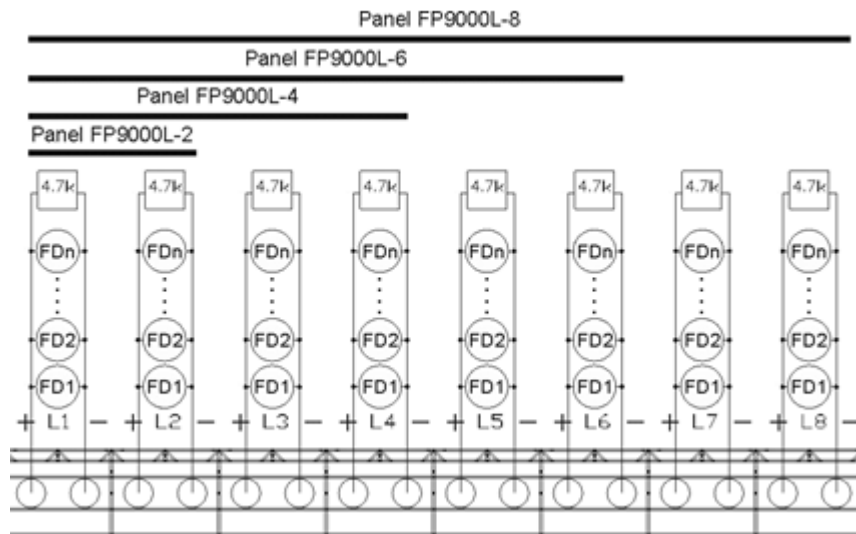


Fig.1

One line can allow the installation of up to 32 Fire detectors generally, regardless of their type.

To the unused lines, directly to the terminals mount the final element "EOL", otherwise the lines will be able in Fault condition.

➤ **FIRE LINES - Parameters.**

- **Current interruption**

The factory setting is 4 mA.

- **Current Fire**

The factory setting is 16 mA.

- **Current Fire-direct /without delay outputs/**

The factory setting is 40 mA.

- It is used to distinguish between MCP and automatic fire detector.
- If a MCP to make alarm state over 40mA, the panel will recognize it and will include sirens without delay.

- **Number of checks**

The factory setting is for 2 checks.

- After the first activation, the panel resets the line for 3 seconds and awaits a second response in the next 60 seconds. If there is a response in this period the panel enters Fire condition. This setting is recommended for lines with automatic Fire detectors the aim of ignoring false alarms.

- **Outputs**

The panel has 3 outputs built in alarm mode.

- 2 controllable relay outputs for sirens
- 1 relay output C/NC/NO*

- **Additional relay outputs**

Add module M9000R. The module has 2,4,6 or 8 relays. Accordingly, for plants FR9000L 2/4/6/8, mounted modules M9000R-2/4/6/8.

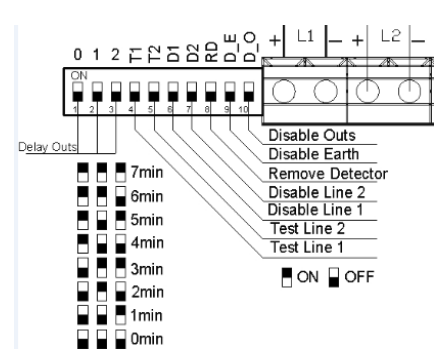
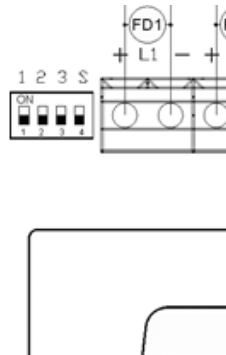
• **Delay Outputs**

In the panel can be set to delay outputs with DIP switch on Level 3.

DIP-4

123S

- 000X - without delay outputs
- 001X - 1 minute delay
- 010X - 2 minute delay
- 011X - 3 minute delay
- 100X - 4 minute delay
- 101X - 5 minute delay
- 110X - 6 minute delay
- 111X - 7 minute delay



for PCB R1

*Relay output for fire can be:

XXX0 - without delay - where 0 the switch 4 of DIP switch

XXX1 - with a delay - where 1 the switch 4 of DIP switch

5.3. Installation of the executive devices at panel

All connections are made by means of terminals, mounted on the printed circuit board (Fig.2).

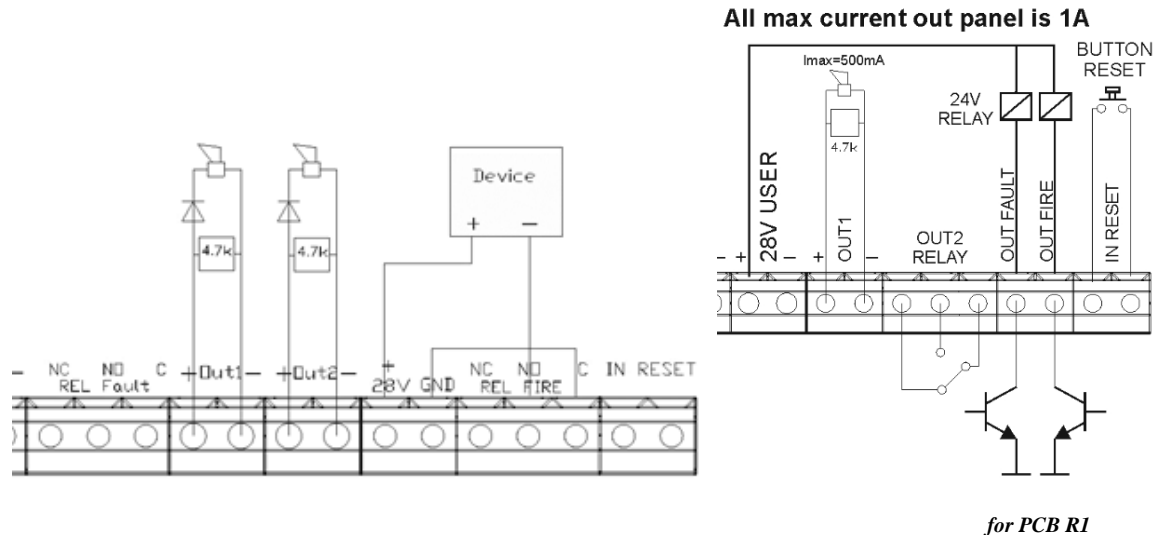


Fig. 2

Total consumption of the voltage powering the external devices (terminal "+28 VDC") and the consumption of the controllable outputs shall not exceed 1,0 A in the heaviest mode.

5.3.1. Installation of the executive devices to the panel's controllable outputs.

Terminals "+ Out x", "-Out x" - controllable, potential outputs, responding at Fire condition, are used. At the end of the line a resistor 4,7k/0.5W (from the design of the panel) is mounted. It is recommended that in series with the power supply of the corresponding device to place a diode (Fig.3). We recommend 1N4001 diode or equivalent. The panel constantly monitors for failure (interruption or short circuit) power line devices.

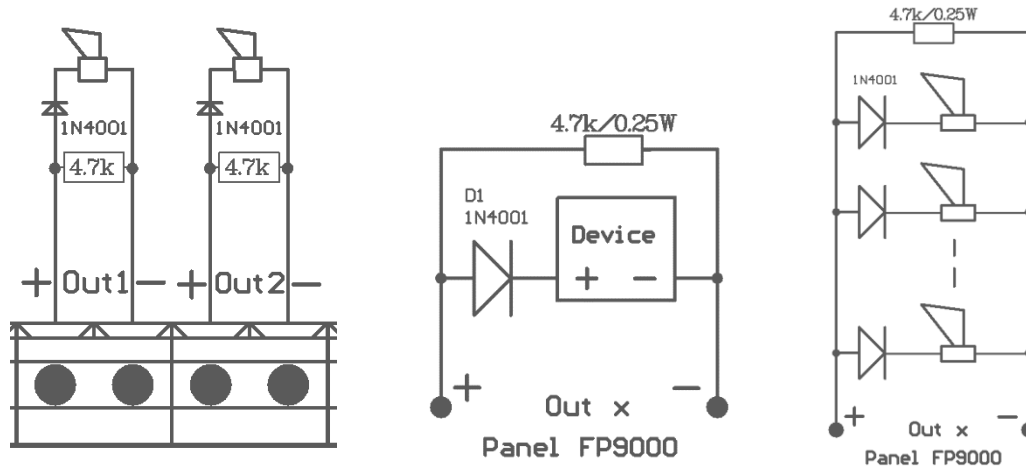


Fig. 3

If controllable outputs are not used, directly to terminals "+Outx", "-Outx" a resistor 4,7k/0,5W is connected, otherwise the outputs will be in Fault condition.

5.3.2. Installation of the executive devices to RELAY OUTPUTS.

Used:

- Terminal "+28VDC" - positive lead of the stabilized direct voltage for external devices (light and sound signaling devices, executive devices, etc.);
 - Terminal "GND" – (negative lead for supplying the external devices);
 - Terminal of the corresponding relay outputs.
- Relay outputs with changeover contacts for **Fault (REL Fault)** and **Fire (REL Fire)** conditions.
- When in Fault condition of the panel, output - **REL Fault**, is activated immediately, regardless of the type of fault. The output may not be disabled or delayed.
 - Upon entering the panel's condition **Fire**, no matter what line, output - **REL FIRE** be activated immediately. The output may not be disabled or delayed.

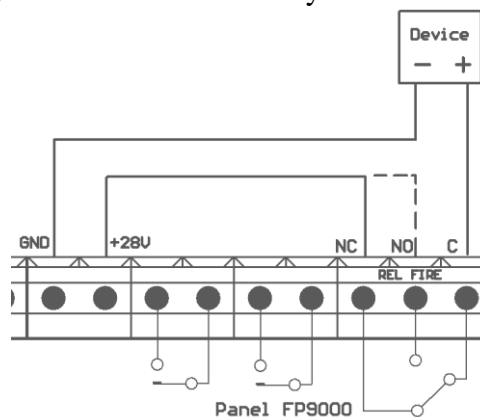
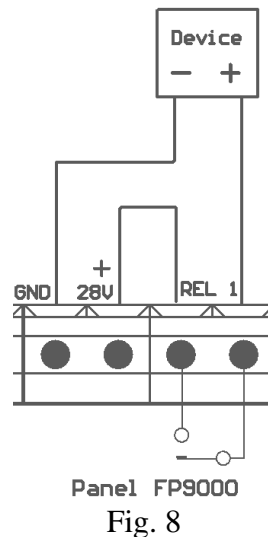


Fig. 4

- **REL Fault** - terminals "REL Fault/C", "REL Fault/NO" and "REL Fault/NC" - potential free relay contacts of the relay. In the absence of failure, there is a link between terminals "REL Fault/C" and "REL Fault/NO", and in case of failure - between terminals "REL Fault/C" and "REL Fault/NC".
- **REL FIRE** - terminals "REL FIRE/C", "REL FIRE/NO" and "REL FIRE/NC" - potential free relay contacts of the relay. In standby mode there is a connection between terminals "REL

FIRE/C" and "REL FIRE/NC " and in case of Fire - between terminals "REL FIRE/C" and "REL FIRE/NO ".



If relay outputs are not used, then its terminals remain free (nothing is connected to them).

➤ **Outputs - Programming and parameter setting outputs for executive devices.**

5.4. Power supply connection

To the terminal with mains fuse connect feeding cable observing the following positions.

- P - power wire " Phase";
- N - power wire " None ";
- "Earth" - safety ground wire.

The cable should be double insulated and section not less than 0,5 mm² for power cables and 1,5 mm² for the safety ground wire.

The other end of the feeding cable is connected to the mains using a junction box.

The mains power supply of the panel should be on a separate circuit.

6. PUTTING THE PANEL IN WORKING CONDITION

- Check the connection to mains power supply.
- Check the correct connection of peripheral devices.
- Place the fuse in the terminal.
- Join the feeding cables to the batteries, where as the batteries are connected in series. To the positive terminal of the battery join the red wire and the negative – to the blue wire. The overall voltage of both batteries must be greater than 17,6 V, otherwise the panel does not recognize them. Thermal sensor in the panel place in the battery. With it you monitor the temperature and control the mode battery charge.
- If everything is done correctly and the lines parameters are within the factory settings, the panel enters Duty Mode.
- Set the accession of exits and the respective delays, if they are necessary.

7. LEVELS OF ACCESS

In panel FP9000L There are **4 LEVELS** of access to the various indications and control functions.

➤ **Access Level 1**

This level of access is for all persons, whom can be expected to identify and react to Fire alarm or fault. Visible are all light indicators.

Available are the following features:

- suppression of built sounder;
- displaying suppressed messages for Fire, Fault and Disabled components;
- displaying the status of the lines;

➤ **Access Level 2**

This is a level of access to persons, who are responsible for the safety and are trained and authorized to operate the panel in the conditions:

- Security;
- Fire;
- Fault;
- Disabled component;
- Test.

In access level 2 are available are following features:

- Exit from Fire condition;
- suppression of the outputs, activated when Fire;
- involuntary activation of the controllable outputs;
- suppression of built- in sounder.

Switching from **Level 2 to Level 1 and vice versa** happens after a combination of buttons and the relevant information on the led indicator "Level Access".

The selection happens with a combination of buttons 1-2-3. With this combination is passed from the access level 1 to 2 and vice versa.

LED indicator "Level Access" reflects the state respectively. In light we have access level 2 if not lit, Access Level 1.

Level Access 1 ↔ 2



Code: 1 → 2 → 3

LA - Led ON - 2 st.

LA - Led OFF - 1 st.

➤ **Access level 3**

In Level 3 is reached by entering a opening the front cover of the panel.

Available are the following panel's features:

- all possibilities from Levels 1 and 2
- Replacing a burnt fuse;
- on / off communication through interface RS485;
- delay outputs;
- Add additional relay module M9000R.

➤ **Access Level 4**

This is the level of access for persons who are trained and authorized by the manufacturer to repair the panel and modify the software.

Special means are required to enter this level.

8. CONDITIONS OF PANEL

FP9000L panel operates in five conditions: Duty, Fire, Fault, Disabled component and Test.

8.1. DUTY CONDITION

In Security condition, the panel is ready for indication and treatment of Fire and Fault conditions in case of relevant events.

- **LED indication** – light up the indicator: "POWER" and "DEL OUTS" at preset delay of connected output.
- **Beeper indication** - off.
- **Text message indication** - displayed labeled " Security " and information about the current time.
- **Active buttons** - button **1,2,3** and **T**. When you press it the panel enters Information and Control condition.

8.2. FIRE CONDITION

- The panel may be in Fire condition in one or several lines.
 - **LED indication** - light indicators:
 - **"FIRE"**
 - **"1 2 /3 4 /5 6 /7 8"** Local indicator(s) for Fire in a line.
- **Beeper indication** - Sounder is constantly on.
- **Active buttons**
 - button **"BUZZER SILENCE"**. Pressing it leads to:
 - **Disabling** the embedded sounder, if it has responded to Fire or Fault;
 - **Activating** the built-in sounder, if the panel is in Fire or Fault condition and the tone is disabled by previous pressing of the same button.
 - button **"SOUND SILENCE"**. Press it to :
 - When suppressed outputs for Fire - forced activation of the outputs;
 - When activated outputs for Fire - suppression of these outputs.
 - button **"RESET"**. Press it to :
 - the panel is forced to exit Fire condition and reset lines (power down for 3 seconds).

8.3. Fault Condition

Panel enters Fault condition when registering any of the following events:

- Fatal system fault;
- Low power - diluted battery during dropping in the mains supply;
- Fault in a line - removed Fire alarm detector, short circuit or break;
- Fault in a controllable output - short circuit or break;
- Damage to the mains;
- Fault in backup batteries;
- Short circuit or leakage to ground wire;
- Fault in power lines;
- Fault in power supply for external devices;
- Fault in network or transmission device.

When systemic failure processor can not continue.

Exit for this kind of fault can only be accomplished by turning off the power and subsequent repair.

All damage, except for the system kind, lead to switching off some periphery.

Exiting this condition happens automatically to 100 seconds after dropping out (removal) of the fault.

When in fault "Low power" the built-in sounder is activated with discontinuous signal.

- **LED indication** – lights up the indicator : "**FAULT**" and depending on the fault :
 - Upon System error - indicator "SYS FAULT" lights up in continuous yellow light;
 - Upon fault in Fire alarm line - individual fault indicator flashes yellow light respectively when:
 - short circuit - with a frequency of 1 Hz (slow flashing);
 - interruption - a frequency of 4 Hz (fast flashing);
 - removed Fire alarm detector - a frequency of 4 Hz, every one second (choppy rapidly flashing).
 - Upon fault in a controllable output - indicator "OUTS" lights up with flashing yellow light;
 - Upon fault in mains supply - indicator "POWER FAULT" lights up in continuous yellow light;
 - Fault in the local network or the transmission device - indicator "COMUN" lights up with a steady yellow light.
 - If the sound signal is suppressed by button "BUZZER SILENCE", LED indicator lights up a constant red light.
- **Beeper indication** – The built-in sounder is activated with a discontinuous signal.
- **Active buttons**
 - button "**BUZZER SILENCE**". Pressing it leads to:
 - **disabling** the embedded sounder, if it is activated by Fire or Fault;
 - **activating** the built- in sounder, if the panel is in Fire or Fault condition and the annunciator is disabled by previous pressing the same button.

8.4. DISABLED COMPONENT CONDITION

Panel enters **Disabled component** condition after a manual operation of disabling a specific component - a Fire alarm line and/or controllable output. The condition is managed through the information and control screens.

Putting fire lines or controllable output in mode Disable is as follows.

1. Level Access 2;
2. Dials the keyboard combination 2222;
3. Led Disable indicator flashes;
4. With button "1" is selected or the line output;
5. With button "T" is confirmed;
6. Double click T out of the programming mode Disable;
7. Clear all Disabled and Tests 1111.

- **LED indication** - light indicators:

- "DISABLE" lights up with a constant yellow light
- "1 2 3 4 5 6 7 8" local line indicator lights up with flashing yellow light.
- "OUTS" flashes when a disabled controllable output.
- **Beeper indication** - not affected by the disabled component condition.

8.5. TEST CONDITION

Panel enters Test condition through manual operation for setting a Fire alarm line in to test. The condition is managed through screens of Information and control condition. Menu «Test Lines» is fourth from the main menu.

Putting fire lines or controllable output in mode Test is as follows.

1. Level Access 2;
 2. Dials the keyboard combination 3333;
 3. Led Disable indicator "TEST" flashes;
 4. With button "1" is selected or the line output;
 5. With button "T" is confirmed;
 6. Double click T out of the programming mode TEST;
 7. Clear all Disabled and Tests 1111.
- The line is reset (shuts off its power supply for time 3sec) automatically every 60s.

- **LED indication** - light up indicators:
 - "TEST" is lit with yellow light
 - " 1 2 3 4 5 6 7 8 " local line indicator in Test lights up with flashing yellow and red light.
- **Beeper indication** - is not affected by the of the Test condition lines.
- **Text messages** - Information on the lines in Test are displayed on the display. When "on" we have a line in Test and when "off" - no line in Test.

8.5.1. TEST LED

Testing of LED indication the panel done by button «T».

9. CONDITIONS FOR USE, STORAGE AND TRANSPORT

- **Operation and storage**
The panel is used and stored in closed rooms under the following conditions :
- **Temperature**

- storage	from	5°C to 35°C
- transport	from	-10°C to 50°C
- working	from	-5°C to 40°C
- **Relative humidity**

- storage	to 80%
- working	to 93%
- **Transport**

The panel is transported in covered vehicles, in factory packing and in the above atmospheric conditions.

10. DELIVEERY COMPOSITION AND COMPLEXITY/SET

• Fire Station FP 9000L	1 qty.
• EOL - resistor 4,7k Ω /0,5W:	
- for configuration with 2 lines /FP9000-2/	2 qty.
- for configuration with 4 lines /FP9000-4/	4 qty.
- for configuration with 6 lines /FP9000-6/	6 qty.
- for configuration with 8 lines /FP9000-8/	8 qty.
• (EOL) End for controllable output - resistor 4,7k Ω /0,5W;	2 qty.
• Fuse 4,0A;	2 qty.
• Connective bridge for batteries;	1 qty.
• Packaging.	1 qty.

11. WARRANTY

The manufacturer guarantees the product's conformity with EN 54-2: 1997, A1: 2006, EN54-4: 1997, A1: 2002, A2: 2006. The warranty period is 24 months from the date of sale, provided that:

- the conditions of storage and transport were met;
- the startup has been done by authorized persons;
- The requirements for operation conditioned in this instruction were met;
- Defects are not caused by natural phenomena and accidents of thr plug socket.

DMTeh wishes you splendid work!

For any questions may contact the company's technical staff DMTeh, by email.

e-mail : office@dm-teh.com