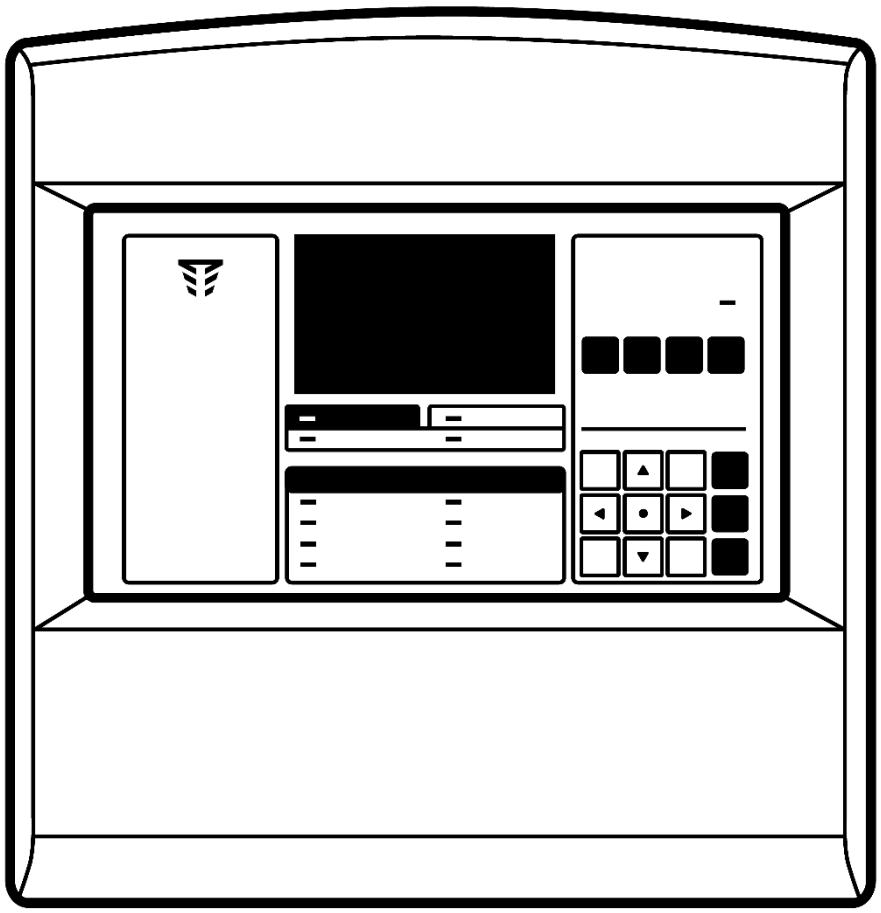
FIRE ALARM SYSTEMS

TIRAS



ADDRESSABLE FIRE CONTROL PANEL
Tiras PRIME A

Operation manual AAZCh.425521.009 OM

1O206

EN 54

DSTU ISO 9001:2015

Serial number:

Firmware version:

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This operation manual contains technical and functional features, and instructions for installation of the fire control panel *Tiras PRIME A* (further – FCP), and the rules of project development based on it, configuration and operation of addressable fire alarm systems *Tiras PRIME A* (from now on – AFAS).

The FCP meets the mandatory requirements of DSTU EN54-2 standard, it contains the integrated power supply equipment (further – PSE), which meets the requirements of DSTU EN54-4. When the communicator (M-GSM module) is installed, the FCP meets the requirements of DSTU EN54-21 standard.

Personnel is allowed to operate the FCP and AFAS after on-the-job training on the rules for the use of AFAS and the rules for the safe operation of electrical installations with voltage up to 1000 V.

Personnel with special education in the installation of low-voltage circuits of automated control systems and electrical circuits with a voltage of up to 1000 V and the appropriate approval are allowed to install and set FCP and AFAS, after reading these instructions and operating documents on the other components of AFAS, ordered by the consumer.

The requirements of DSTU-H CEN/TS 54-14: 2009 "Fire detection and fire alarm systems. Part 14. Guidelines for the planning, design, installation, commissioning, use, and maintenance (CEN/T 54-14: 2004, IDT) should be met.

1 List of abbreviations

1.1 The following abbreviations are used in this manual:

AI – addressable interface.
PSU – power supply unit;
CIP – control and indication of the FCP Tiras PRIME A
MCU – microcontroller unit of FCP Tiras PRIME A
RI – remote indicator
SI – sound indicator;
SCI – short circuit isolator;
PC – personal computer;
FCP – fire FCP Tiras PRIME A;
FARS – Fire alarm receiving station;
ECD – Electrical automatic Control and delay Device Tiras-1X;
ASD – Addressable smoke detector DETECTO SMK100 (SMK110);
AMCP – Addressable manual call point DETECTO MNL100 (MNL110);
AFAS – Addressable fire alarm system based on Tiras PRIME A;
AHD – Addressable heat detector DETECTO HT100 (HT110);
ACD – Addressable combined detector DETECTO MLT110
ATS – alarm signals transmitting system;

2 Terms and definitions

Addressable fire alarm system (AFAS) – group of components in a system of a certain configuration, that can detect, and notify on fire and generate signals to take appropriate measures.

Addressable Interface (AI) – physically wired connection between the AFAS and the FCP used to transmit information on device status, transmit commands to devices, and their suppling.

Detector – component of the AFAS that contains at least one sensor that monitors one physical and (or) chemical phenomenon associated with fire continuously or periodically at short intervals and emits at least one appropriate signal to the FCP.

Siren – sound or light and sound device intended to alert people to the need to evacuate from areas where a fire has been detected.

Zone – some defined part of the protected premises, in which one or more components are installed and a general indication of the current state is provided for them.

Verification (dependency) – software-provided function of the FCP, which is used to confirm the switching of a detector by checking its re-operation through automatic reset or waiting for the operation of two detectors in the same zone.

Communicator –fire alarm and fault warning device M-GSM.

Addressable button – addressable button Detecto BTN100/110 for automatic systems management.

Addressable device – device that is connected to the AI according to the AFAS project (addressable detectors, modules, buttons, sirens).

Module – addressable or conventional input/output device.

Expansion line – communication line that connects several FCPs over an ethernet port within a single AFAS.

3 AFAS components and their purposes

Table 3.1 lists the addressable devices used in AFAS projects. For detailed information on addressable devices, refer to their operating documents. The parameters and features of the FCP are given in section 5 of this manual.

Table 3.1 – Addressable components of AFAS

Component name	Functions, structural features
Addressable fire FCP **Tiras PRIME A**	Designed to supply power to other components of a system, receive and process the information from fire detectors, indicate the condition of a fire alarm and fault, transfer signals of a fire alarm to sirens, FARSs, and automatic fire extinguishing equipment.
Addressable smoke detectors **Detecto SMK110** and **Detecto SMK100**	Designed to detect fires that are accompanied by appearing smoke in small concentrations, generate and transmit fire alarm signals to a FCP via AI. Built-in SCI. SMK100 detector does not contain SCI and the output of the RI control.
Addressable heat detectors **Detecto HT110** and **Detecto HT100**	Designed to generate a fire alarm signal when the ambient temperature threshold is exceeded and transmit it to a FCP via AI. Built-in SCI. The HT100 detector does not contain a SCI and a RI control output.
Addressable combined detectors **Detecto MLT110**	Designed to detect a smoke and/or an increase of ambient temperature in premises, generate and transmit fire alarm signals to a FCP via AI. Built-in SCI.
Addressable manual call points **Detecto MNL110** and **Detecto MNL100**	Designed to manually generate a fire alarm signal and transmit it to a FCP via AI. Built-in SCI. MNL100 manual call point does not contain SCI.

Table 3.1 continued

Component name	Functions, structural features
Addressable buttons **Detecto BTN110** and **Detecto BTN100**	Designed to manually activation of automatic systems devices. Can be marked with functional name as required. Built-in SCI. BTN100 button does not contain SCI.
Addressable module **AM-Converter**	Designed to connect the ECD Tiras 1X (see note 1) or the M-OUT8R module (see note 2) to FCP through AI. Built-in SCI.
Addressable module **AM-Multi**	Designed to connect non-addressable detectors to the FCP via AI, additionally contains one input of general-purpose and one output with line control (alert). Built-in SCI.
Addressable module **AM-OUT2R**	Designed to increase the number of relay outputs in the AFAS. It contains **2** galvanically isolated relay outputs without line control. Built-in SCI.
Addressable module **AM-OUT1R+**	Designed to increase the number of inputs and relay outputs in the AFAS. It contains **1** galvanically isolated relay output without line control, **2** universal inputs with line control and **1** input for 230V power control. Built-in SCI.
Addressable module **AM-IN4**	Designed to increase the number of inputs in the AFAS. It contains **4** universal inputs with line control. Built-in SCI.
Addressable module **AM-Multi+**	Designed to increase the number of AIs, inputs and outputs in the AFAS. Contains: 1) 5 universal inputs with line control (controlled parameter - resistance); 2) 2 universal outputs with the ability to control the line (alert); 3) 2 power outputs for peripheral devices supplying (24V DC); 4) 2 slots for expansion modules; 5) built-in power supply unit 230V AC. Built-in SCI.
Addressable module **AM-Loop**	Designed to be installed in module **AM-Multi+** for increasing the number of Ais (one module **AM-Loop** – one loop or two radial AIs). Built-in SCI.
Module **M-OUT2R**	Designed to be installed in module **AM-Multi+**. Contains 2 relay outputs. Built-in SCI.
Addressable sirens **Alarmo100** **Alarmo110**	Designed for sound and light signals in fire alarm systems. Built-in SCI. The Alarmo100 siren does not contain a SCI

Notes.

1. The ECD Tiras 1X is designed to control of gas, aerosol or power extinguishment.
2. The M-OUT8R module is designed to increase the number of relay outputs in fire alarm systems, it contains 8 relays.

3.2 An M-GSM module may be installed in the FCP. It generates fire alarm notifications and fault signals and sends them to FARS via the GSM network (GPRS channel).

4 General features of AFAS

4.1 Restrictions in AFAS structure

4.1.1 The following limitations should be taken into account when developing a **project with a single FCP:**

1) number of components in AFAS up to 4000;

2) number of AI in AFAS not more then 128 (including AI connected to FCP and AI connected to AM-Multi+ via M-Loop);

3) maximum 250 addressable components can be connected to each AI;

4) maximum 250 addressable components can be connected to each AM-Multi+ (if installed 1modules M-Loop up to 250 components in its AI, if installed 2 modules M-Loop up to 125 components in its AI);

5) up to 1000 outputs of any type (with or without control). This number includes outputs of the FCP, modules outputs and addressable sirens;

6) up to 1000 inputs (including all FCP and modules inputs);

7) not more than 1000 zones can be programmed;

8) not more than 128 groups can be created;

9) not more than 100 outputs of any type can be assigned to one zone ore one group (including addressable sirens);

10) not more than 2 ECDs can be assigned to one zone;

11) not more than 32 ECDs can be connected to AFAS;

12) recommended length of the AI between the connection terminals in the FCP and any addressable component in any AI configuration (loop or radial) have not exceed 2000 m;

13) the total current consumption from the AIs of all connected addressable components in all operation modes of the FCP should not exceed 80 mA.

4.1.2 If the AFAS contains several FCPs, the restrictions set out in paragraph 4.1.1 are applied to each of the FCPs. Thus, the total indicators of AFAS increase proportionally. One AFAS may include not more than four interconnected FCPs.

4.2 General recommendations for the AFAS structure

4.2.1 In the general case, an AFAS consists of:

1) one or more FCPs;

2) addressable components listed in Table. 3.1, their number is determined by the project taking into account the restrictions of sections 4.1, and 4.2;

3) conventional sirens (connection is shown in Fig. B.4) and addressable sirens;

4) power supply units;

5) non-addressable devices (ECD);

6) actuators (connected to the relay outputs of modules AM-OUT1R+, AM-OUT2R and/or M-OUT8R).

7) M-GSM module. If necessary, messages are transmitted f to the FARS (the module is installed in the FCP).

8) conventional detectors and/or buttons connected to universal inputs of addressable modules (AM-OUT1R+, AM-IN4, AM-Multi, AM-Multi+).

Addressable conventional components of AFAS should be used according to their manuals.

Note. Initialization time of the AFAS after FCP power on is depending on number of address components connected to one FCP. Approximately one address component is initialized for 1 s.

The configuration of the AFAS zones, components and cables installing, protection of the components and cable lines of the AFAS from external influences should be complied with current fire alarm systems and building standards.

The guides for connection of several FCPs in one AFAS are given in points 4.2.10 – 4.2.12. The following recommendations apply to AFAS based on both one and several FCPs.

4.2.2 Addressable components are connected to AI, which are both communication lines and power lines. FCP controls AIs connected to MCU and to M-Loop. The common scheme of possible connections in AI is shown in fig. 4.2.1.

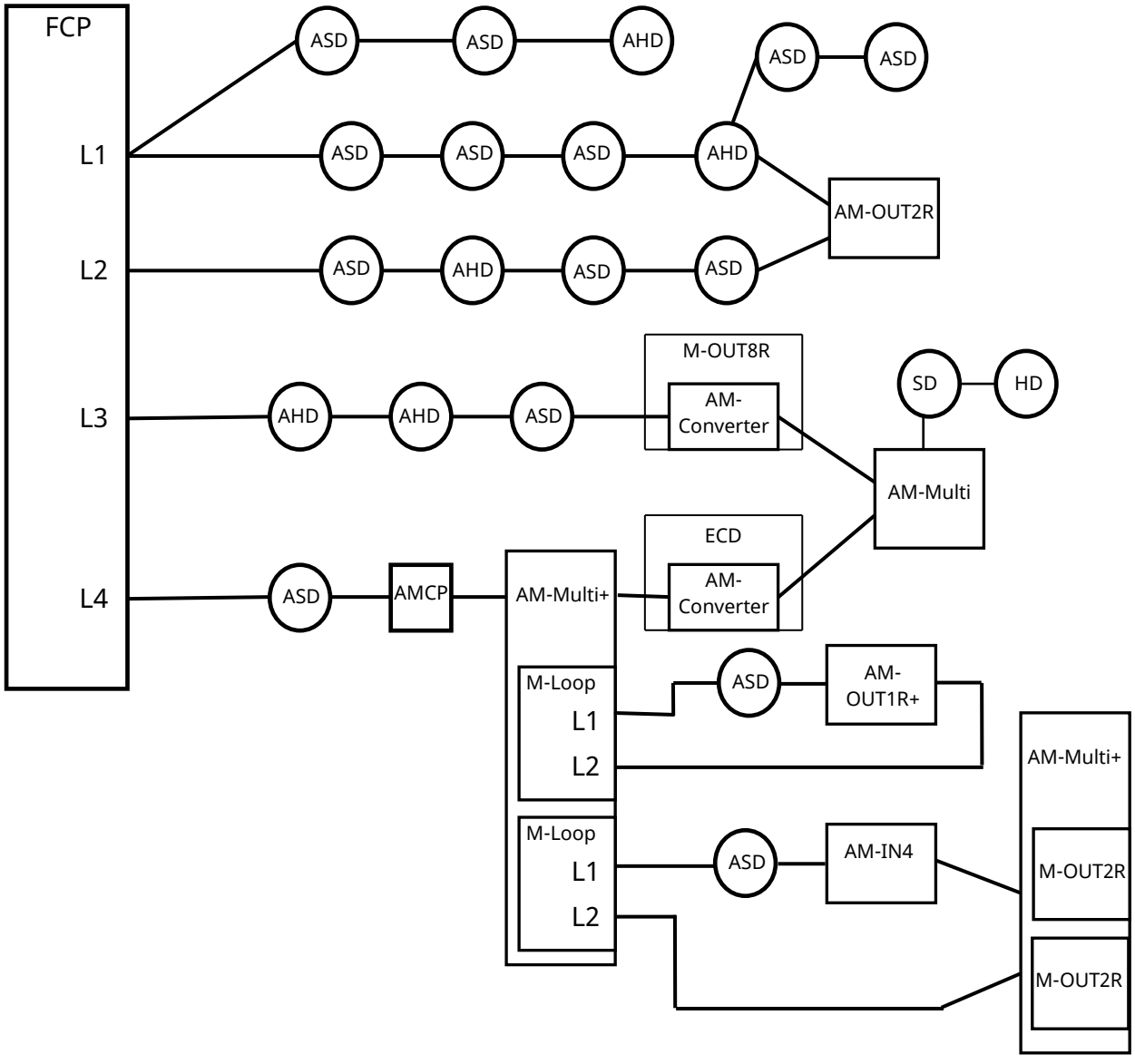


Figure 4.2.1 – Connection scheme for connecting addressable components to AI

General rules for connecting AIs to the FCP:

1) one end of the loop AI No.1 is connected to terminals L1-G1, the other one – to the terminals L2-G2. Accordingly, one end of the loop AI No.2 is connected to terminals L3-G3, the other one to terminals L4-G4;

2) radial AI is connected to the pairs of terminals: L1-G1, L2-G2, L3-G3, L4-G4. Addressable components in one radial AI should be registered in one zone so that a single fault in such AI does not affect other zones;

3) in exceptional cases it is allowed to make radial branches from the loop AI: both from the cable and the place of addressable component connection. In this case, the reliability of the AFAS is reduced, because in case of a open or short circuit of the radial line (branch) communication with the addressable components located between the end of the radial line and the open will be lost. Also, it is more time-consuming to find the place of open or short circuit in a loop AI with branches.

Modules M-Loop installed in modules AM-Multi+ are used to increase number of AIs. Additional AIs are connected to terminals L1-G1, L2-G2 of M-Loop module. Another module AM-Multi+ can be connected to this M-Loop, but it can be used only as input/output expansion module (without possibility of M-Loop installation).

4.2.3 To reduce the current consumption of AFAS in the standby mode in the AI is allowed to install detectors without CSIs (Table 3.1). In this case, there are the following restrictions:

1) not more than 10 detectors without SCI can be installed in a row;

2) groups of detectors without SCI, installed in adjacent zones, should be separated by at least one addressable component with SCI.

4.2.4 Two-wired conventional (non-addressable) detectors can be connected to the AI via the AM-Multi module. If there is a need to use explosion-proof non-addressable detectors in the AFAS project, they are connected to the AM-Multi module via the MBI-2 (24V) barrier spark protection module, which meets the requirements of explosion protection when using ExibII-marked non-addressable detectors.

Warning! The GND terminals of the AM-Multi modules should not be connected to the LGND terminal of the FCP by any lines, otherwise, the automatic AI testing process will be disrupted.

4.2.5 If it is planned to use addressable sirens, it is necessary to take into account that they have a significant current consumption from the AI in the fire alarm mode and it is necessary to calculate the load on the AI in such a way as to prevent overloading of the AI during their operation.

4.2.6 If ECD is assigned to any of AFAS zones and it is activated from FCP, not less than two addressable components (detectors or AM-Multi modules) should be installed in this zone, and the condition of ECD activation is the transition of two addressable components in fire alarm mode.

4.2.7 Any sensors can be connected to the parametric inputs of the AM-IN4, AM-OUT1R+ and AM-Multi+ modules, but they should not be used as fire detectors, as these inputs have not fire alarm mode.

4.2.8 When using the REL relay contacts of the AM-OUT1R+ module, it is need to take in account that they are reset only after resetting from the front panel of the FCP or after re-registering the module, which occurs after powered on the AI.

Warning! The activated relay output of the AM-OUT1R+ module does not return to its original state when the AI is powered off.

4.2.9 External PSUs in the AFAS can be used for:

1) power supply for devices in both AI, if own power supply outputs of peripheral devices of FCP are already involved or if the capacity of own batteries of FCP is not enough for power supply of AFAS during the normalized time of AFAS staying in a fire alarm mode;

2) power supply of detectors and parametric loops with non-addressable detectors connected to AM-Multi, if necessary;

3) power supply AM-OUT2R, if there is no technical possibility to use own power outputs of peripheral devices of the FCP;

4) power supply of remote devices of optical signaling devices (RI), connected to detectors, if necessary;

5) power supply of non-addressable devices of AFAS (if used).

PSUs used in AFAS should provide the current consumption of electrical circuits, calculated according to the project, as well as charging the required number of batteries, determined by the method from the Annex A of this manual. When using external PSUs in AFAS it is necessary to avoid drawing long lines from them to addressable components and non-addressable devices.

4.2.10 If it is necessary, RI can be connected to the detectors. Examples of connection schemes are shown in Fig. 4.2.2.

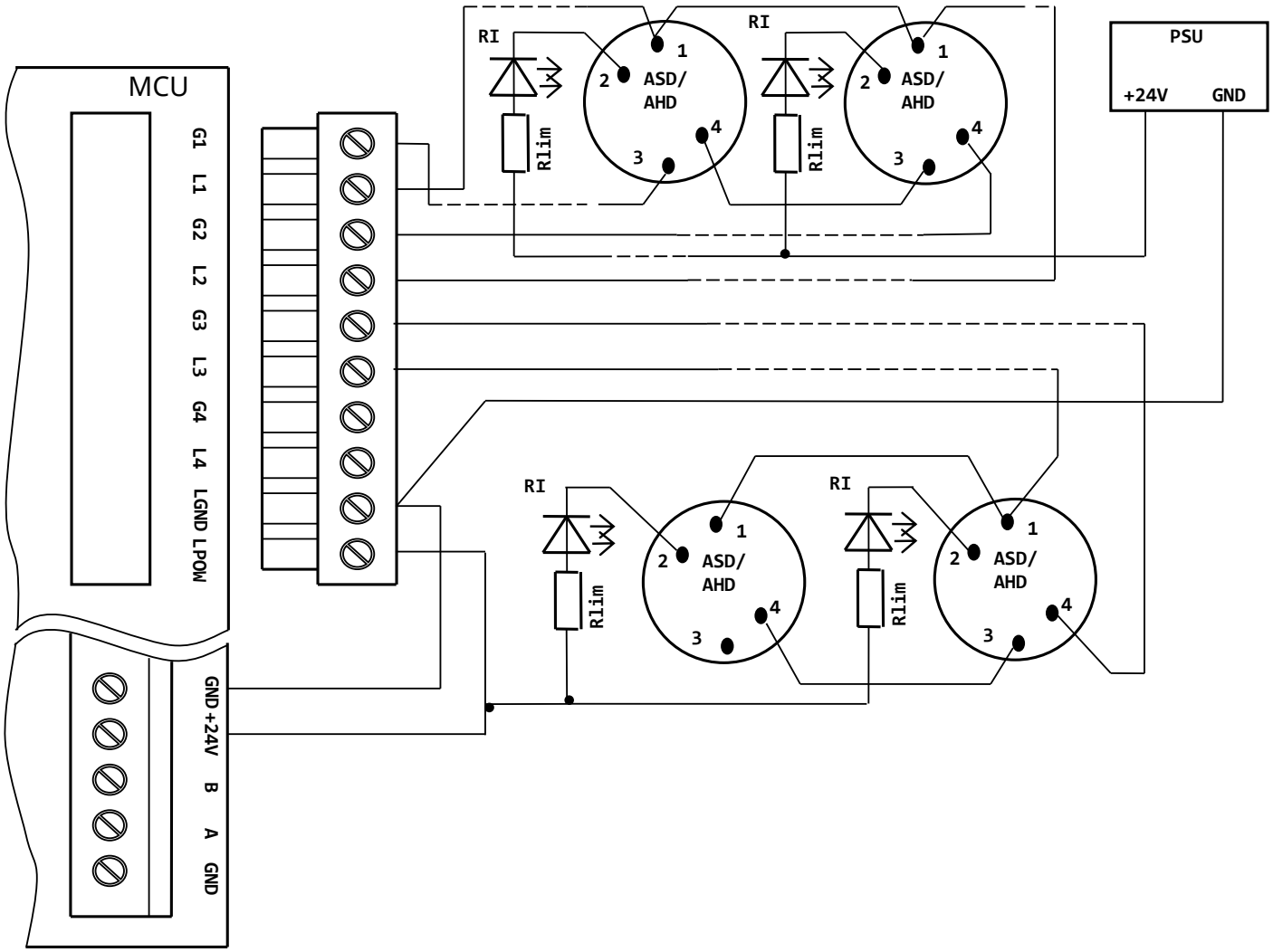


Figure 4.2.2 - Examples of RI connection

The following features should be considered:

1) RI can be connected only to ASD or AHD with built-in SCI;

2) it is allowed to connect RI to detectors in separate AI, but it is necessary to set limits on the number of simultaneous fire alarm indications (10.13.1) N in these AIs:

$$N = (100\ mA) / I_{RI}.$$

For example, no more than 10 simultaneous indications, provided that a consumption current of RI during the fire alarm indication is 10 mA;

3) consumption current of the RI should be selected in accordance with their datasheets

and should provide a clear visualization of the fire alarm. This current is provided by means of R_{lim} (Fig. 4.2.2): $R_{lim} = (U_{PS} - 1V) / I_{RI}$.

4.2.11 Type of cable for AFAS installation depends on the needs of the project. It is allowed to use solid and stranded cables.

It is recommended to use cables with a cross-section of 0.75 to 2.5 mm^2 for AI. In AIs of short length (up to 1000 m) it is allowed to use cables with a cross-section of at least 0.5 mm^2, but if the condition 4.2.8 is met.

It is recommended to use cables with a cross-section of at least 0.75 mm^2 to connect external PSUs. If long power supply lines cannot be avoided, it is necessary to calculate the voltage drop across the wires for them at the maximum current consumption of the connected devices to determine the risk of performance loss for these devices.

For other lines it is recommended to use cables with a cross-section not less than 0,5 mm^2.

4.2.12 For each AI it is required to calculate:

1) the total resistance of wires in the cable, which is used in AI;

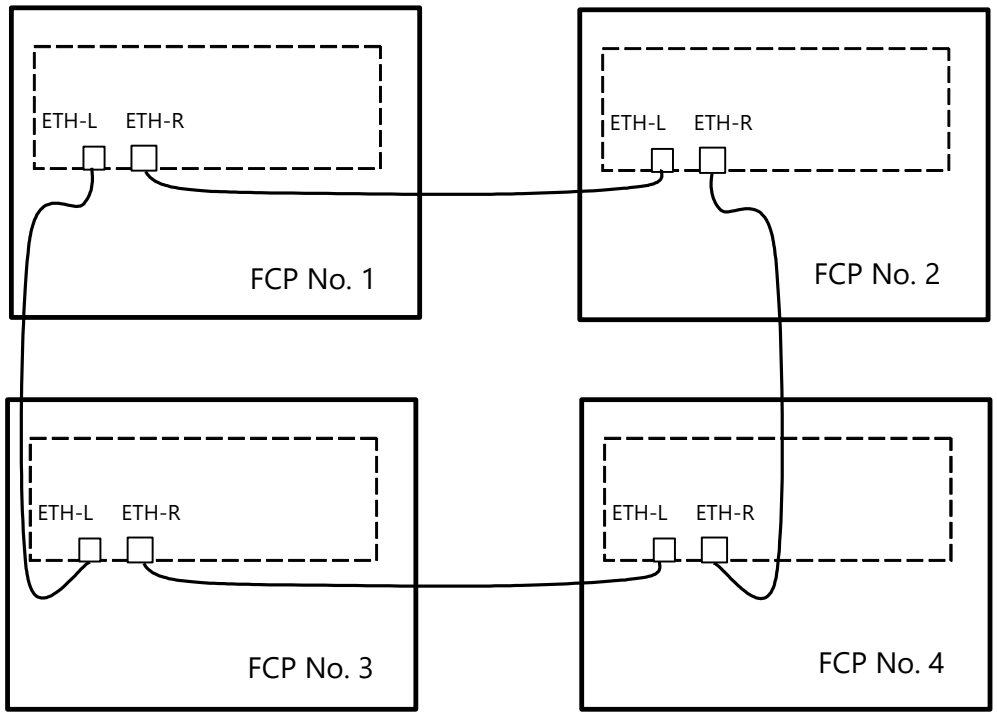
2) the total resistance of all SCIs of addressable components that are going to be installed in this AI (see operational documents of addressable components);

3) the total resistance of the contact connections between the detectors and their bases, which is on average equal to the resistance of a closed SCI for one detector.

The sum of the obtained resistance values should not exceed the total resistance of the AI, specified in table. 5.1.

4.2.13 The load current for outputs of the AFAS components (FCP, AM-Multi, AM-OUT2R, AM-Multi+, AM-OUT1R+) should be calculated so that it does not exceed the values specified in the datasheets for these components.

4.2.14 If several FCPs are included in the AFAS, they are connected according to the scheme shown in Fig. 4.2.3.



ETH-L, ETH-R – Ethernet sockets (see 7.2.2, fig.7.3).

Figure 4.2.3 – Example of the connection scheme between FCP within AFAS

Arbitrary variants of ETH-R and ETH-L port connections of different FCPs are allowed within the AFAS, but “ring” topology (main and reserve connection) is recommended.

Warning! FCPs should be provided the same version of firmware.

4.2.15 The FCPs should be connected via network four-pair cables Category 5 or higher with a length of not more than 100 m. If it is need to be connected at a greater distance from each other, FO cables and additional network devices (e.g., mediaconverters) should be used. The data transfer rate between the FCP is 10 Mbit/s. Network devices should support Auto-negotiation and AutoMDI-X technologies (see 11.1.13).

4.2.16 The M-GSM module may be installed only in one FCP of AFAS.

5 Technical features of FCP

5.1 General features

5.1.1 FCP provides:

1) 6 outputs: AL (Fire), FT (Fault), OUT1 – OUT4 (notification with the possibility of programming functions);

2) 2 controlled power supply outputs for peripheral devices 24 V;

3) 2 universal inputs without line status control IN1, IN2 (may be used for external PSU status control);

4) 2 separate AIs with open and short circuit control;

5) separate input of AI power supply with voltage from 20 to 30 V – power supply from a third-party PSU is possible;

6) 2 Ethernet interfaces 10 Mb/s;

7) service interface RS485;

8) USB interface for programming and configuration;

9) interface for connecting a communicator (M-GSM module);

9) integrated PSU;

10) built-in charger (with battery capacity control and voltage control on each battery);

11) backup power supply – two sealed lead-acid batteries (Table 5.1);

12) non-volatile clock;

13) event log with 10,000 messages.

5.2 Main technical features

5.2.1 The main technical features of the FCP are given in table 5.1.

Table 5.1 – Main technical features of FCP l

Feature	Value
Primary power source: AC mains, V	187-242
Primary power source: AC mains frequency, Hz	50±1
Maximum current consumption from the primary power source in all modes, A	0,27
Maximum power consumption from the primary power source, VA	60
Backup power source: nominal voltage of a single battery, V	12
Backup power source: capacity of a single battery, A*h	7
Maximum battery charging current, mA	500
The permissible internal total resistance of both batteries and their connection circuits, R_{imax}, Ohm, not more than	1,0
The output voltage of integrated PS, V	21,0 – 29,5
Maximum current consumption from the integrated PS in all modes, I_{min}[1], A	0,05
Maximum long-term current consumption from the integrated PS with the maximum loadings, I_{max_a}[2], A	1,1
Maximum long-term load current of "+ 24V" outputs (each), mA	400
Maximum current consumption by AI LPOW power input, mA	140
Dimensions (WxHxD), mm	350 × 365 × 100
Net weight (without battery), kg	4
Mean time to failures, h., not less than	40000
Average lifetime, years, not less than	10
Enclosure protection degree (IEC 60529)	IP30

Table 5.1 continuing

Inputs and outputs	
Maximum number of zones	1000
Maximum number of detectors in a zone, pcs	32
Voltage at AI terminals in all modes, V	24 – 25
Maximum current of AI, mA	80
Minimum leakage resistance in AI (between each wire and ground), kOhm	50
Sum of resistances of AI wires and the resistance of the short-circuit isolators, Ohm, not more than	125
Maximum output voltage at IN1, IN2 inputs, V	3
Maximum output current of IN1, IN2 inputs, mA	0,1
Maximum switching current of FT, AL outputs, mA	400
Maximum switching current of OUT1-OUT4 outputs, mA	800
Maximum switching voltage of FT, AL, OUT1-OUT4 outputs, V	30
Resistance of the terminal resistor for the AL output, kOhm	6,8 – 30
Maximum short-circuit resistance of the AL output at the GND terminal, kOhm	1,4
Resistance of the terminal resistor for OUT1-OUT4 outputs, at the supply voltage of 20 - 29,5 V on U12, U34 inputs, kOhm	1,3 – 8,2
Open circuit resistance of the OUT1-OUT4 output line, not less than, kOhm	> 8,2
Short circuit resistance of OUT1-OUT4 outputs on the GND terminal, kOhm	< 1,3
Voltage at the outputs + 24V, V	21,0 – 29,5
Maximum jutput current of each output + 24V, A	0,4
Fuses	
AC network, A	3.15
"+24V" outputs, A	2 × 0,5, self-restoring
OUT1-OUT4 outputs, A	4 × 1,0 self-restoring
Communicator power supply, A	0,2, self-restoring
Time features	
Maximum detection time of alarm (fault) in zones, s	10
Maximum fault detection time (except zones), s	100
Maximum time to determine the battery capacity (low capacity), min	15
Maximum time to determine the battery absence, min	2
Wire cross-section, permissible for clamping in terminals, mm^2, (for stranded wires)	0,22 - 2,5
Notes. 1. According to DSTU EN54-4, without AI consumption and with automatically switched off display. 2. According to DSTU EN54-4, with AI consumption, with the display, switched on, power supply of peripheral devices from outputs "+ 24V".	

5.3 Technical features of a GSM cellular radio module, which is equipped with M-GSM, are shown in Table 5.2.

Table 5.2 – Technical features of a GSM cellular radio module

Feature	GSM-channel	
	900	1800
Transmitter frequency range, MHz	888 – 915	1710 – 1785
Receiver frequency range, MHz	933 – 960	1805 – 1880
Transmitter output power, W, not more than	2	1

5.4 The features of the communication channels provided by the FCP via the M-GSM module are shown in Table 5.3.

Table 5.3 – Communication channel features

Parameter name according to EN 50136-1	Type 1 channel	Type 2 channel
Transmission delay time	D4=10 s	
Maximum transmission delay time	M4 = 20 s	M3 = 60 s
Reporting time, not more than	T5 = 90 s	T2 = 25 h
Availability class	A4	
Substitution protection	S0 (no)	
Information protection	I0 (no)	

6 Safety requirements



All the connections should be done with the power supply of FCP is switched off.

6.1 For installing and operating with FCP, service personnel should be guided by the Rules of technical operation of consumers' electrical installations and Safety rules of the operation of consumers' electrical installations.

6.2 Mounting, demounting, and maintaining of a FCP should be carried out only with the supply voltage switched off on FCP.

6.3 Fire safety rules should keep when carrying out any works.

7 FCP structure

7.1 Description of structure

7.1.1 The FCP housing consists of a base, a cover, and a front panel and provides a protection degree of IP30 (fig. 7.1) (the base is shown in fig. 7.2).

To access the terminals of a FCP, battery, real-time clock battery, remove a cover:

1) unscrew two screws in the lower part of the housing (Fig. 7.1);

2) pull the lower edge of the cover, lifting it, remove it from the protrusions on the upper edge of the base.

Replace a cover in reverse order.

7.1.2 There are holes for wires and cables and holes for fixing a FCP on a vertical plane on its base behind a front panel and in the upper part of a base (Fig. 7.2). All cable holes are pre-sealed with plugs. When inserting cables into a housing, open the plugs in the chosen area. If cables are inserted through the top row of holes, the used holes should be sealed in order to maintain the protection degree of the housing shell.

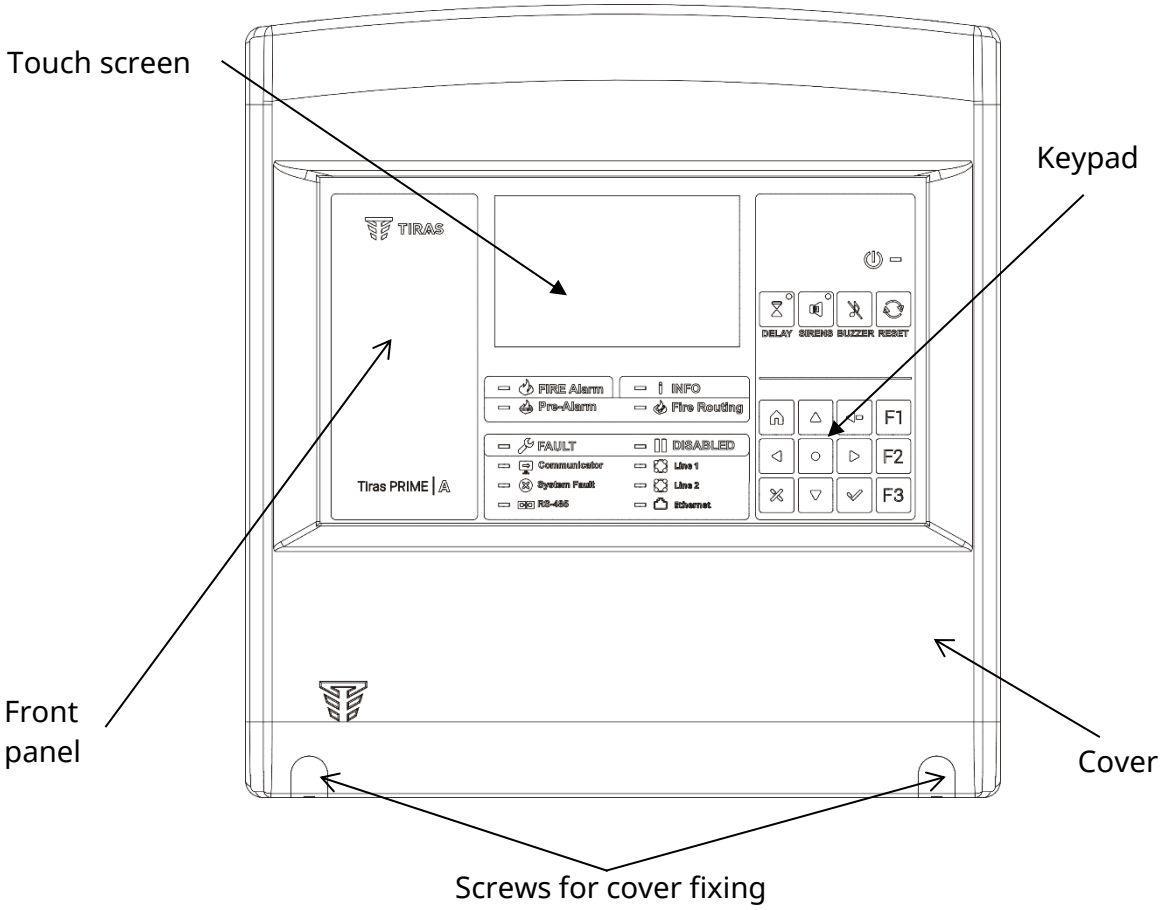


Figure 7.1 – FCP view (front side)

PSU is attached to a front panel on a base wall. There are slots to install two batteries at the bottom of a base.

The front panel is fixed on a base with four clamps (Fig. 7.2), which allow you to turn the front panel up if necessary. The lower locks and the right upper latch are open, the left upper lock is closed to prevent the front panel from falling out of a base when turning. Additionally, a front panel is attached to a base with two screws.

To remove a front panel from a base, do the following:

1) unscrew two mounting screws from a base (Fig. 7.2);

2) pull a lower edge of a panel from lower locks (after that you can, if necessary, turn a front panel without removing it from a base);

3) pull one of the upper corners of a panel from the open lock;

4) remove the second corner of a panel from a closed lock.

Replace a front panel in reverse order.

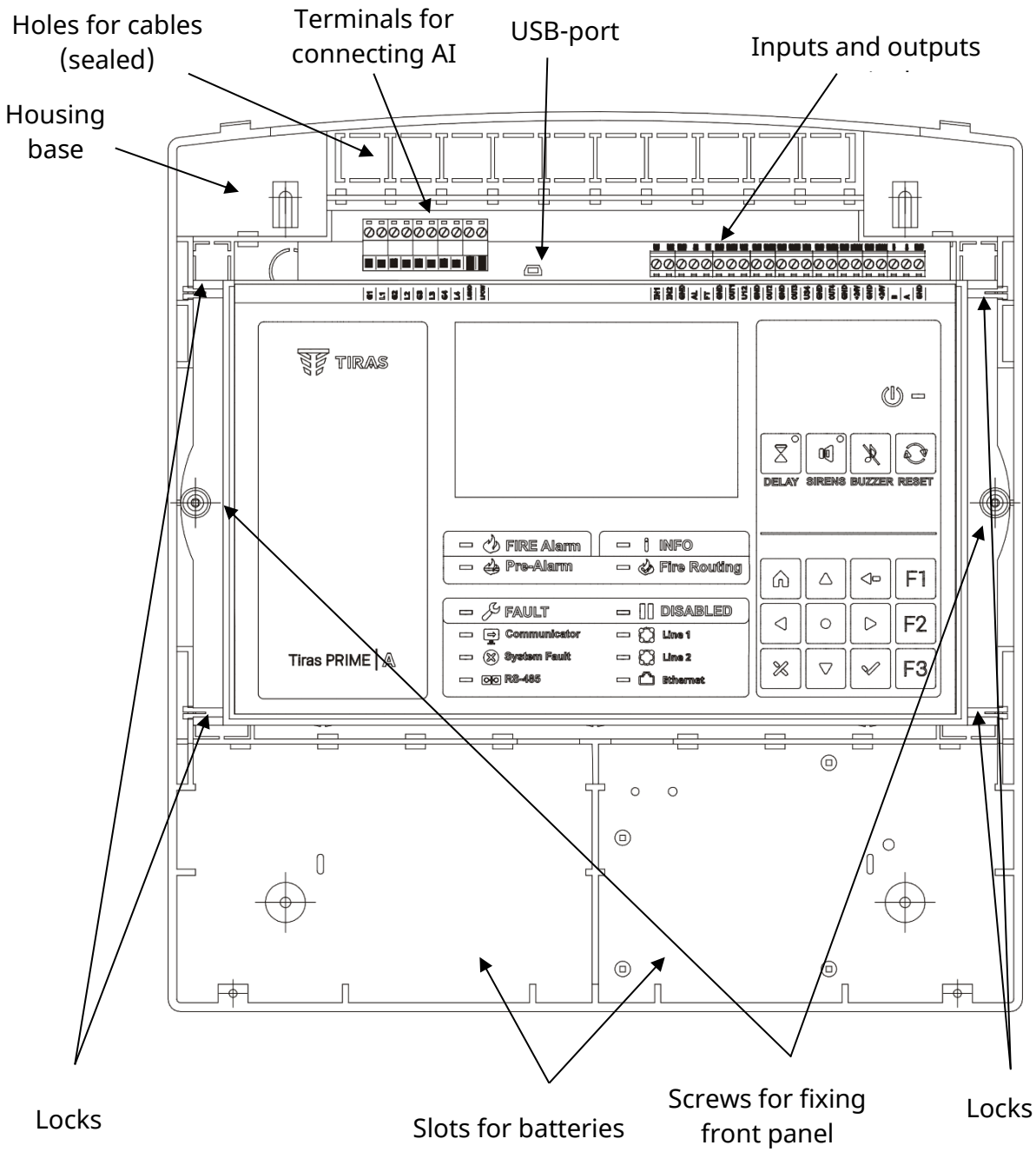
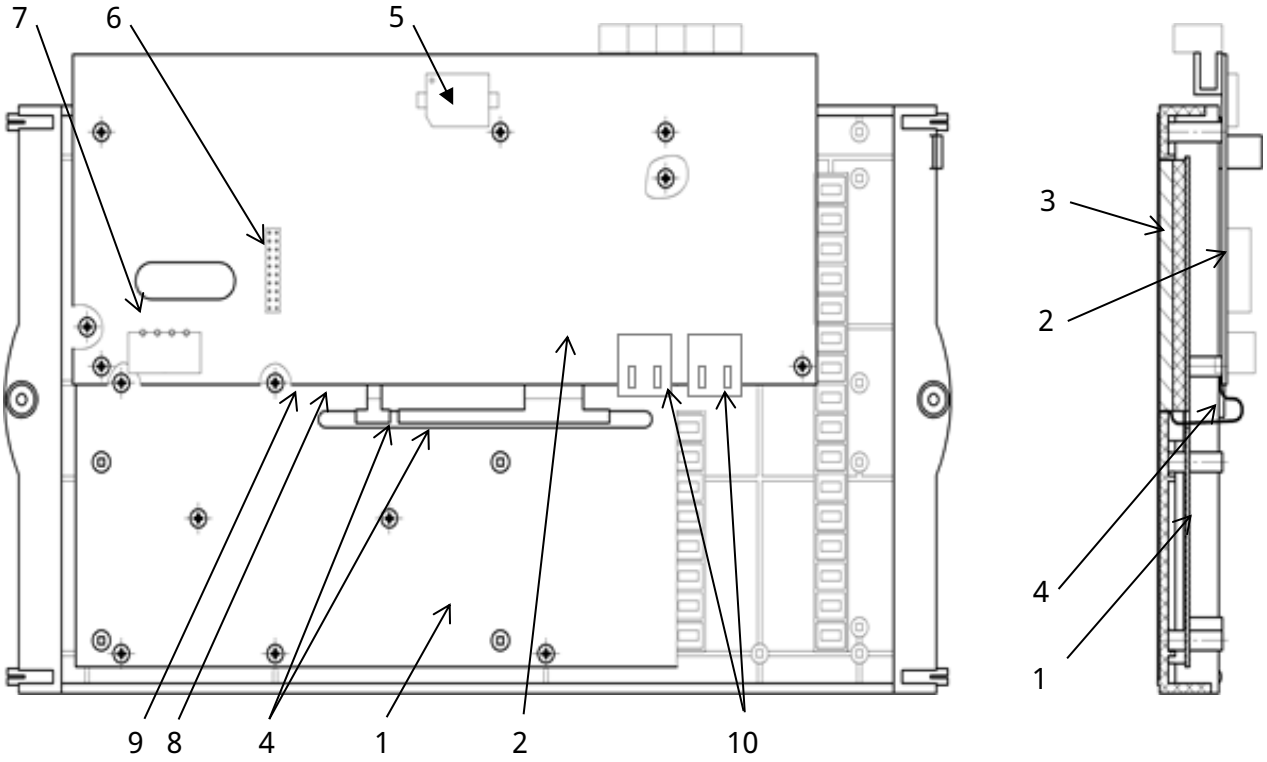


Figure 7.2 – FCP view with a front panel removed

CIU and MCU are fixed to the front panel with screws. MCU and CIU are interconnected through an adapter.

7.1.3 The display is attached to the CIU and connected to the sockets XS2, XS3 of MCU by loop cables routed through the hole in the CIU board (Fig. 7.3).

On the MCU board, there is a hole for connecting and fastening an M-GSM module.



1 – CIU;
2 – MCU;
3 – touch display;
4 – connection cables of the touch display;
5 – XS5 socket of the real-time clock battery;
6 – XS1 socket for M-GSM module connection (communicator);
7 – XP1 plug for connecting cables from PSU;
8 – location of the BOOT button;
9 – location of the START button.
10 – sockets of Ethernet ports X8, X9 (ETH-L, ETH-R).

Figure 7.3 - View of FCP front panel from the backside and in section

7.2 Connectors

7.2.1 PSU has a connector for connecting a 230 V, 50 Hz primary power line. A PSU output cable is connected to the corresponding plug on the MCU.

7.2.2 The following connectors (Figures 7.2, 7.3) are located on the MCU

1) XS4 – USB-port for MCU programming;
2) XP1 – plug, power input;
3) XS1 – socket for connecting communicator;
4) XP2 – JTAG port, service;
5) X8, X9 – Ethernet port sockets (ETH-R, ETH-L);
6) X10 – plug for connecting to CIU;
7) XP3 – plug for programming; a battery control microcontroller
8) XS5 – socket for real-time clock battery;
9) terminals LPOW, LGND to connect the AI power line;
10) terminals L1, G1, L2, G2 to connect the AI1 loop (LINE1);
11) terminals L3, G3, L4, G4 to connect the AI2 loop (LINE2);
12) terminals AL, GND, FT to connect circuits for fire alarm and fault signals transmission;

13) terminals OUT1 - OUT4 – outputs of the FCP with programmable functions;

14) terminals IN1, IN2 – universal inputs for connecting relay groups of contacts;

15) terminals U12, U34 - for power supply for pairs of outputs OUT1 - OUT2 and OUT3 - OUT4;

16) terminals + 24V, GND – 24V DC outputs;

17) terminals B, A, GND – RS485 interface, half-duplex, service.

7.3 Indication means of FCP

7.3.1 The indication means include LED indicators on a front panel of FCP, a display showing messages in accordance with the FCP operation mode, and an audible indicator inside a FCP.

The purpose and operation of LED indicators, as well as messages on a display, meet the requirements of DSTU EN 54-2 on the operation modes of the FCP (section 7).

The audible indicator is activated when a FCP enters the fire alarm mode or the fault warning mode.

7.3.2 The location of the indicators on the front panel of FCP is shown in Figure 7.4, and their purpose is described in table 7.1.

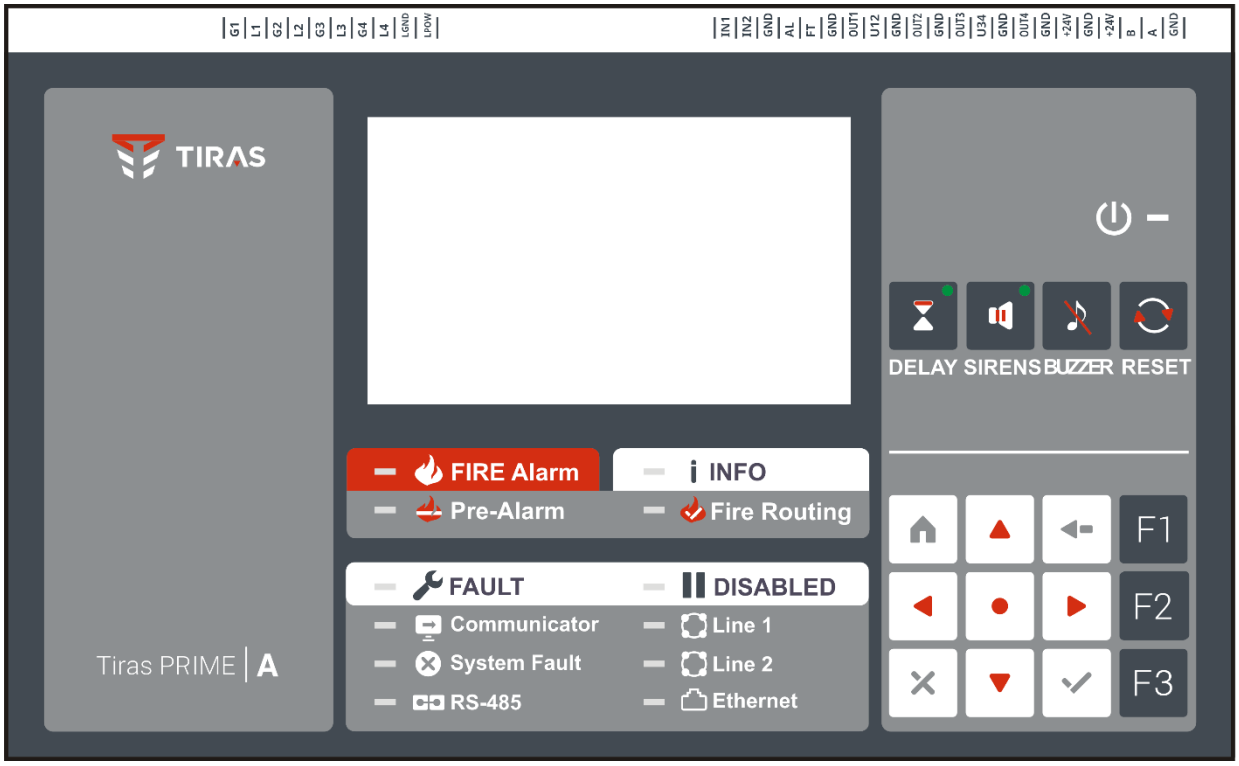


Figure 7.4 – Location of buttons and indicators on the FCP front panel

Table 7.1 – Functions of FCP indicators

Indicator	Color	Name	Indication
	Green	Power supply	Lights – the power is supplied to the FCP.
FIRE Alarm	Red	General fire	Blinks – a fire alarm in one or more zones.
Pre-Alarm	Red	Verification in a zone	Blinks – received a fire alarm message from a zone with set type B verification.
Fire Routing	Red	Fire signal transmission / Transmission confirmation	Lights - the fire alarm signal is transmitted to a FARS. Blinks – the transmitted fire alarm signal was received from a FARS.
FAULT	Yellow	General fault indicator	Blinks – a fault in at least one of the controlled AFAS loops or functions. Additional information is shown on a display.
DISABLED	Yellow	General disable indicator	Lights – there is at least one disable in the AFAS. Additional information is shown on a display.
LINE 1	Yellow	AI1 Fault	Blinks - open or short circuit are detected in AI1.
LINE 2	Yellow	AI2 Fault	links - open or short circuit are detected in AI2.
System Fault	Yellow	System error	Blinks – system (software) error of the FCP.
RS-485	Yellow	Peripheral bus	Blinks: 1) communication fault with peripherals 2) fault of the annular expansion line.
Communicator	Yellow	Communicator	Blinks – A communicator fault is detected or there is no connection to FARS (note).
Ethernet	Yellow	Local network	Blinks – a communication failure via at least one Ethernet interface. Lights - Ethernet port initialization.
INFO	Yellow	Information	Blinks - there are new messages in FCP event log.
	Yellow	Delay	Lights – a delay function is off Blinks – a delay countdown.
	Yellow	Notification	Lights - Alarm is off. Blinks – a fault of at least one of the alarm outputs.

Note – the detailed information on possible events causing an indication of a communicator fault is given in Table D.1.

7.4 Controls of FCP

7.4.1 The controls include buttons on the FCP front panel, service buttons on the MCU board, virtual buttons (in the menu) on the touch screen, and a virtual keyboard on the touch screen, which is used to enter names and names in Cyrillic and Latin letters, numbers and special characters.

7.4.2 The location of the buttons on the FCP front panel is shown in Figure 7.4, and their functions are described in table 7.2.

The location of the BOOT and START service buttons on the MCU board is shown in Figure 7.3. Information on using the BOOT button is given in section 11.3.4 and START - in 11.1.9.

Table 7.2 – Functions of the buttons on the FCP front panel and service buttons on the MCU

Button	Function	Required access level (see guides for the appropriate level)
	Disable current output delays	1
	Disable (enable) the output delay function	2
	Disable/enable notification	2
	Disable sound indication of the FCP	1
	Reset the FCP	2
	Accelerated quitting the second or third access levels to the first access level preserving the changed AFAS parameters	2, 3
	Output information messages (10.8) and firmware version number	1
	Getting detailed information about the highlighted line on the touch screen or navigating the menu, similar to **touching the highlighted line on the touch screen**	1, 2, 3
	Move through the lists of devices or events one step (arrows up, down) or 5 steps (arrows right, left), **similar to the signs of arrows on the touch screen**	1, 2, 3
	One step return to the second or third menu level, exit the second or third level, **similar to the Back button on the touch screen**	2, 3

✓	Confirm action	2, 3
✗	Cancel action	2,3
F1	Informing about the current device status in AFAS	3
F2	Enter the lists of addressable components for their registration in the zones.	3
	Enter the second access level	1
F3	Enter the third access level	1
BOOT	Start MCU programming mode. To access it, unscrew the screws and turn the front panel up	4
START	Running FCP from a battery in case of no power from the network 230 V, 50 Hz. To access, unscrew the screws and turn the front panel up	4

7.4.3 The FCP touch screen provides virtual control buttons common to all operating modes and all menu windows. To make some operations with them you have to touch the field of the touch screen with the appropriate mark, symbol, or inscription. The set of buttons is given in Table 7.3.

Table 7.3 – Functions of virtual buttons on FCP touch screen

Button	Function
∧	Move up the list by one line to highlight the data position in the list
∨	Move down the list by one line to highlight the data position in the list
<	Move up the list by 5 lines
>	Move down the list by 5 lines
✎	Go to the window to edit parameters (input, output, users, etc.), names (zones, inputs, outputs, devices, etc.)
🗑	Go to the AFAS component removal window
💾	Save edited or entered settings
☰	Create the list of objects (inputs, outputs, devices) within a zone or an entire AFAS by the selected type – filter
Back	Return to the previous window or menu in one step
Next	Go to the next menu item
√	Confirm entered data or parameters
x	Close a data entry window without saving it, close data windows returning to the previous windows
Login	Go to the digital field for entering the second level password

The list of devices, messages, etc. uses a gray line highlight. In the fire alarm mode window, the lines are highlighted in red. When you touch the selected line, you go to another window or detail the data.

The [🔔] sign on the touch screen next to the message means that it has not been viewed, and next to the message counter of any mode means that there are unreviewed messages for this mode;

7.4.4 An alphanumeric virtual keyboard is provided to enter the names of addressable components, zones, groups of zones, it is displayed using several menu commands. The window of the virtual keyboard on the touch screen of the FCP is shown in Figure 7.5. This window is accessed after touching the [✎] button during the execution of the algorithms specified in sections 9 and 10.

The functions of the virtual keyboard buttons are given in table 7.4.

Table 7.4 – Functions of virtual keyboard buttons

Buttons	Function
Letters and punctuation	Enter a name or title
1#	Go to the set of numbers and special characters
BS	Erase a character in the previous position (**B**ack**S**pace)
ABC	Switch to the set with capital letters
abc	Switch to the set of lowercase letters
x	Erase all characters to the left of the marker to the beginning of the line
<	Move the marker in a line one character to the left
>	Move the marker in a line one character to the right
ENG	Current set of letters – Cyrillic (Ukrainian language)
UA	Current set of letters – Latin (English)
RU	Current set of letters – Cyrillic (Russian)
√	Confirm the entered name or title
Back	Return to the menu from which the virtual keyboard window was accessed

When entering a single name or title, you can switch between keyboard layouts, combining letters, numbers, and special characters in any order.

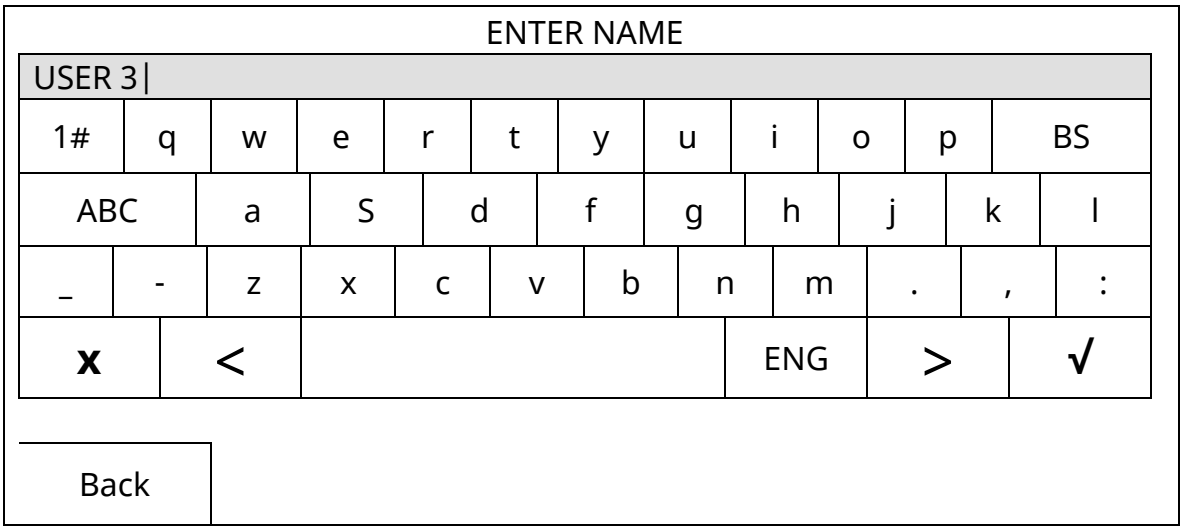


Figure 7.5 – Example of a virtual keyboard window (Latin letters)

8 FCP operation

8.1 Basic algorithm of AFAS functioning

8.1.1 In case of the correct configuration and connection of components, the AFAS system is continuously in the standby mode.

After receiving notifications from the detectors about the signs of fire, depending on the set verification type in zones, FCP goes into fire alarm mode or sets the pre-fire mode. In the fire alarm mode, the FCP switches on the outputs on the alarm devices and actuators provided by the settings in the AFAS. Each output can be switched on immediately or can be delayed for up to 10 minutes depending on the settings (section 10). After performing the measures provided in the operation manual, the service personnel can turn off the outputs, all of them are either selected or set to the fire alarm modes in zones. If after resetting the conditions of fire alarm formation remains in zones, the FCP will switch to the fire alarm mode again.

8.1.2 Fire alarm signals are not generated by addressable components that are either disabled or faulty or that are in disconnected zones.

The outputs marked in AFAS as faulty or switched off do not operate during the fire alarm mode.

8.1.3 Depending on the project, the AFAS may operate in stand-alone mode or may contain a device for transmitting signals to FARS. In the case of such a device, the appropriately configured FCP automatically generates signals on fires in zones, the switching of fire extinguishers, faults, disables, access to settings, and so on. At the same time, the FCP records all messages in its event log and displays them.

8.1.4 The operation of individual FCPs as part of the AFAS consisting of several FCPs does not differ from the one described above. In such AFAS in addition at the corresponding settings (10.15):

1) messages about the status of one FCP and devices connected to it can be displayed on the display of another FCP;

2) disconnections of the devices connected to other FCP and their zones are available from the front panel of the main FCP;

3) signals from all FCPs are transmitted through the communicator installed on the main FCP;

4) control of ECD connected to another FCP is available from the front panel of the main FCP.

In such an AFAS, the main FCP is one from which other FCPs are controlled. Programming operations in other FCPs are currently blocked. If necessary, another FCP may be assigned as main, but at the same time, there can be no more than one main FCP in the system.

8.2 General features of FCP operating modes

8.2.1 After switching on the power supply, the FCP loads the AFAS configuration data, registers all connected addressable components, diagnoses the status of inputs and outputs, and then switches to the appropriate operating modes.

After the first boot of the system (in particular, after the change of firmware) the request on a choice of interface language is displayed: Ukrainian, English, or Russian on the screen

of the touch screen of the FCP. To select a language, touch the field with the appropriate name.

8.2.2 The FCP may be in the standby mode or in other modes or combinations thereof (in descending order of indication priority):

- fire alarm;
- disabling;
- fault warning;
- service.

Dialog boxes of all modes are available on the first level of access.

If the FCP is in any combination of modes, except the standby one, the messages of the highest priority mode are automatically displayed on the touch screen. At the top of the dialog box (for example, Fig. 8.4.1) there are 4 fields with the names of the modes, a darker background indicates the one the messages from which are shown on the display screen. Each field shows the counter of available messages of each of the modes. If you want to go to show hidden messages of less priority mode, you have to touch the appropriate field. Top priority messages are automatically resumed on the display screen 20 seconds after the start of the lower priority messages displaying if the operator does not press any buttons during this period.

8.2.3 To reduce the current consumption of the FCP, the image on the display automatically turns off after the last pressing on a button or receipt of the message:

- in the standby mode, the switching off mode, the fault warning mode, the service mode on the first access level – in 5 min;
- in the fire alarm mode of at the first access level – in 1 hour.

The image on the display is restored when new messages appear, or after touching the touch screen, or after pressing any button on the front panel.

8.2.4 If a dialog box of the second or third access level is displayed on the touch screen of the FCP, the return to the dialog box of the current operating mode (8.2.2) on the first access level goes automatically after the last operator pressing the button on the touch screen or front panel of the FCP: after 30 s – for the second level, after 10 min – for the third level.

8.2.5 If the AFAS includes several FCPs, the communication between them is disabled by default. If the communication between the FCP is switched on, then messages from all FCPs are displayed only for those FCPs in which the displaying messages mode from all FCPs is set (see p.10.15). This means, in particular, that if in such an AFAS one of the FCPs goes in, for example, a fault warning mode, the corresponding messages appear on the displays of the other FCPs.

8.2.6 **To set the factory settings in the FCP,** take the following steps:

a) enter access code to the third access level (10.1.1);

b) touch the **[SYSTEM SETTINGS]** buttons, then **[RESET SETTINGS]** on the FCP display. A box asking, DO YOU REALLY WANT TO RESET SETTINGS? should appear on the display as well as the answer options: Yes or No;

c) touch the Yes field. The display of the FCP sequentially shows messages about system booting, then the request to select the interface language, and messages about loading settings. There should be several beeps.

After resetting to factory settings, the current AFAS configuration data is lost, but the current second and third access level codes remain unchanged.

To restore the factory access codes for the second and third levels, you should turn off the power of the FCP, press the **[Reset]** button on the front panel of the FCP and, without releasing it, turn on the power supply of the FCP.

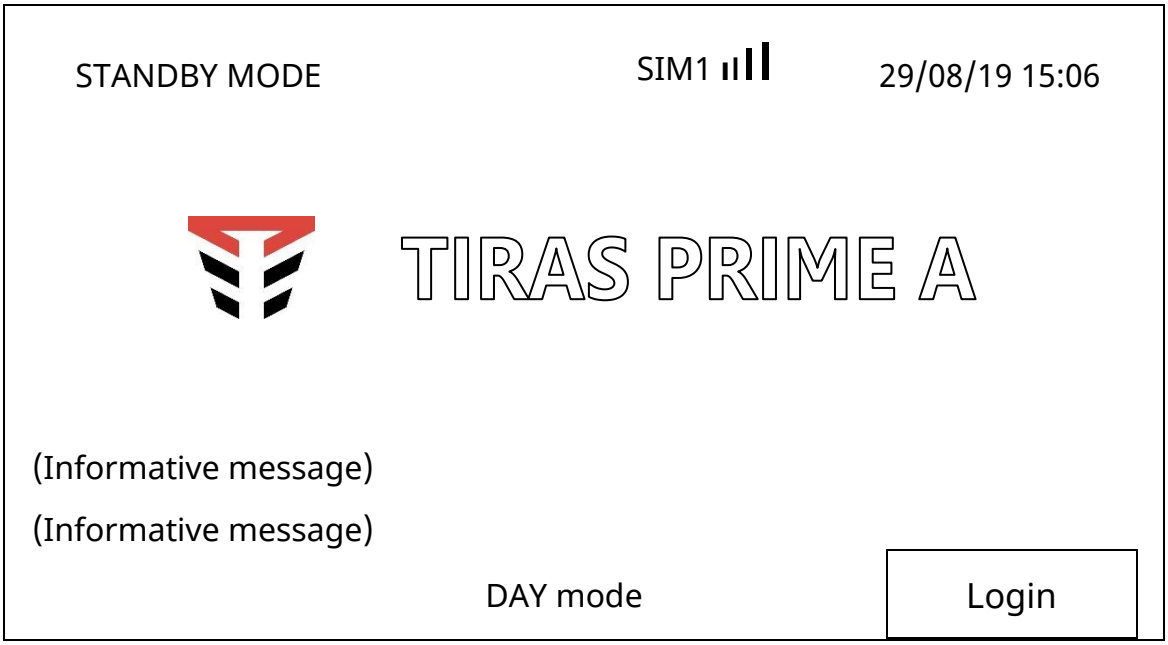
8.2.7 If the AFAS includes several FCPs, it is not possible to set the factory settings or restore the access codes in any FCP using the front panel of another FCP.

8.3 Standby mode

8.3.2 The indicators other than the power indicator on the front panel of the FCP do not light up in this mode.

If the communicator is installed and software-enabled, the conditional assessment of the signal level in the GSM operator's network is shown at the top of the dialog box.

8.3.3 Text of the informative messages can be changed by a user (10.8).



`Figure 8.3.1 – Dialog box of the standby mode of the FCP

8.4 Fire alarm mode

8.4.1 The following events lead to the transition of the FCP to the fire alarm mode:

- activation of any addressable detector registered in the FCP zone;
- activation of non-addressable detector connected to the AM-Multi module;
- ECD events (fire zone activation, manual start, switching of start control input).

If the dependence type is set in a zone, the transition of the FCP to the fire alarm mode goes according to the order given in 10.3.2.2.

8.4.2 Messages of this mode have the highest priority for displaying. Figures 8.4.1, 8.4.2 show the message windows after the FCP enters the fire alarm mode.

Figure 8.4.3 shows a window with additional information about the location of a fire. This dialog box appears when you touch the line with the fire message, similar to the one shown in Figure 8.4.2. The dialog box indicates the serial number and name of the FCP (when the AFAS includes several FCPs); zone name; name, type, and the serial number of the device that issued the fire alarm.

8.4.3 When the FCP enters the fire alarm mode, the general Fire indicator starts blinking on the front panel of the FCP, (Fig. 7.4), an intermittent sound signal starts (sound – 0.5 s, pause – 0.5 s), according to the settings the outputs are switched on, the fire alarm in the

zone is transmitted to the FARSs. In the Alarms tab, the meter shows the total number of fire reports in the AFAS zones.

8.4.4 **Attention!** If detectors that are not divided into zones enter the fire alarm mode, fire alarm messages are displayed on the FCP, but no more actions in accordance with 8.4.2, except for changing the value of the meter, take place.

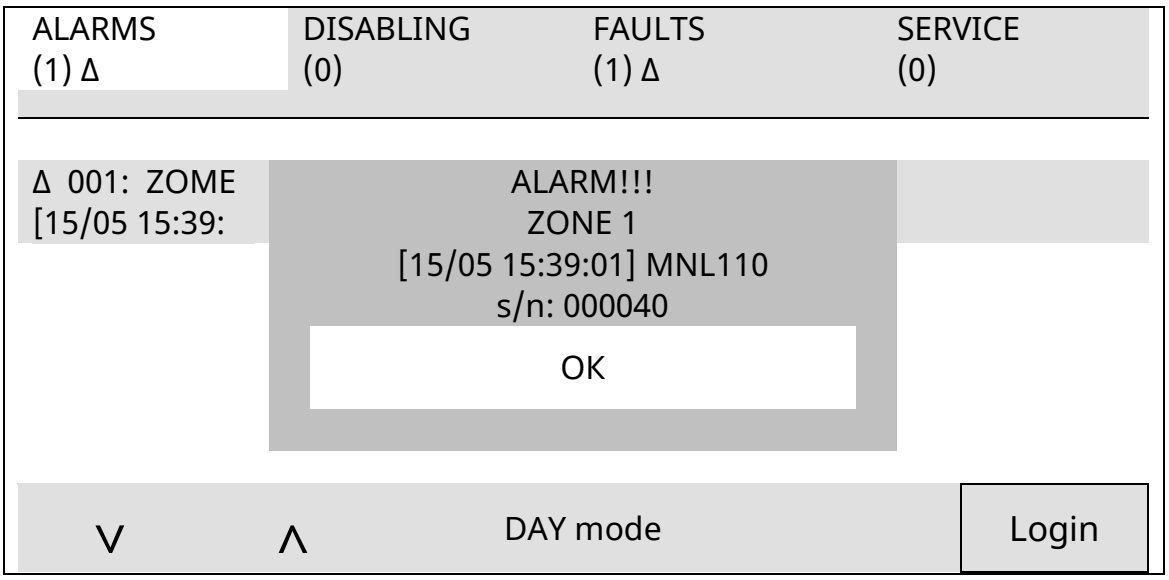


Figure 8.4.1 – The Example of a fire alarm mode dialog box

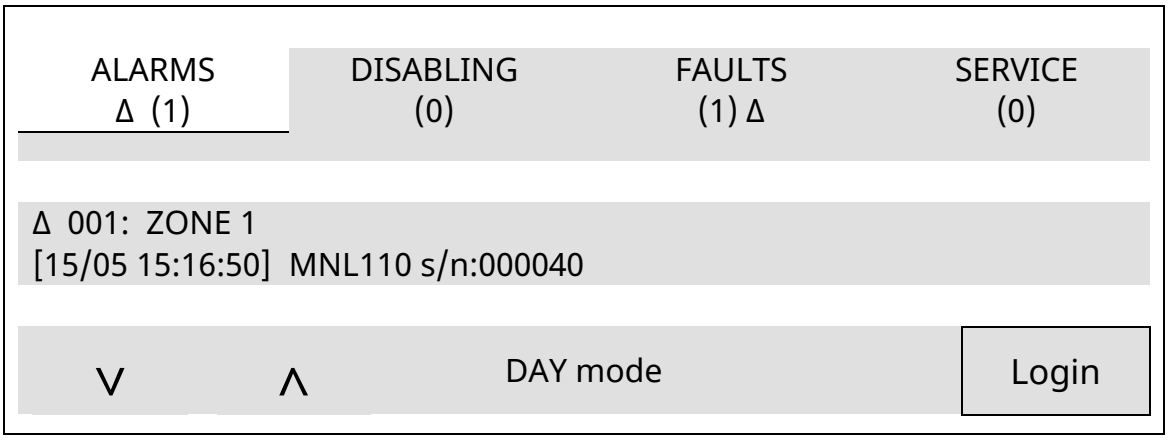


Figure 8.4.2 – The example of a fire alarm mode window after pressing the **[OK]** button

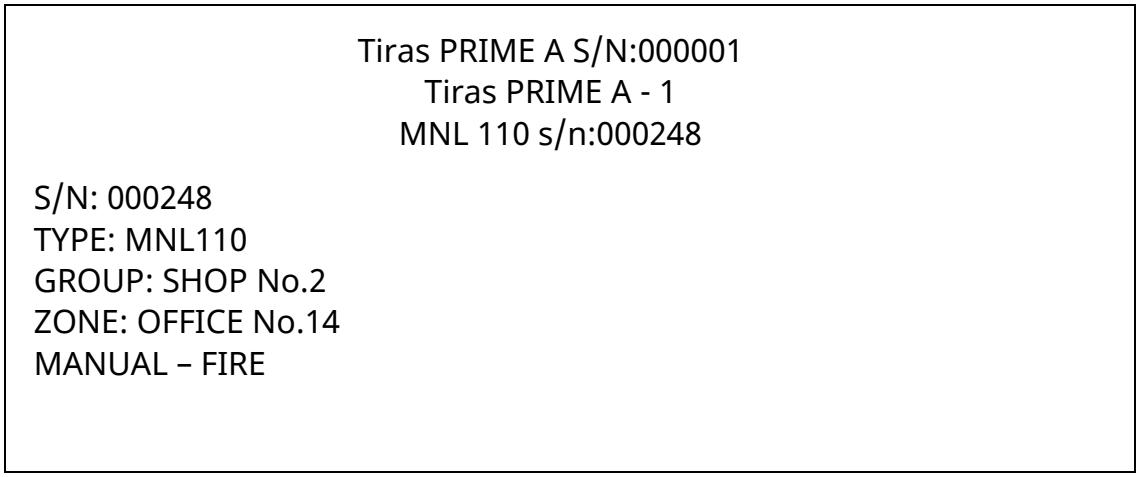


Figure 8.4.3 – The example of a dialog box with additional information about the fire alarm location

8.4.5 ECD actuation

8.4.5.1 If a ECD is registered in any zone of AFAS, in case it transitions to the fire alarm mode, activation or extinguishing, the messages on the current state of ECD are displayed on the screen of the touch screen of FCP in the dialog box of the fire alarm mode. The same messages are recorded in the event log of the FCP.

The example of a fire alarm mode window in the case of ECD actuation from own fire zones (activation inputs) is shown in Figure 8.4.4. The ECD indicators statuses are given in its operating documentation.

Warning!

1 After finishing the extinguishing, the message from ECD does not disappear automatically from the screen of the touch display, the FCP remains in the fire alarm mode until the reset operation (9.10).

2 After resetting the FCP (9.10) during extinguishing, the messages from the ECD disappear from the touch screen, the FCP exits the fire alarm mode, but ECD remains in the extinguishing mode. A message from the ECD about the end of extinguishing is displayed on the touch screen of the FCP in the fire alarm mode dialog box, but the FCP does not switch to this mode.

3 If the extinguishing delay time is counted in ECD and during this time one resets the fire alarm mode in FCP (9.10), the messages from ECD disappear from the touch screen, FCP and ECD go to the standby mode.

4 If the ECD is counting down the delay time and during this time one resets the activation mode in ECD, the FCP remains in the fire alarm mode until the reset operation (9.10) in the FCP itself.

5 If own zones of ECD (activation inputs) are set for use, the operation of detectors connected to at least one of these inputs puts the FCP in fire alarm mode, regardless of whether any type of verification (10.3.2) is set in the zone of the FCP, where ECD is registered.

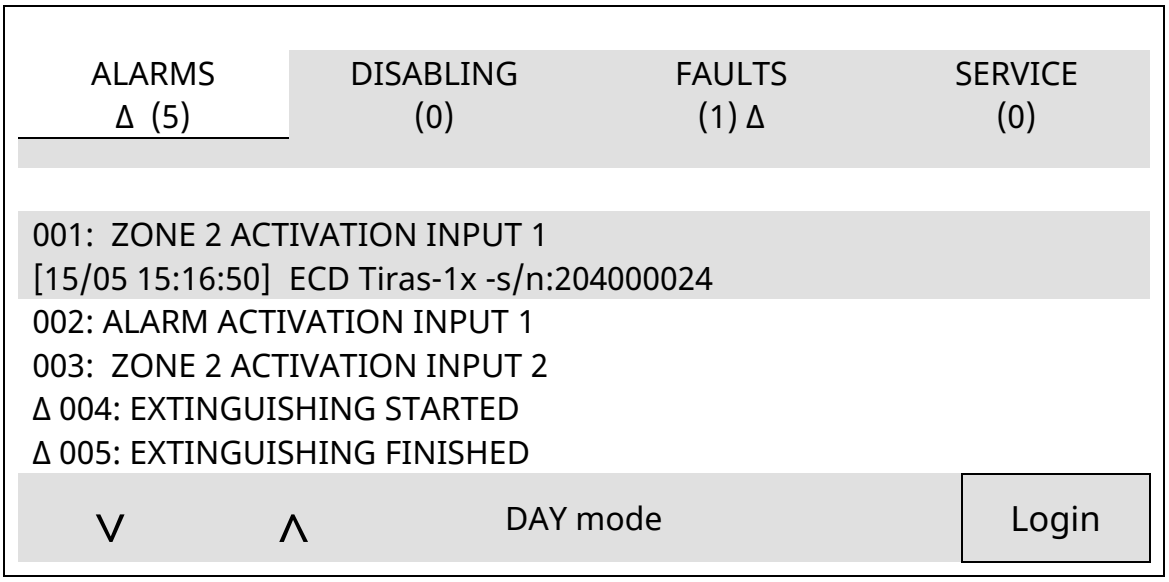


Figure 8.4.4 – The example of a fire alarm dialog box after the ECD operation is finished

8.4.5.2 If the fire alarm occurs only in one zone (activation input) of the ECD registered in the FCP zone, the FCP goes to the fire alarm mode and the touch screen displays messages about the activation of only one of the ECD activation inputs.

If the ECD is not registered in the FCP zone, and the fire alarm occurs only in one ECD zone, the FCP does not go to the fire alarm mode, but a message about the activation of one of the ECD activation inputs is displayed on the touch screen.

8.4.5.3 When one of the detectors enters the fire alarm mode in a zone of the FCP, where one fire detector enters the fire alarm mode, the fire alarm system goes into the fire mode by the command from the FCP, and when there are two detectors activated, the fire alarm system is activated automatically.

8.4.5.4 When ECD registered in the FCP zone is activated manually by the **[Manual start]** button or by means of a manual launch device, the FCP and the control unit enters the fire alarm mode (8.4.3), the FCP displays the current status of ECD in the fire alarm mode dialog box.

8.4.5.5 Emergency abort of the extinguishing process is possible in the activated ECD from the front panel of FCP. This is the procedure for an emergency abort if the AFAS includes several ECDs:

1) on the FCP display in the fire alarm mode dialog box using the buttons [∧], [∨] select the line with the message about the evacuation delay of the required ECD (this message means that ECD is activated);

2) touch the selected line;

3) touch the Cancel start field. Enter second access level password. The corresponding startup cancellation message is displayed on the FCP display.

If you want to stop the extinguishing that has just been activated immediately, touch the “CANCEL” button in the ECD activation message field (Fig. 8.4.5).

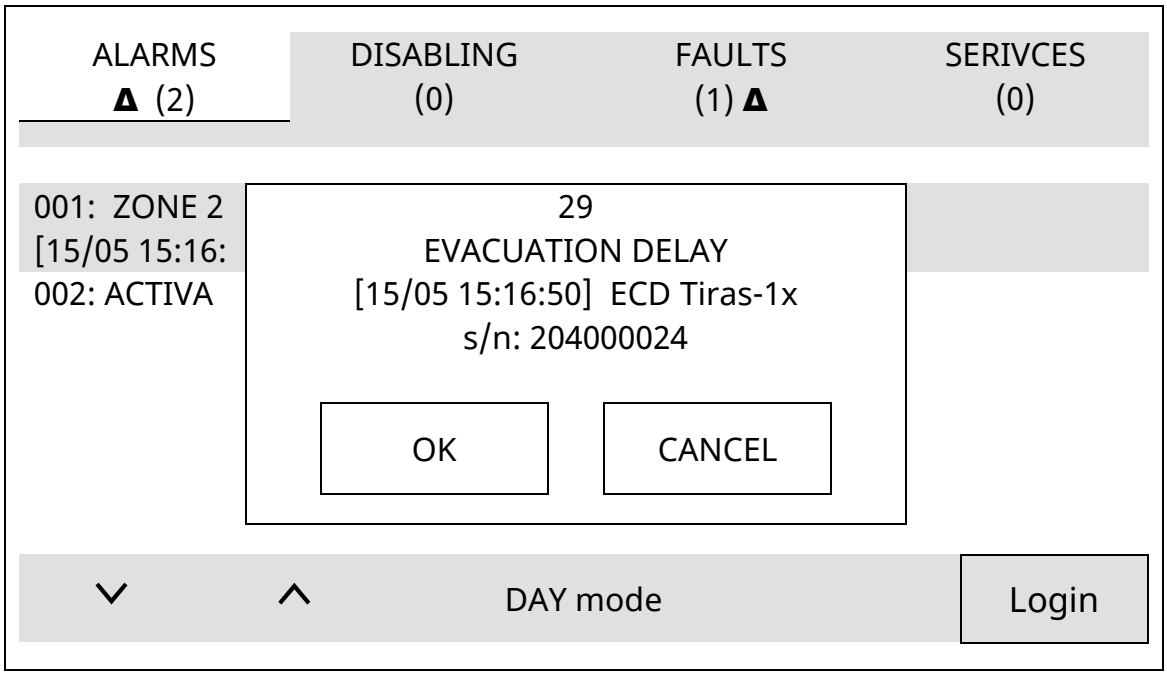


Figure 8.4.5 – The example of a fire alarm mode dialog box when activating a fire alarm

8.4.5.6 Resetting the fire alarm with the [Reset] button on the front panel of the ECD does not reset the fire alarm mode on the FCP to which the ECD is connected.

8.4.6 Triggering of outputs

8.4.6.1 In the mode of fire alarm of FCP all exits registered in the zones which have passed to a state of fire alarm work. The following features of operation should be considered:

1) if the delay time is set for any output (10.4.5), it will work after the finishing of this period;

2) the output, for which the delay time is set, can be activated immediately by pressing the **[Delay]** button or by activating the AMCP in the same zone;

3) if the verification of C type is set for the zone which has passed to a fire alarm mode, its outputs work in the order given in 10.3.2.

8.4.7 Resetting fire alarm

8.4.7.1 The fire alarm in the zone can be reset by means of the **[Reset]** button (9.10) on the front panel of the FCP. If the AFAS consists of several FCPs (10.15), it is possible to reset the fire alarm in zones of one FCP from its own front panel, or the front panel of the main FCP in the system. In this case, the fire alarm mode is reset simultaneously in all zones of the AFAS on all FCPs.

8.4.7.2 If the APS consists of several FCPs, the reset of the fire alarm on the slave FCP shall not automatically cause the fire alarm message to disappear on the main FCP. It is need to repeat reset operation on main FCP.

8.5 Disable mode

8.5.1 If the FCP is in the disable mode, the messages of this mode can be hidden only if there are messages of the fire alarm mode at the same time. The disable mode dialog box is shown in Figure 8.5.1.

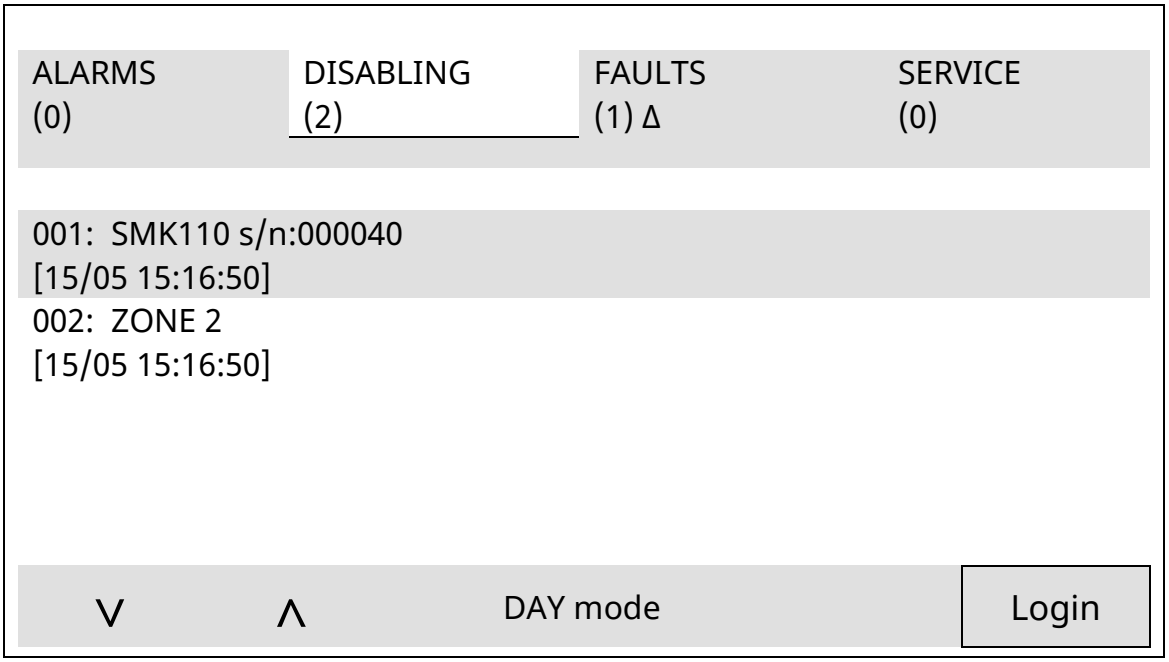


Figure 8.5.1 – The example of the disable mode dialog box

8.5.2 In case there are disables on the front panel of the FCP at least the general Disable indicator lights up (fig. 7.4). Disable messages are transmitted to the FARSs. Disabled loops are indicated by separate LEDs and/or messages in the disable mode dialog box on the display. The counter shows the total number of disables in the AFAS in the Disable tab.

8.5.3 In the AFAS, which consists of several FCPs, disable messages generated on any FCP are also displayed on other FCPs set to output messages from all FCPs (10.15).

8.6 Fault warning mode

8.6.1 If the FCP is in fault warning mode, the messages of this mode can be suppressed only if there are simultaneous messages of fire alarm mode or disable mode. The fault warning mode dialog bo is shown in Figure 8.6.1.

8.6.2 In case of faults on the front panel of FCP, the general Fault indicator blinks (Fig. 7.4), there is an intermittent sound signal (sound – 0.5 s, pause – 30 s), fault messages are transmitted to the FARS. Faulty loops are indicated by separate LEDs and messages in the fault warning mode display. The counter shows the total number of faults in the AFAS on the Faults tab.

8.6.3 Depending on the Auto-reset parameter in the System settings dialog box (9.4) there are the following modes of fault messages displaying:

- auto-reset is enabled – the fault message automatically disappears from the display screen when this fault is restored;

- auto-reset is disabled – the fault message remains on the display screen after the fault is restored. Messages are reset only manually with the **[Reset]** button on the front panel of the FCP.

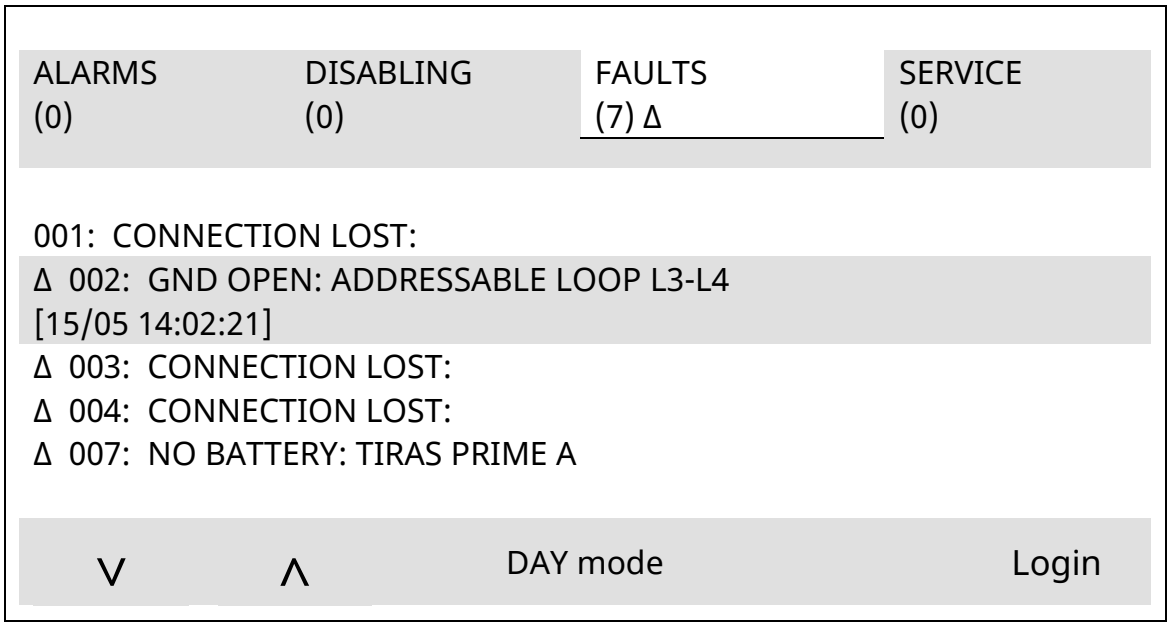


Figure 8.6.1 – The example of a fault warning mode dialog box

8.6.4. Fault messages appear as a result of automatic analysis of the controlled circuits state in FCP, ECD, or receiving messages from the addressable components. The list of fault messages and the probable causes of their appearing are given in Appendix D. If you touch the fault message line, additional information about the nature of the fault becomes available.

8.6.5 If addressable components are not registered in zones, messages about their faults are not transmitted to FARS, but are displayed on the FCP.

8.6.6 In the AFAS, consisting of several FCPs, fault messages in any FCP are also displayed on other FCPs, set to output messages from all FCPs (10.15).

8.7 Service mode

8.7.1 The service mode dialog box is displayed on the FCP automatically when any input is triggered in the AFAS if the FCP is not in a higher priority mode. Service mode messages can be hidden by the messages of other modes (except for the standby mode).

8.7.2 There is no additional LED and sound indication during the FCP transition to the service mode. The counter in the Services tab shows the total number of service messages about inputs activation in the AFAS, and messages about start and complete of scenarios (see 10.15).

8.7.3 In AFAS, consisting of several FCPs, signals on the triggering of the inputs in them are displayed on any FCP, set to output messages from all FCPs (10.15).

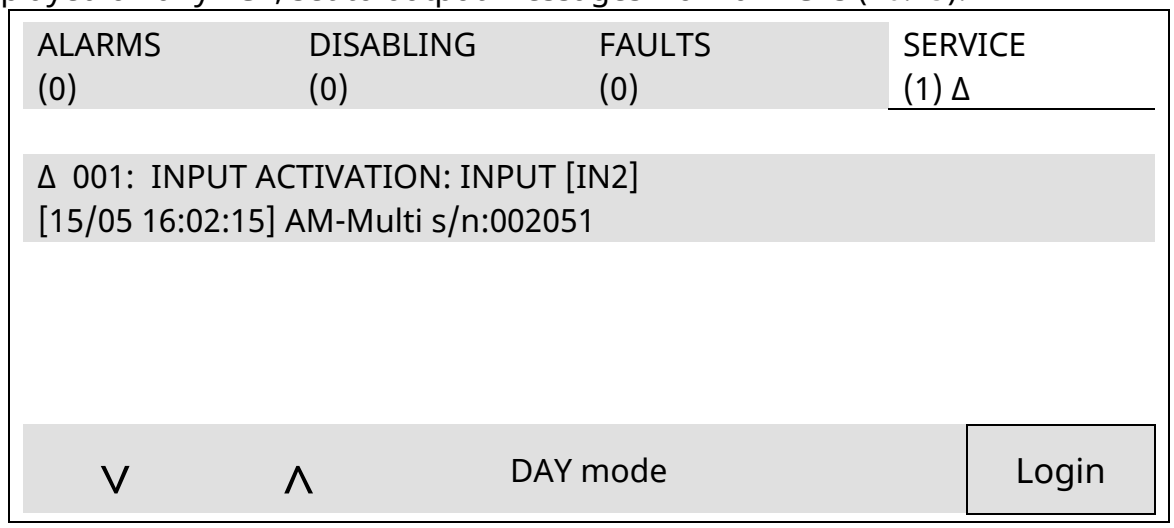


Figure 8.7.1 – The example of the FCP service mode dialog box

8.8 Access levels

8.8.1 The **first access level** is intended mainly to inform users about the current modes of FCP operation and AFAS in general. The messages described in sections 8.3 - 8.7 are displayed at this level.

8.8.2 The **second access level** is used for operational control of the FCP, which is intended to:

1) obtain information about events in the AFAS, which are not shown on the display of the FCP in the current mode (event log);

2) reset the FCP and addressable components of the AFAS, fire alarms, and malfunctions;

3) operative disable of AFAS circles;

4) FCP system settings (language, time, etc.);

5) create the list of users who have the access to the second access level;

6) run LED and sound indication tests on the FCP;

7) obtain information about the status of the inputs and outputs of the power supply FCP.

The description of the second level menu and operations with it is given in section 9.

8.8.3 The **third access level** is intended for general configuration of the AFAS, it is intended to:

1) edit the AFAS parameters and the addressable components parameters;

2) create zones;

3) inform about the current levels of smoke chambers pollution in the AFAS;

4) inform about the battery testing process.

The description of the third level menu and operations with it is given in section 10.

8.8.4 **Attention!** The following symbols of these actions are used to describe the algorithms of actions at the second and third access levels:

- **[button name]** (button location) - touch or press this button. For example [√] (on the touch screen) - means that you need to touch the button with the image √ located on the touch screen;

- **(instruction)** - you should carry out the operation specified in parentheses. For example: (enter password);

- sign "→"- go to the next action.

8.8.5 The **fourth access level** is intended to restore the operation of the FCP. The works at this level include the following:

- 3.3 V battery replacement in real-time clock;
- reprogramming of the FCP;
- launch of the FCP from the battery;
- dismantling and replacement of FCP units, including the communicator;
- battery replacement.

To carry out works on the fourth access level, use the tools to remove the cover of the FCP housing and get access to its service buttons: BOOT and START (7.4.2).

8.8.6 To **restore the factory access codes** to the second and third levels, do the following:

a) completely turn off the power supply in the FCP;

b) press the **[Reset]** button on the front panel of the FCP and, without releasing it, turn on the power supply of the FCP.

9 Second access level

9.1 Entering the second access level menu

9.1.1 The second access level is intended for operational control of AFAS. To go to the second access level from the dialog box of any operation mode of the FCP (section 8), take the following steps:

- **[Login]** (on the touch screen) → (enter the user's digital code on the touch screen, factory setting - 1111) → [√] (on the touch screen).

Instead of **[Login]** it is allowed to press the **F2** button on the front panel of the FCP.

The second access level menu is shown in Figure 9.1.1.

9.1.2 The factory default access code is assigned to the user named ADMINISTRATOR (9.3.1). It is not recommended to change the access code of this user during the work to keep access to the second level under any conditions.

The menu consists of virtual buttons, touching of which leads to the selected functions.

9.1.3 The deactivation of alert during a fire alarm and resetting also can be done at the second access level (9.8, 9.10).

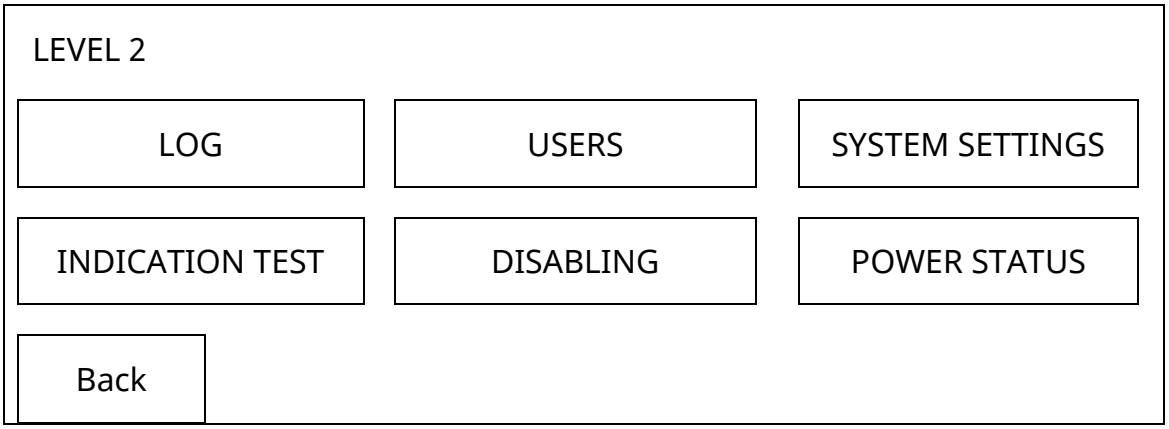


Figure 9.1.1 – Second access level menu

9.1.4 If the AFAS consists of several FCPs, after entering the user code of the second access level a list of all available FCPs is displayed on the main FCP, which includes the one from which the entry to the 2nd access level is carried out. You should select one of them. If another FCP is selected, only the disabling/enabling functions within the selected FCP are available to the user (the **[DISABLING]** button (9.6) is active, the other buttons are locked).

9.2 [LOG] button

9.2.1 Touch the **[LOG]** button to check the list of events that have occurred in the AFAS. An example of such a dialog box is shown in Figure 9.2.1.

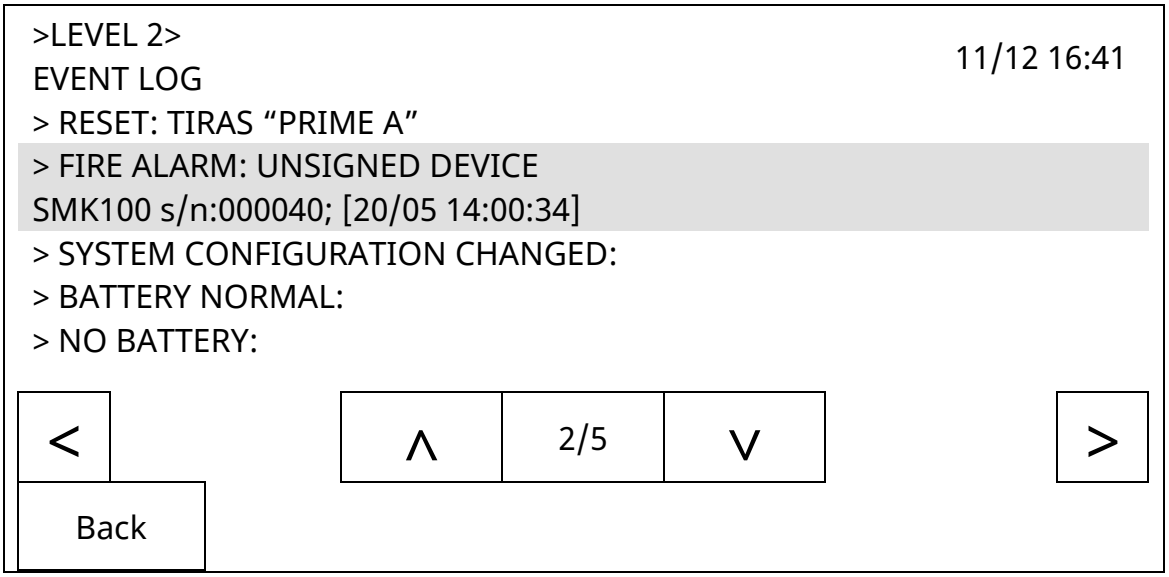


Figure 9.2.1 - FCP event log

The first number in the counter at the bottom of the display shows the number of the activated message highlighted in gray, the second number shows how many messages are currently in the log. The activated line contains detailed information about the event.

9.2.2 Messages in the log are displayed in the language in which the FCP was configured at the time of recording messages in the log.

9.2.3 Messages in the log are not available for editing.

9.2.4 If you use **[∧], [∨]** buttons to highlight the required line and touch it, more detailed information about the selected message is displayed.

9.2.5 If the AFAS consists of several FCPs, the logs of each of them shall contain event reports that apply only to this FCP and its connected components. The FCP event log, in which

the display of events from all FCPs is configured, also stores messages from all FCPs of the system indicating the name of the FCP on which the event occurred. The access from one of the FCPs to the logs of other FCPs is blocked.

9.3 [USERS] button

9.3.1 Touch the **[USERS]** button to go to the list of second access level users and to edit their access rights. The dialog box with this list is shown in Figure 9.3.1.

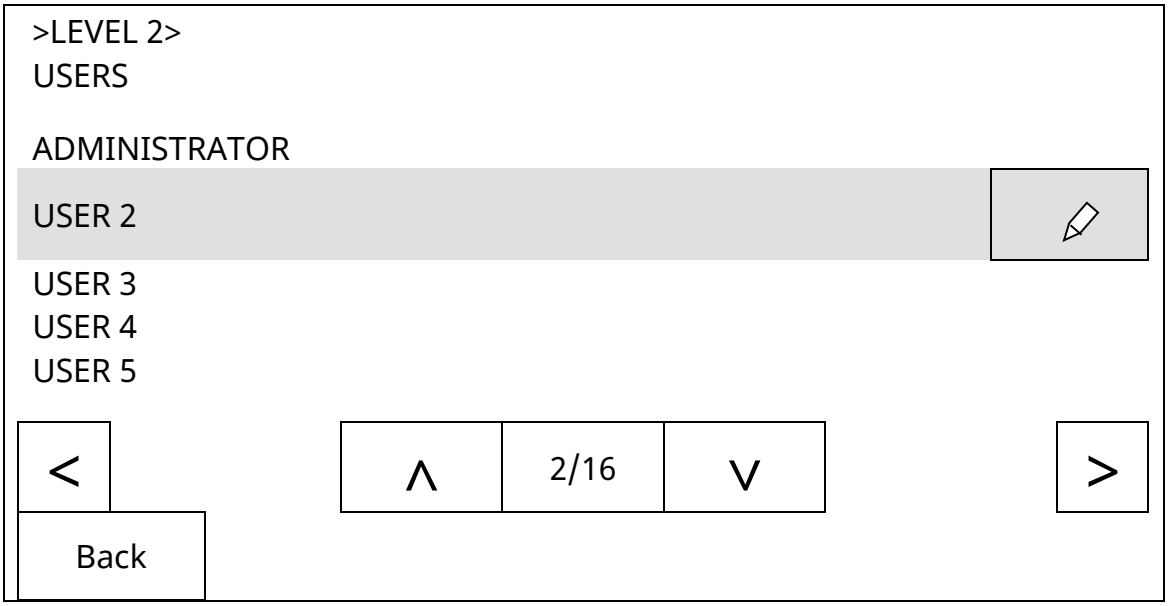


Figure 9.3.1 – The list of second access level users dialog box

9.3.2. When you touch the **[ ]** button, the dialog box for editing a user's profile appears, its example is shown in Figure 9.3.2.

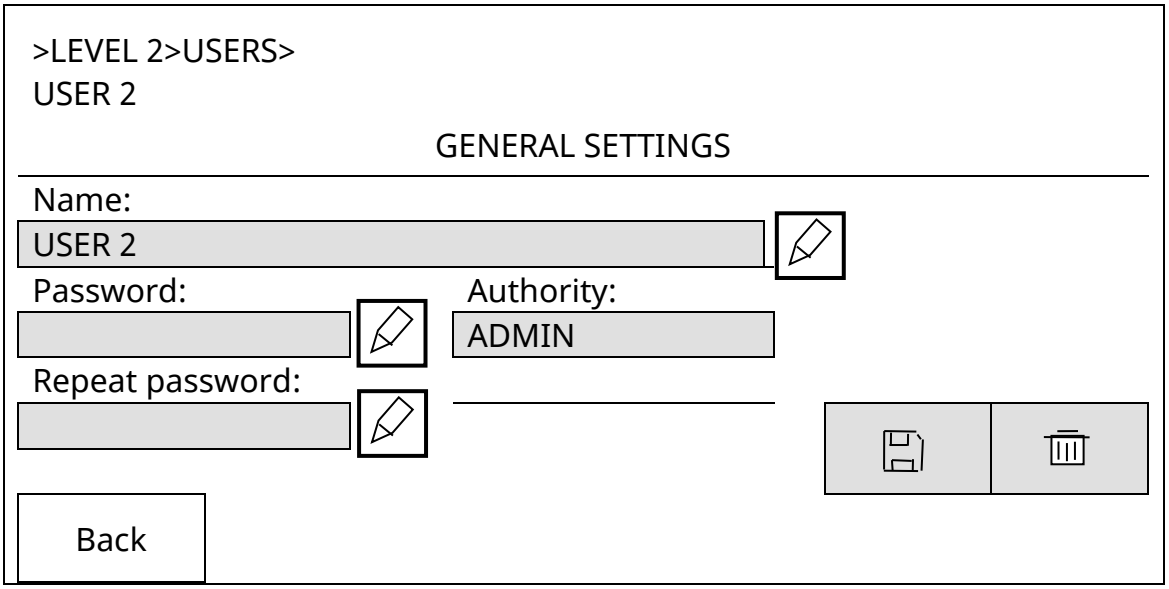


Figure 9.3.2 – The example of user right editing dialog box

Only digits are used in the password, the password length should be no more than 5 digits.

You can enter up to 40 characters, including spaces, in the username line.

9.3.2 A new user is added to the list according to the general algorithm (all operations are carried out on the touch screen):

- (enter the second access level) → (select the user from the list, except user 1, for which the factory settings are fixed) → **[**  **]** → **[**  **]** (next to the field Password) → (enter password → **[√]** → **[**  **]** (next to the field Repeat password) → (re-enter password) → **[√]** → (select rights level) → **[**  **]** (near the Name field) → (enter name) → **[√]** → **[Back]** → **[**  **]**.

To select the rights, touch the Authority field on the touch screen, then the list of access levels appears, touch the field with the required level. If a NO RIGHTS level is selected for a user, this person will not be able to enter the second access level with his password.

These are the possible rights: ADMIN, USER, NO RIGHTS. A user with the USER rights does not have access to the functional settings that are carried out at the second access level.

Enter to the second access level is blocked for the NO RIGHTS user. Thus, you can deny entry to the second level without deleting user information.

9.3.3 If you touch the **[**  **]** button in the user rights editing window, all parameters of the current user will return to the factory settings. Changing the access level and deleting the current ADMINISTRATOR parameters (user 1) is blocked so that in any case the user with the right to enter the second access level remains in the AFAS. By default, all users, except the ADMINISTRATOR, have the NO RIGHTS level.

9.3.4 If the AFAS consists of several FCPs, the user rights editing operations concern only the FCP on which they are performed. To ensure access of the same users to the level 2 menu of all FCPs, it is required to repeat the data entry of these users on all FCPs.

9.4 [SYSTEM SETTINGS] button

9.4.1 By touching the **[SYSTEM SETTINGS]** button to go to the dialog box for changing the general parameters of the FCP:

- current date;
- current time;
- mode of fault messages displaying (8.6.3);
- interface languages.

The example of the system settings dialog box is shown in Figure 9.4.1.

9.4.2 To select the value of the Auto-reset parameter, touch the field on the touch screen where the current parameter value is displayed.

If the Auto-reset parameter is set to Enabled, the messages in the fault warning mode dialog box (8.6) disappear automatically when the fault is restored, and when Disabled remains on the display screen.

9.4.3 To select the value of the Interface language parameter touch the field on the touch screen, where the current value of the parameter is shown. After selecting the required interface language, the dialog box names and menus on the display screen change after entering the first access level and saving the configuration, and if the display screen contains messages about events in modes other than the standby one, they will remain in the previous language. To change the display language of all messages, turn the FCP power supply on and off again.

9.4.4 To access the date or current time changing menu, touch the [✎] button next to the field according to the Date, Time parameters.

Touch the **[Back]** button to return to the second level menu.

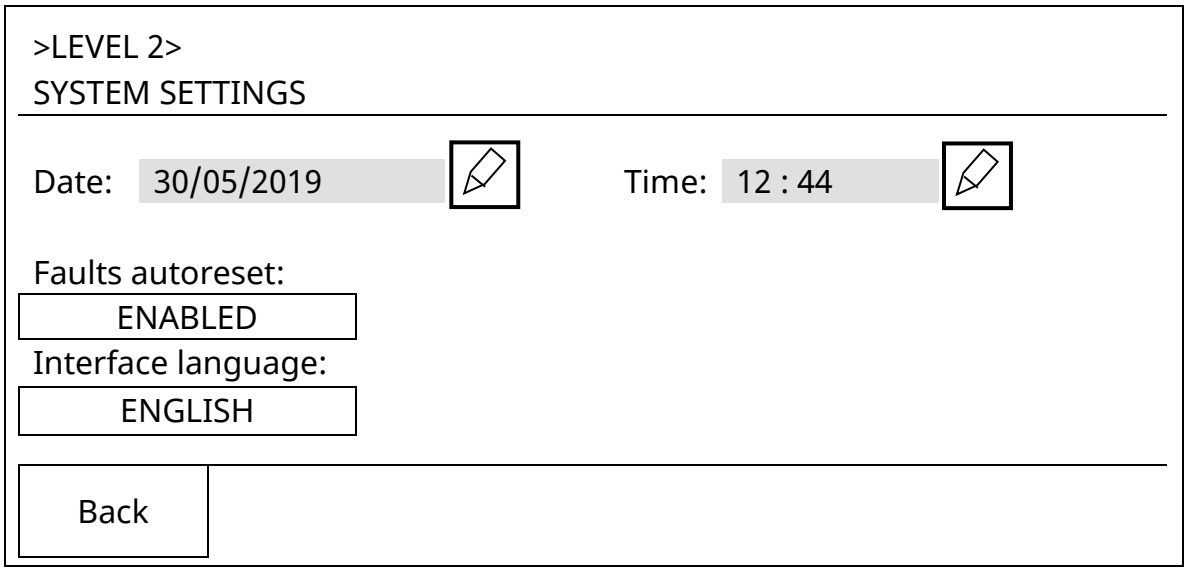


Figure 9.4.1 – Example of the system settings dialog box

9.5. [Indication test] button

9.5.1 After touching this button, all the indicators on the front panel of the FCP light up on the touch screen for 2 seconds, sound indication is also activated.

9.6 [DISABLING] button

9.6.1 By touching the **[DISABLE]** button on the touch screen, you go to the menu with the list of groups of objects that can be enabled or disabled. The dialog box with this menu is shown in Figure 9.6.1.

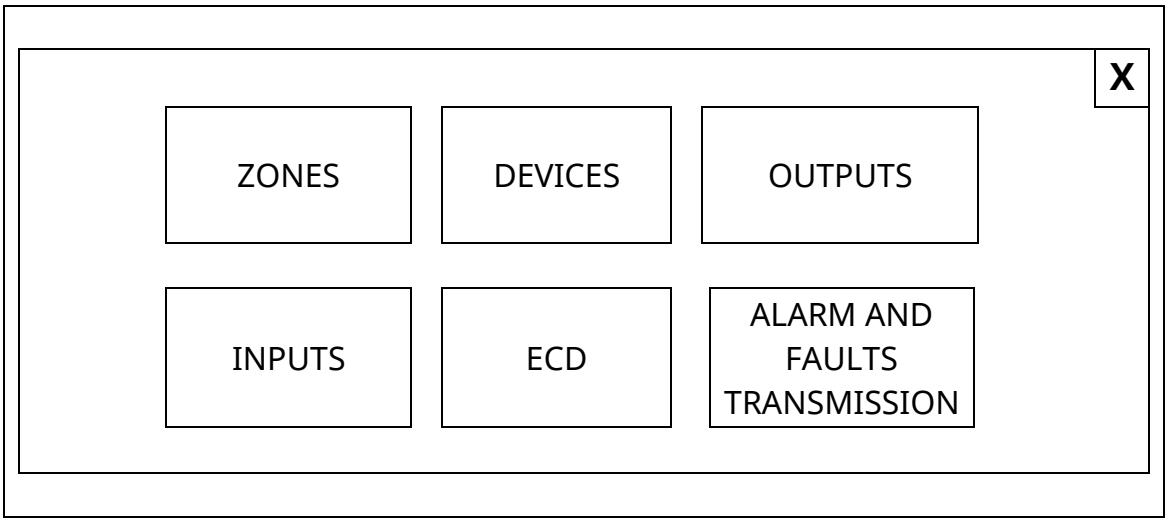


Figure 9.6.1 – Dialog box for disabling/enabling objects

If the AFAS consists of several FCPs, the operation of enabling and disabling the components of any FCP can be carried out remotely from the main FCP.

After touching the menu field with the name of the selected group, a dialog box opens, containing the corresponding list (zones, or addressable components, outputs, inputs, or ECD). An example of such a dialog box is shown in Figure 9.6.2. Other lists have a similar structure.

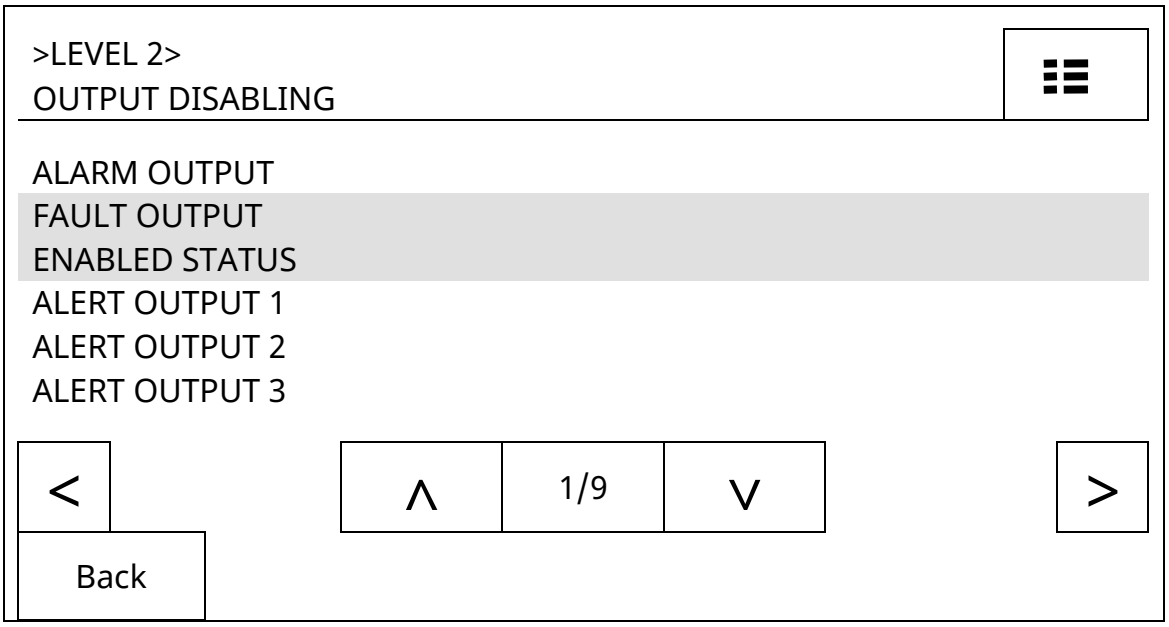


Figure 9.6.2 – Dialog box with outputs list for enabling/disabling

9.6.2 Here is the example of the algorithm for disabling an output (zones, devices, or inputs):

- (enter the second access level) → **[DISABLING]** (on the touch screen) → **[OUTPUTS]** (on the touch screen) → (select the line with the required output using the [∧],[∨] buttons) → (touch the highlighted line) → **[Yes]** (in the query field Do you really want to disable it? on the touch screen).

The selected output will be displayed in the list with the "Disabled" status.

9.6.3 Enabling an output, a zone, a device, an input, an automatic start of ECD is carried out according to an algorithm similar to 9.6.2.

Besides disabled outputs, zones, devices, inputs, automatic start ECD can be enabled directly from the list of disabled items displayed at the first access level. The algorithm for that is as follows:

- (select and highlight the line with the required disabling message) → (touch the line) → **[Enable]** (on the touch screen) → (enter and confirm the second level access code).

9.6.4 When disabled, the general **"DISABLING"** indicator lights up on the front panel of the FCP (Fig. 7.4) and the message about the disabled circuit or the disabled function is displayed on the touch display. In case of switching off the communicator, delays on outputs, notifications, their separate indication of disabling appears on the front panel of the FCP. Notifications of all disabled items are displayed in the event log.

9.6.5 After disabling the last detector or parametric input registered in a zone of the AM-Multi module, the whole zone is automatically disabled, regardless of how many outputs are additionally registered there. When a zone is enabled, all disabled detectors in it or parametric inputs of the AM-Multi module are automatically enabled, but the outputs that were disabled before are not enabled.

Warning! *If all detectors in a zone are disabled, the zone disabling message will be generated automatically and both disabling will be logged in the log. When a zone is enabled, the detectors will also be enabled, but the log will not generate a message about the enabling of individual detectors, but only the entire zone. After enabling all detectors in turn in the disabled zone, the zone itself should also be enabled separately.*

9.6.6 If the outputs for which the delay is set are disabled during the fire alarm before the end of the delay and then switched on immediately, the delay countdown is not resumed, the outputs are triggered immediately after switching on.

9.6.7 In the ECD list, the FCP disabling function is available **only for the manual mode** of the selected device. After the manual mode is enabled, the Automatic Disabled indicator lights up on the selected ECD.

The FCP displays the disabling of manual launch and the disabling of the extinguishing devices, but the enabling of these functions from the FCP is not available.

9.6.8 The disabling transmission of alarm and fault messages to the FARS is available only when in the FARS SETTINGS (10.11) menu for the communicator, the “ENABLED” option is set.

9.6.9 The disabling lists do not change when the power is switched on/off or when the FCP is reprogrammed.

9.7 [POWER STATUS] button

9.7.1 By touching the **[POWER STATUS]** button on the display, the information dialog box appears with the data on PSU status, the status of power outputs of peripheral devices +24 V MCU, battery, real-time clock battery 3.3 V, and the supply voltage for AI. In this dialog box, the controlled objects are depicted in the form of rectangles located on the display screen similar to the actual location in the FCP:

- top left - LPOW input (power supply of AI);
- center - PSU output and real-time clock battery;
- top right - two outputs +24 V of MCU;
- below - two batteries.

9.7.2 Each rectangle shows the voltage at the control points.

The color of the rectangles shows the current state of the power supply: red (for the battery) - no battery, yellow - the voltage is beyond the normal range or the test result is negative, green – the voltage is within the normal range.

There is an additional conditional quality assessment - Q inside the rectangles compared to the battery, it is the result of battery testing and can vary from 0% to 100%. The larger is the number, the better is the condition of the battery.

Additional information on the battery test results is displayed in the installer log (10.6). The quality of the battery is denoted in conventional units, the range of quality changes from 2 to 32, the smaller is the number, the better is the quality of the battery.

9.7.3 It is recommended to install a battery with a minimum voltage difference (preferably from one batch). Batteries are charged with a common current, but the voltage on them is measured separately and charging is limited to a higher voltage, so a battery with a lower voltage may not charge to the maximum voltage value.

9.8 Deactivation and activation of alarm with [Alert] button

9.8.1 The **[Alert]** button is located on the front panel of the FCP. Unlike the **[DISABLING]** button on the touch screen, pressing the **[Alert]** button mutes all alarms in all zones that **are in a fire alarm (deactivate the alert outputs).** If there are no fire alarm zones, it is not possible to deactivate the alarm outputs with the **[Alert]** button.

If an alarm delay is set for the alarm outputs, such alarm outputs can only be deactivated after the delay time has elapsed.

Algorithm of actions for deactivation of alarm outputs:

- **[Alerts]** (on the front panel of the FCP) → (enter the second level access password, default - **1111**) → **[√].**

Indication on the front panel and the touch screen of the FCP about the deactivation of the alarm outputs.

9.8.2 If some alarm outputs have already been activated in the zone in the fire alarm mode, and the delay time countdown continues for others, the **[Alert]** button deactivates only those alarm outputs that have been activated.

If some alarm outputs have already been deactivated in the zone in the fire alarm mode, and others have just been activated, the algorithm for deactivation of those outputs that had been activated is as follows:

- **[Alerts]** (on the front panel of the FCP) → (enter the password of the second access level, by default - **1111**) → **[√]** → **[Disable]** (on the touch screen in response to the Select action request),

or, if you want to activate those alert outputs that have been deactivated:

- **[Alerts]** (on the front panel of the FCP) → (enter the password of the second access level, by default - **1111**) → **[√]** → **[Enable]** (on the touch screen in response to the Select action request).

9.8.3 The **[Alerts]** button activates all alarm outputs that have been deactivated by it, but only during the fire alarm mode. The algorithm for activating the alarm outputs is similar to the deactivation algorithm (9.8.1).

9.8.4 If the Reactivate alarm in case of a new fire function is activated in the alarm output settings, in case of alarm in another zone to which this alarm output is assigned, it is activated automatically. If this function is disabled, the alarm output can be activated in case of a new fire only after the fire alarm has been reset or after activation (paragraph 9.8.3).

9.8.5 If the AFAS consists of several FCPs, it is not possible to deactivate the **[Alert]** button located on the main FCP of the alert devices connected to other FCPs.

9.9 [Delay] button

9.9.1 The functions of this button are listed in the table. 7.2. To disable the delay until the outputs are triggered, you should enter the second access level and press this button. The indicator lights up next to the **[Delay]** button. The general **Disabled** indicator does not light up.

To enable delays, do the following: enter the second access level and press the **[Delay]** button. The indicator next to the button goes out.

9.9.2 If the **[Delay]** button is pressed during a fire alarm on the first access level, all outputs in the zone for which the operation delay time is counted are switched on. If the AFAS consists of several FCPs, the cancellation of delays applies only to zones and outputs of the FCP on the front panel of which press the **[Delay]** button.

9.9.3 If the Day/Night mode is switched on in the FCP and the delays were switched off during the day period (9.9.1), the delays are automatically switched on at the beginning of the next day period. In this case, if you want to keep the delayed state of the output delays, you should turn them off again with the **[Delay]** button.

9.10 [Reset] Button

9.10.1 Only a comprehensive reset is implemented in the FCP. After pressing the **[Reset]** button on the front panel of the FCP and entering the password of the second access level, all AFAS components go to the standby state, all messages about current faults and fire alarms are restored.

9.10.2 Reset does not change the configuration parameters of the FCP and addressable components and disable information in the AFAS.

9.10.3 To reset it, follow these steps:

- **[Reset]** (on the front panel of the FCP) → (enter the second access level password) → **[√]**.

9.10.4 A reset can be made without entering passwords if a user is already in the second or third access levels.

9.10.5 If the AFAS parameters have been changed at the second access level, the Perform system reset warning is shown on the display when exiting the second level. To remove this warning from the screen, touch the **[OK]** button in the field of this warning on the touch screen. Reset is made according to 9.10.3.

If the AFAS consists of several FCPs (10.15), then the reset of the fire alarm in the areas of one FCP is possible:

- from its own front panel;
- from the front panel of the main FCP of the system. In this case, the fire alarm mode is reset simultaneously in all areas of the AFAS on all FCPs.

10 Third access level

10.1 Entering the third level access menu

10.1.1 Third access level is used to:

- edit FCP and AFAS configuration;
- view information on the power inputs and outputs status;
- review information on protocol interaction between the FCP and addressable components.

To go to the third access level from the dialog box on any operation mode of the FCP (8.2) carry out the following actions:

- **[F3]** (on the front panel of the FCP) → (enter a user's digital code on the touch screen, factory by default – **1234**) → **[√]** (on the touch screen).

The menu of the third access level is shown in Figure 10.1.1.

The menu consists of virtual buttons, touching of which leads to the transition to the selected functions.

10.1.2 **Attention!** The setting of one FCP from the font panel of another FCP is not available in the AFAS, which consists of several FCPs.

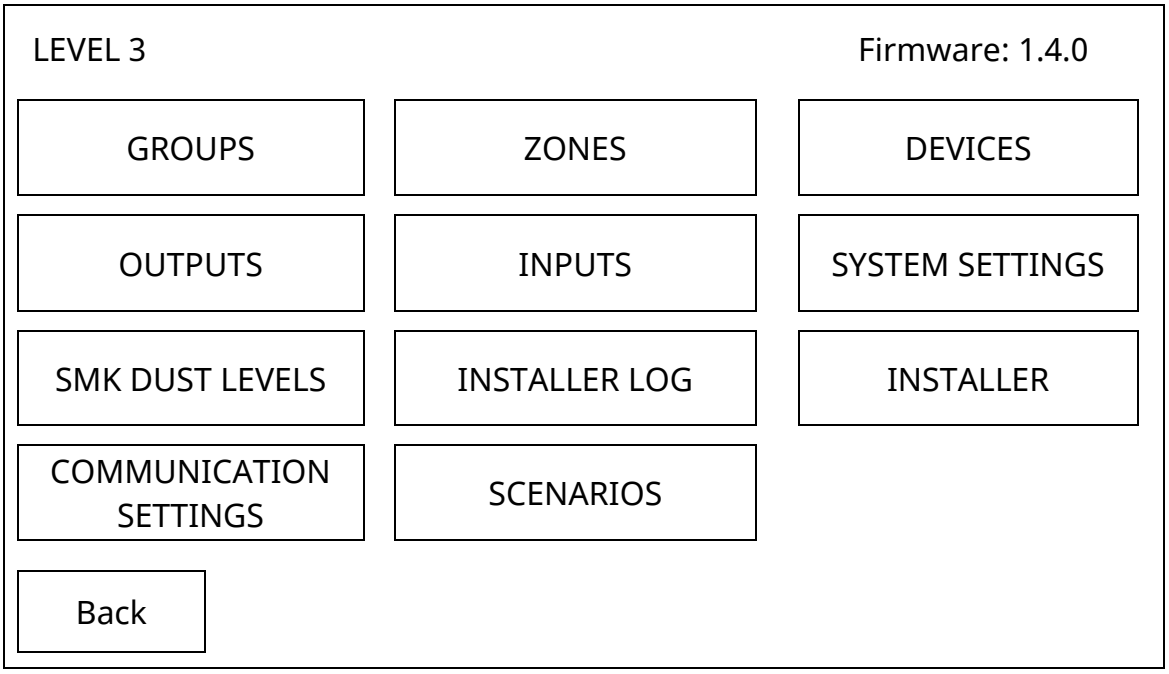


Figure 10.1.1 – Third level access menu

10.2 [GROUPS] button, settings of groups

10.2.1 Group properties

10.2.1.1 Not more than 128 groups can be created for each FCP. You can include from 1 to 1000 zones in one group. Up to 128 outputs can be registered in each group. All outputs registered in the group are triggered in each of the zones belonging to the same group.

If the AFAS consists of several FCPs, no group may include zones associated with different FCPs.

10.2.1.2 Grouping or ungrouping zones do not affect the performance of the main functions of the FCP.

10.2.1.3 Group properties:

- group can be deleted. Then zones included in it pass to the list of free (unallocated) zones;
- group name can be edited;
- if the zone is removed from the group, it goes to the list of free zones and can be included in another group;
- deleting all zones from a group does not automatically remove the group from the group list.

After resetting the FCP to factory settings, group 1 is automatically created, it includes zone 1. All parameters of this group are available for editing.

10.2.1.4 After touching the **[GROUPS]** button, a list of groups is displayed as shown in Figure 10.2.1.

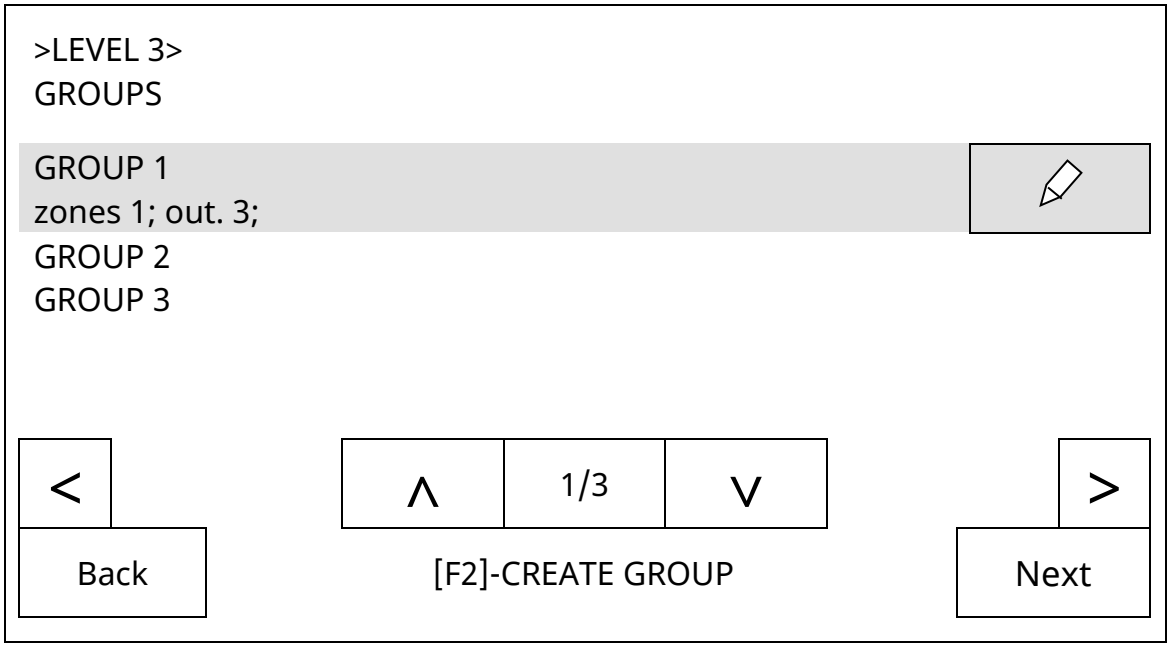


Figure 10.2.1 – The list of groups in AFAS

10.2.2 Creating and settings of groups in FCP

10.2.2.1 Groups creating can be made in two ways:

1) first create separate zones and then divide them into one or more groups;

2) each time first create a new group and already within the group to create zones, which will then be automatically merged into this group.

10.2.2.2 The division of previously created zones into groups is performed according to the following algorithm:

- (enter the third level) → **[GROUPS]** → **[F2 - CREATE GROUP]** (on the front panel of the FCP) → (enter the group name) → **[√]** → **[Next]** → **[F2 - ADD ZONE]** (on the front panel of the FCP)) → **[List of free zones]** → (select a zone from the list) → **+** → **[Yes]** (when asked Do you really want to add a zone to the group?) → **[Back].**

The display shows a list of zones included in the group.

By repeating this algorithm from step [F2 - create a zone], you can transfer to the created group all the planned zones that are in the list of free zones.

10.2.2.3 If the zones scheduled for grouping have not been previously created, you can use an algorithm that creates zones within the group, namely (all involved buttons are located on the touch screen unless their location is indicated on the front panel of FCP):

- (enter the third level) → **[GROUPS]** → **[F2 - CREATE A GROUP]** (on the front panel of the FCP) → (enter the name of the group (10.2.2.4)) → **[√]** → **[Next]** → **[F2 - ADD ZONE]** (on the front panel of the FCP) → **[ADD ZONE]** → (enter the required zone name (10.3.2.1)) → **[√]** → **[Back]** → [✎] → (select verification type (10.3.2.2)) → **[Back]**.

The display shows the list of zones included in the group.

By repeating this algorithm from step **[F2 - ADD ZONE],** you can create a specified number of zones with their names in the new group, which should then be set in turn according to rules 10.3.

10.2.2.4 To edit a group name, follow these steps:

- (enter the third level) → **[GROUPS]** → (select group) → [✎] → (enter a new group name) → **[√]** → **[Back]** → **[Back].**

The edited group will be displayed with a new name in the list of groups.

10.2.3 Deleting groups from the list

10.2.3.1 To remove a group from the list, use the following algorithm:

- (enter the third level) → **[GROUPS]** → (select group) → [✎] → [🗑] → **[Yes]** (when asked Do you really want to delete this group?).

An updated list of groups without a deleted group will appear on the display.

10.2.4 Deleting zones from group

10.2.4.1 To remove a zone from a group, use the following algorithm:

- (enter the third level) → **[GROUPS]** → (select group) → (select the required zone) → [✎] → [🗑] → **[Yes]** (when asked Do you really want to delete this zone?).

The display will show an updated list of zones in the group without the deleted zone.

10.3 [ZONES] button, zone settings, verification types

10.3.1 General description of the application

10.3.1.1 By touching the **[ZONES]** button you enter the list of zones, which begins a series of actions to create, sett, edit zones, register, or delete addressable components in them. The view of the list is shown in Figure 10.3.1.

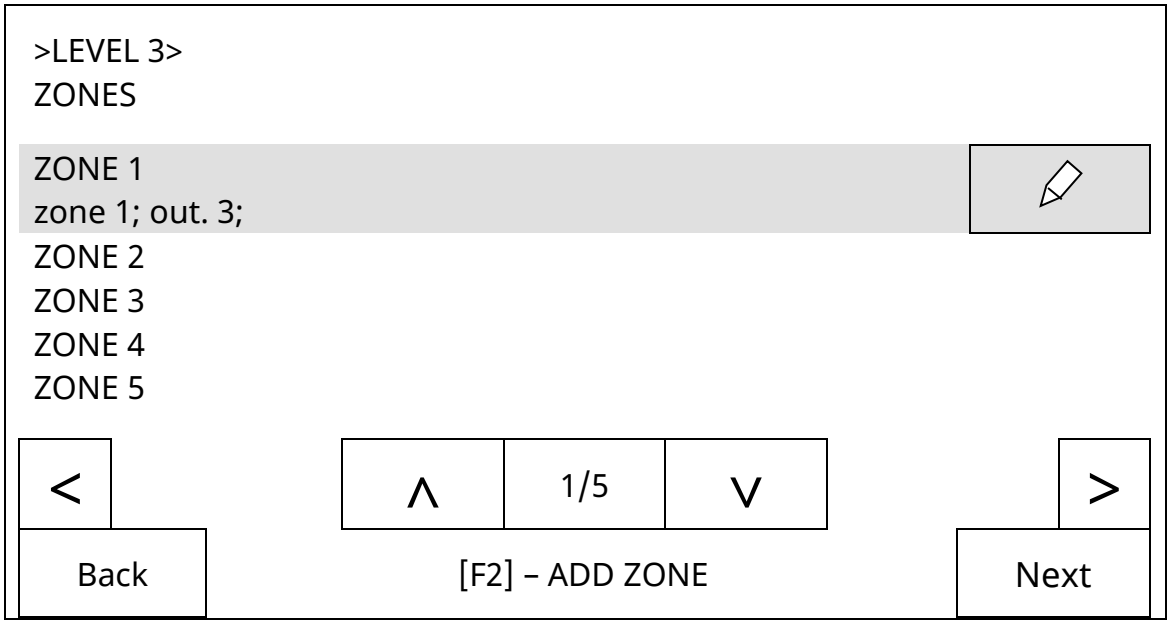


Figure 10.3.1 - List of zones in AFAS

10.3.1.2 General list of actions for creating and setting the zone:

1) In the AFAS project determine the relevant part of the premises or one room, which may have a general indication in the operation modes of a FCP (standby, disable, fault), as a zone;

2) if necessary, select the name of the zone and replace it with the name that is set in the FCP by default. It should be kept in mind that if the AFAS includes several control units, the name of each zone should be unique within the entire AFAS, and not only within the one FCP;

3) in the project determine the list of addressable components and non-addressable devices which are located in this zone and are connected to FCP;

4) by means of FCP controls create a zone as a logical object and edit its parameters (zone name, type of dependence (verification)). After resetting the FCP by default, zone 1 is already created, its parameters can be edited when using;

5) register all the addressable components located in a zone according to the project;

6) adjust the addressable components to the required operating modes (for example, set the operating modes of outputs and inputs).

The following algorithms are presented as starting with the FCP in the standby mode. When creating them in the third access level, exit this level to create each new zone, you need only switch between menu items according to the tasks to be performed.

10.3.1.3 If the AFAS consists of several FCPs, the addressable components connected to different FCPs cannot be registered in one zone.

10.3.2 Creating, setting and deleting zones in FCP

10.3.2.1 To create a zone or edit its parameters, make the following steps in the FCP menu:

- (enter the third level) → **[ZONES]** → **[F2 - ADD ZONE]** (on the front panel of the FCP) → **[Back]** - create a zone without editing the zone parameters, if only the list of zones is created first, or:

- (enter the third level) → **[ZONES]** → **[F2 - ADD ZONE]** (on the front panel of the FCP) → (enter a zone name) → **[√]** → **[Back]** → [✎] → (select verification type) (10.3.2.2)) → **[Back]** - create a zone with editing zone parameters, or:

- (enter the third level) → **[ZONES]** → (select the line with the required zone) → [✎] → (select the type of verification (10.3.2.2)) → [✎] → (change a zone name) → **[√]** → **[Back]** → **[Back]** - edit the parameters of the previously created zone.

10.3.2.2 When setting the verification type (dependency type) in the zone (10.3.2.1) set the following parameters:

1) the actual type of verification by the algorithm:

(enter the third access level) → **[ZONES]** → [✎] → (touch the Verification type field) → (select the required type in the list of possible types);

2) verification time in the same window according to the algorithm:

- [✎] (next to the Verification time field) → (set the time on the virtual numeric keyboard to not more than 30 minutes for type A, 5 to 30 minutes for type B).

The verification type and time are recorded in the FCP automatically immediately upon exit from the third access level.

Warning! It is forbidden to install verification in the zone in which the ECD is registered.

Notes.

1. Type A verification (dependence) is used to increase the resistance of AFAS to interferences because the transition of the FCP to the fire alarm mode is possible only if the additional activation of the addressable components in the same zone. At the first activation the FCP remains in the standby mode.

The following sequence of reactions to the fire is provided in the zone with type A verification:

1) any addressable component (except AMCP), registered in the zone, goes into a state of a fire alarm;

2) FCP records the message about the presence of a pre-fire state in the log, but does not go into the fire alarm mode (does not turn on the indication of a fire alarm or pre-fire state, does not turn on the outputs, does not send fire messages to the FARS);

3) 30 s after receiving the fire message, the FCP resets the addressable component that sent this message to the standby mode. During this time interval, the addressable component **does not send repeated messages**;

4) after the expiration of the set verification time, the FCP automatically resets the fire condition in the zone or;

5) if within the set verification time there is another message about a fire in the same zone from the same or another addressable component, the FCP goes into fire alarm mode;

6) if in the zone with type A verification the AMCP is activated, FCP immediately goes to the fire alarm mode.

2. Type B verification (dependence) is similar to type A, but at the initial operation of PPKP passes to a state of pre-fire with limited indication: the indicator Pre-fire flashes, on the display of the message on the fire alarm in a zone, the audible indicator of PPKP works.

The following sequence of reactions to the fire is provided in the zone with type B verification:

1) any addressable component (except AMCP), registered in the zone, goes into a state of a fire alarm;

2) FCP writes a message about the presence of a pre-fire state in the log, turns on the indication of the pre-fire state, sends a message to the FARS, does not turn on the outputs;

3) 30 s after receiving the fire message, the FCP resets the addressable component that sent this message to the standby mode. During this time interval, the addressable component does not send repeated messages;

4) after the expiration of the set verification time, the FCP automatically resets the fire condition in the zone or;

5) if within the verification established time there is another message about a fire in the same zone from the same or another addressable component, the FCP goes into fire alarm mode;

6) if AMCP is activated in the zone with type B verification, FCP immediately goes to the mode of a fire alarm.

3. Type C verification (dependence) is used to activate the outputs registered in the zone, provided additional addressable components are triggered in the same zone.

The following sequence of reactions to the fire is provided in the zone with type C verification:

1) any addressable component registered in the zone goes into a state of a fire alarm;

2) FCP adds a message about the fire to the log, turns on the indication of the fire mode, sends a message to the FARS, turns on the outputs for which no delay time is set;

3) if the outputs with a set delay time are registered in the zone, the FCP starts counting this time;

4) delayed outputs are triggered after the set delay time or;

5) delayed outputs are triggered until the end of the set delay time if the second addressable component (except for the AFAS) was activated in this zone or;

6) delayed outputs switch on until the end of the set time

4. Type D verification (dependence) is used to transmit the activation signal of warning systems of type 4 (CO4), smoke removal systems, or water fire extinguishing. The following sequence of reactions to the fire is provided in the zone with type D verification:

1) any addressable component registered in the zone goes into a state of a fire alarm;

2) FCP adds a message about a fire in the log, turns on the indication of the fire mode, sends a message to the FARS, but does not turn on the outputs registered in this zone;

3) The FCP is waiting for either the reset of the fire alarm with the **[Reset]** button on the front panel of the FCP or the actuation of the second detector in the same zone;

4) after the actuation of the second detector, the outputs in the zone without set delays are triggered immediately, the outputs with a delay are triggered after the set delay time.

The waiting time for the second detector to work is not set in the settings of the specified verification type.

10.3.2.3 To remove a zone from the list, follow these steps in the FCP menu:

- (enter the third level) → **[ZONES]** → (select the line with the required zone) → [✎] → [🗑] → **Yes]** (when asked Do you really want to delete this zone?) → **[Back]**

10.3.3 Registering detectors in a zone

10.3.3.1 If the detector is connected to an AI, it is automatically registered in the list of free devices and becomes available for distribution in any zone.

It is allowed to add the detectors physically connected to various AIs.

The procedure for automatic detector registration in a required zone during connections is given in 10.3.3.2.

The order of distribution by zones of detectors, which were connected to the AI earlier and registered automatically, is given in 10.3.3.3.

The procedure for manual registration of detectors by its serial number is given in 10.3.3.4. This registration method is used when detectors are not yet connected to AI.

The registration process of addressable components of AI is accompanied by an inclusion indication of registration in them (see operational documents on the corresponding addressable components). If the night operation period (10.14) is set in the FCP or the indication of the standby mode is switched off (10.13.1), after the end of the registration process there will not be an indication of the standby mode in addressable components.

10.3.3.2 The following algorithm of actions is provided for automatic registration of detectors in a required zone in the course of their physical connection to AI:

- (enter the third level) → **[ZONES]** → (select the required zone in the list or create a new zone) → **[Next]** → **[F2 - ADD DEVICE TO ZONE]** (on the front panel of the FCP) → **[Search for new devices]** → (connect the required detectors to the AI, without leaving the list that starts to be created when connecting) → **[Back].**

To check whether the intended detectors are registered in a given zone, you can use the following algorithm:

- (enter the third level) → **[ZONES]** → (select the required zone in the list) → **[Next].**

The list of all detectors registered in the selected zone will be displayed on the FCP.

Notes.

1 By selecting the [Search for new devices] field you create an empty list, regardless of whether other detectors may already be registered in the specified zone. This list is filled only when you are in the window LEVEL 3> ZONES> ZONE nn> DETECTED DEVICES.

2 If after joining the AI part of the planned number of detectors in the zone you leave the list and connect to the AI the rest of the detectors, this balance **is not automatically registered in the specified zone**, and goes to the list of free devices.

3 If after joining the AI part of the detectors in the zone was deleted from the list, but you want to add the remainder of the detectors in the same zone in the same way, it is required to repeat the algorithm described at the beginning of this paragraph.

10.3.3.3 The following algorithm is provided for the detectors distribution in a required zone if they are already physically connected to the AI:

- (enter the third level) → **[ZONES]** → (select the required zone in the list or create a new zone) → **[Next]** → **[F2 - ADD THE DEVICE TO ZONE]** (on the front panel of the FCP) → **[List of free devices]** → (select the required addressable component) → **[+]** → **[Yes]** (when asked Do you really want to add this device to the ZONE?) → **[Back].**

Notes.

1 Each detector is selected from a list and registered separately. It is impossible to mark multiple detectors and register them together.

2 Once the detector is registered in a zone, it is deleted from the list of free devices.

10.3.3.4 The view of the dialog box on the FCP display where the detectors are registered manually by s/n, is shown in Figure 10.3.2.

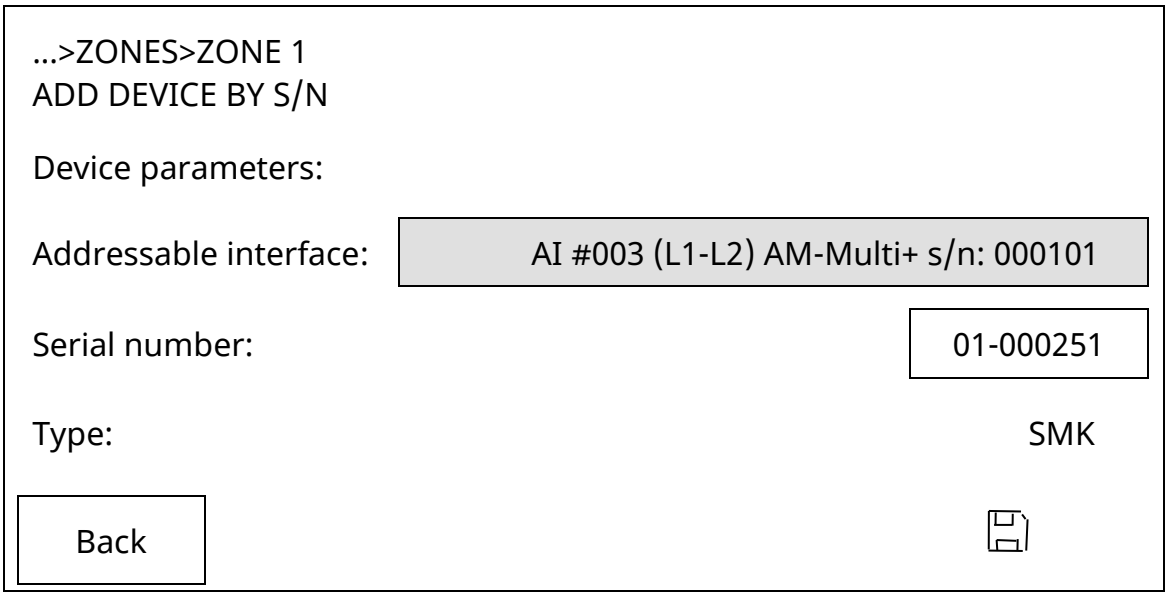


Figure 10.3.2 – Dialog box for entering the identifier type at manual registering of an addressable component (device) in a zone

To register detectors manually in a zone should use the following sequence of actions:

- (enter the third access level) → **[ZONES]** → (select the required zone from the list) → **[Next]** → **[F2 - add the device to the zone]** (on the front panel of the FCP) → **[Add device by S/N]** → (touch the field with the loop number, also select the required loop in the list) → [✎] → (enter the S/N in the format: type (1) / numeric identifier (234-567)) → [💾] → **[Back]**.

Notes.

1. The types of detectors available for input from the ZONES menu:
- ASD - 1;
- AHD - 2;
- AMCP - 4.

2. The identifier and the type in each detector are indicated on the label on the housing.

3.The “Type” field will be filled automatically after entering serial number of device.

4. If the detector is registered in the zone but not be connected to the AI, a message will appear on the display of the FCP about the communication failure with it.

5. Registrations in a loop or radial AI is made in the same way. Example. if you want to register the detector only in AI L3-GND or only in L4-GND, then in both cases choose AI #2.

10.3.4 Registering AM-Multi module inputs in a zone

10.3.4.1 The AM-Multi module is registered in the zone similarly to 10.3.3, but as a result, only its parametric input IN1/Z, to which non-addressable detectors are connected, is registered.

Before registering, set the IN1/Z input as a Fire Zone mode according to the following sequence:

- (enter the third access level) → **[DEVICES]** → (select the required AM-Multi module in the list) → **[Next]** → (select the LOG IN line [IN1/Z]) → [] → (select the Fire zone mode by touching the input mode field) → (select the initial state of the detector contacts connected to the parametric input) → **[Back]** → **[Back].**

Notes

1. AM-Multi module can't be manually registered by its serial number.
2. The initial state of the detectors at the IN1/Z input can be NO (normally open in the queue state) and NC (normally closed in the queue state).
3. If the IN1/Z input is switched to a mode other than Fire zone after registration, it will be automatically removed from a zone. If now you reset the Fire Zone setting to this input, you will have to re-register it in the zone.
4. The procedure for working with the input settings menu is additionally given in 10.4.4.

10.3.4.2 The IN2 input of the AM-Multi module is not available for registration in the zone.

10.3.5 Registering outputs in a zone

10.3.5.1 To register the outputs of any module in a zone (AM-Multi+, AM-OUT2R, AM-OUT1R+, M-OUT2R, M-OUT8R via AM-Converter) or addressable siren Alarmo, this addressable device should first be added to the list of devices generated in the FCP. Automatic addition occurs after connecting the module to the AI. To add it manually, follow the steps in accordance with 10.4.2.

10.3.5.2 If the addressable device appears in the list of devices, the operation mode of its outputs should be set. The outputs of the AM-Multi+, AM-OUT2R, AM-OUT1R+, M-OUT2R and M-OUT8R modules or addressable sirens Alarmo in which the "Not Used" mode is set are not available for registration. Change the output mode according to the following algorithm:

- (enter the third access level) → **[DEVICES]** → (select the registered device in the device list) → **[Next]** → (select the required output) → [] → (select the output operation mode) → **[Back].**

10.3.5.3 The module outputs or addressable siren in a zone are registered according to the following sequence:

- (enter the third access level) → **[ZONES]** → **[Next]** → **[Outputs]** → [**F2 – ADD OUTPUT TO ZONE**] (on the front panel of the FCP) → (select the required output in the required device from the list) → [**+**] → [**Yes**] (on request Do you really want to add this output?) → [**Back**].

The example of a menu dialog box for selecting the output for registration in a zone is shown in Figure 10.3.3.

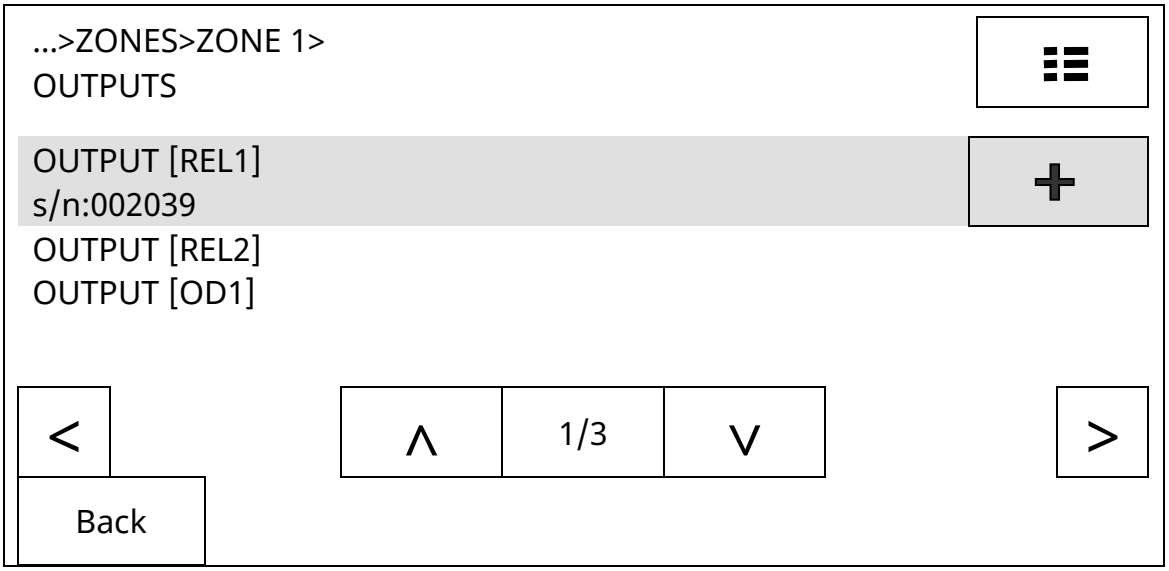


Figure 10.3.3 - List of outputs available for registration

10.3.5.4 To register the output of the FCP (OUT1 - OUT4) in a zone, you should first set any operating mode except the Not Used one. The following sequence of actions is provided for this purpose:

- (enter the third level) → **[OUTPUTS]** → (select the required output) → [✎] → (select the mode of output using) → [**Back**] → [**Back**].

The FCP output in which the operating mode has been changed appears in the list of outputs and is selected and registered similarly to 10.3.5.3.

Notes.

1 The output mode with control can be: Not used, Not controlled, Controlled, Siren, Scenario. The output operation mode without control can be either Not used, Not controlled or Scenario.

2 The output mode is stored in the FCP memory when exiting the third access level, but the mode setting commands are sent to the module immediately when the mode is selected.

3 The procedure for working with the output settings menu is additionally given in 10.4.5.

4 Before registering in the output zone of the M-OUT8R module, install the AM-Converter module in a special slot on its board, connect this module to the AI, turn on the power of the M-OUT8R.

10.3.6 Registering ECD in a zone

10.3.6.1 Before registering ECD, install the AM-Converter module in a special connector on its board, connect the module to the AI, turn on the ECD power supply.

10.3.6.2 The following sequence of actions is provided for registration:

- (enter the third access level) → [**ZONES**] → (select the required zone in the list) → [**Next**] → [**F2 - add the device to the zone**] (on the front panel of the FCP) → **[List of free devices]** → (select ECD) → **[+]** → **[Yes]** (when asked Do you really want to add this device to the ZONE?) → **[Back].**

Once the ECD is registered in a zone, it disappears from the list of free devices.

If during the registration the ECD is not yet connected to the AM-Converter module, only the AM-Converter module with its own S/N will be added to the list of devices (10.4.1.1). After connecting to it ECD the line with the AM-Converter module is replaced by a line with ECD in the list of devices.

10.3.7 Removing addressable components from a zone

10.3.7.1 The following sequence of actions is provided to remove the addressable component previously registered in a zone:

- (enter the third access level) → **[ZONES]** → (select the required zone in the list) → [**Next**] → (select the required component in the list) → [] → [] → **[Yes]** (when asked Do you really want to delete this device? ”) → [**Back**].

10.3.7.2 The addressable component removed from the zone remains in the list of free devices and becomes available for registration in the same or another zone.

10.4 [DEVICES], [OUTPUTS], [INPUTS] buttons, addressable component settings

10.4.1 General

10.4.1.1 By touching the virtual buttons **[DEVICES], [OUTPUTS], [INPUTS]** you enter the corresponding general lists:

- **[DEVICES]** – FCP and addressable components of the AFAS, which is formed after automatic or manual registration. The list includes all addressable components by type, regardless of whether they are distributed by zones or groups of zones or not. The following parameters are specified for each addressable component:
  - type,
  - the name assigned to it,
  - Serial number,
  - Firmware version;
  - AI to which it is connected,
  - voltage on the AI at the connection point.

  For FCP and ECD, the name and identification number are indicated in the list. Other recording parameters for ECD concern the AM-Converter module to which ECD is connected;
- **[OUTPUTS]** - all outputs of the registered modules, FCP and addressable sirens, regardless of whether they are distributed by zones or groups of zones, or not distributed, and on which exactly devices are contained. In order for the output to be in this list, it should be set of any type, except "Not used". The following parameters are specified for each output:
  - output name,
  - name of the device in which this output is physically located;
- **[INPUTS]** - all inputs of FCP and registered modules with any type, except "Not used". The following parameters are specified for each input:
  - name,
  - name of the device in which this input is physically located.

The above virtual buttons are used to go to the settings of the channels of the addressable components (10.4.4 - 10.4.6).

The examples of dialog boxes with lists are shown in Figures 10.4.1, 10.4.2, 10.4.3.

10.4.1.2 Addressable components can be removed from the device list or added to it. Inputs and outputs cannot be removed or added separately from addressable components.

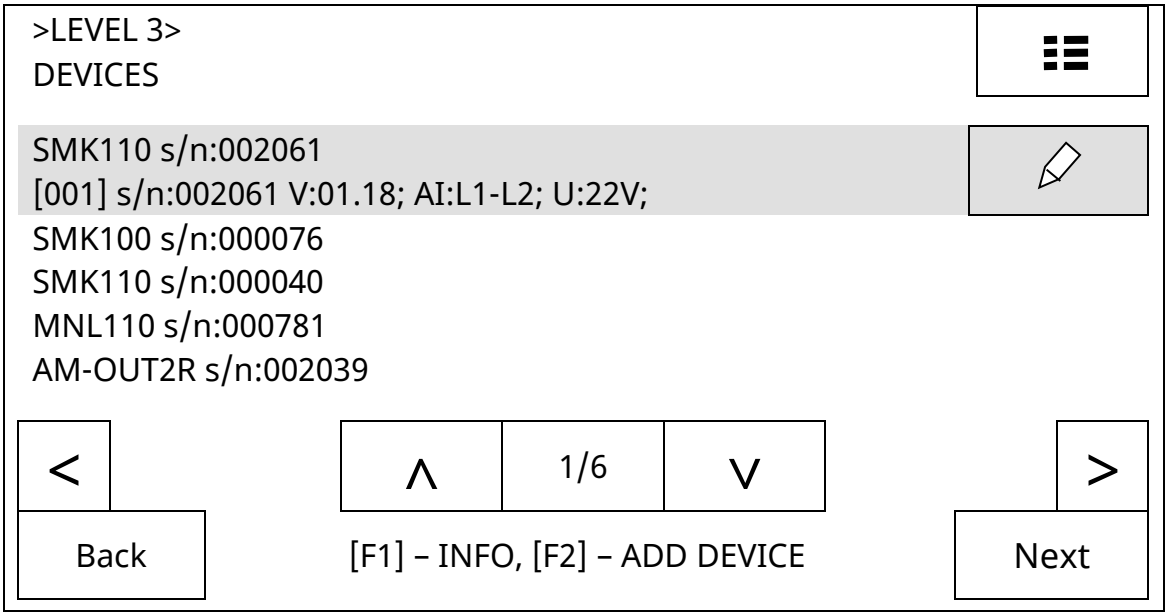


Figure 10.4.1 - List of addressable components in AFAS

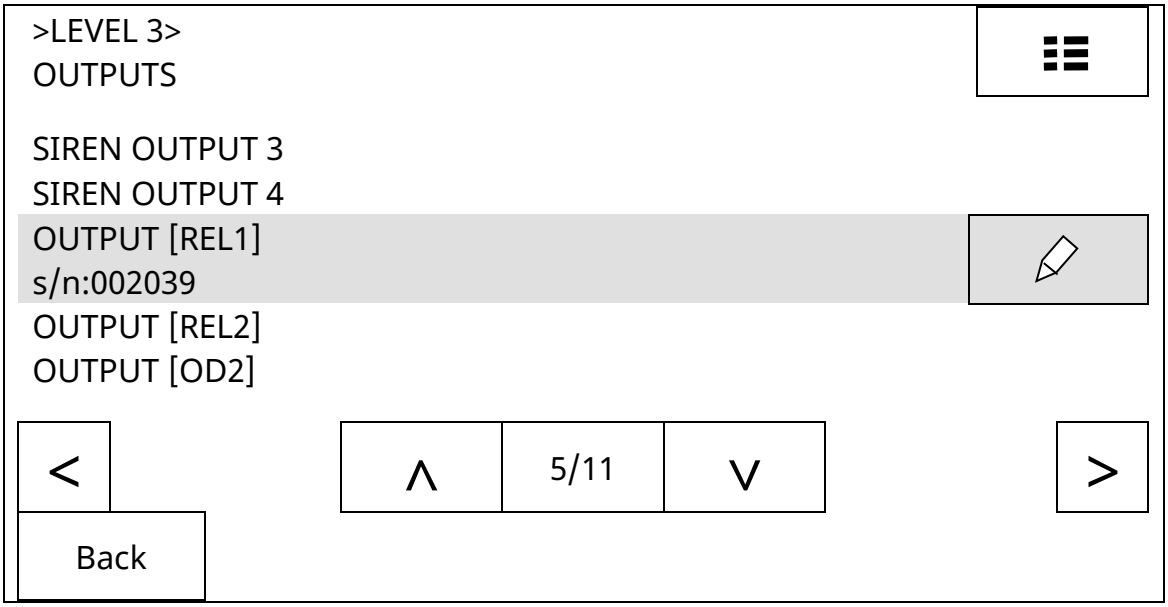


Figure 10.4.2 - List of outputs in AFAS

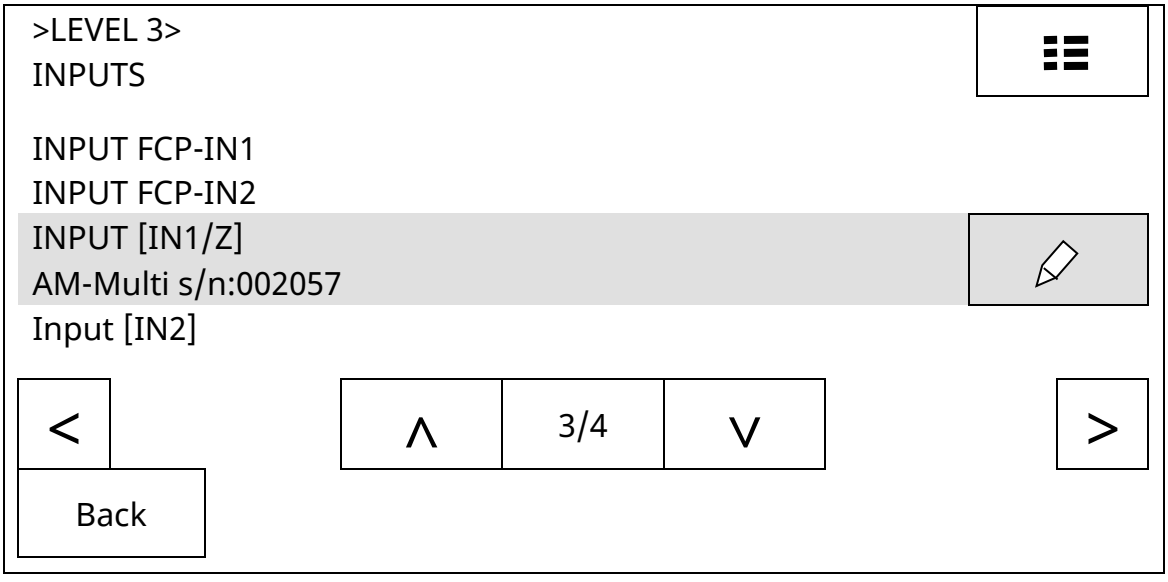


Figure 10.4.3 - List of inputs in AFAS

10.4.2 Editing the device list

10.4.2.1 Manually adding addressable components to the device list by S/N allows to generate the list and then set zones if it is planned that these components will be connected to AI later. The following sequence of actions is provided for manual adding:

- (enter the third access level) → **[DEVICES]** → **[F2 - add device]** (on the front panel of the FCP) → **[Add device by S/N]** → (touch the field with the AI number and select the required AI in the list) → [✎] → (enter S/N in the format: type (1)/serial number (234-567)) → [💾] → [**Back**].

Notes.

1 After exiting the third access level, the display will show no communication with the addressable components added to the device list manually if they are not later connected to the AI.

2 View of the dialog box on the touch screen, in which enter the type and S/N of the addressable component, shown in Figure 10.4.4.

The codes of the types of addressable components (devices) are as follows:

- ASD: SMK110 – 11, SMK100 - 21;
- AHD: HT110 – 12, HT100 - 22;
- AMCP: MNL110 – 14, MNL100 – 24;
- ACD Detecto MLT110 – 13;
- Addressable buttons: BTN110 – 15, BTN100 – 25;
- Addressable sirens: Alarmo100 – 16, Alarmo100 – 26
- AM-Multi – 05;
- AM-OUT2R – 06;
- AM-Converter – 07;
- AM-OUT1R+ – 08;
- AM-IN4 – 09;
- AM-Multi+ – 10.

Serial number of addressable components and their type are indicated on their labels.

3 If an AM-Converter module is added to the list of devices where the ECD is not connected, it is registered with its S/N. If a ECD or M-OUT8R module is connected to the AM-Converter module before registration, the connected device with its S/N will be displayed in the device list, and there will be no AM-Converter module in the device list.

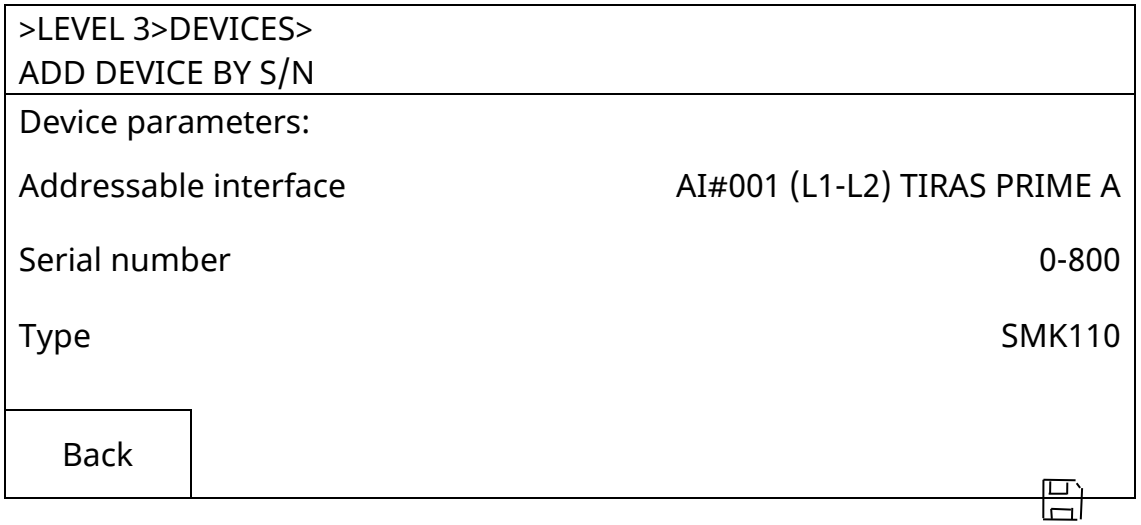


Figure 10.4.4 – Dialog box for entering the type and S/N for manually registering of addressable components

10.4.2.2 To remove an addressable component from the list of devices, follow these steps:

- (enter the third access level) → **[DEVICES]** → (select the line with the device you want to delete) → [✎] → [🗑] → **[Yes]** (when asked Do you really want to delete this device?) → **[Back]**.

We recommend you physically disconnect it from the AI before removing the addressable component from the device list, otherwise, the addressable component will automatically re-register in the device list after the removal process is complete.

After removing the ECD from the list of devices, the display on the AM-Converter module to which this ECD is connected stops.

10.4.3 Device settings

10.4.3.1 Setting addressable components means setting each channel that is the part of the addressable component separately and edit the name of the addressable component. Go to the settings menu of each individual addressable component in the following sequence:

- (enter the third access level) → **[DEVICES]** → (select the required addressable component in the list) → **[Next]**.

Depending on the type of addressable component, the corresponding list of channels opens (Table 4.1). In this list, select the channel and touch the [✎] button on the touch screen. A window opens with available settings:

1) ASD - setting the channel name (different from the name of the actual detector) and its sensitivity (low, medium, high);
2) AMCP - channel name setting;
3) AHD - setting the channel name and channel type (A2, B, A2R);
4) ACD – setting the channel name, smoke channel sensitivity (low, medium, high) and heat channel type (A2, B, A2R);
5) AM-Multi - setting the names and parameters of two inputs and three outputs;
6) AM-OUT2R - setting the names and parameters of the two outputs;
7) ECD - setting channel names;
8) M-OUT8R - setting the names and parameters of the eight outputs.
9) AM-OUT1R+ - setting the names and parameters of the three inputs and one output;
10) AM-Multi+ - setting the names and parameters of five inputs, two outputs and two slots for modules;
11) AM-IN4 - setting the names and parameters of the four inputs;
12) addressable button - setting the input name and parameters;
13) addressable siren - setting the output name and parameters.

Inputs are set according to 10.4.4, outputs – to 10.4.5, detectors – to 10.4.6.

10.4.3.2 The transition to parameter setting and name editing mode of the addressable component is carried out according to the following sequence of actions:

- (enter the third access level) → [**DEVICES**] → (select the required addressable component in the list) → [✎].

The “General settings” dialog box opens with the previous name of the addressable component (by default – the serial number) and its parameters. Where touch the [✎] button, a virtual keyboard for entering a new name (7.4.4) appears on the display screen.

For ASD and AHD “General settings” dialog box contains field “Conjunct device”. In this field is possible to set another ASD or AHD that will display the fire alarm status of the set detector, i.e., will perform the RI function (for detectors installed behind the false ceiling).

"General settings" dialog box for the AM-Multi+ module contains fields "Module 1", "Module 2", which correspond to the slots with the same name on the AM-Multi+ module. To select the type of module to be installed touch the field with the corresponding name. The menu of modes of use of plugs "Module 1", "Module 2" opens on the display:

- "M-LOOP" – for adding one more AI to the AFAS. Mode is not available if the AM-Multi+ module is connected to the AI of another M-Loop module;
- "M-OUT2R" – for adding two relays;
- "Not used" – if additional modules will not be used.

10.4.4 Inputs settings

10.4.4.1 The inputs to the AFAS are contained in the FCP and AM-Multi, AM-Multi+, AM-OUT1R+, AM-IN4 modules. Inputs setting performs:

1) from the list of devices, when it is known which of the addressable components contains the selected input (10.4.3.1);

2) from the list of inputs, when the name of the selected input is known and is set any input type, except “Not used”:

- (enter the third access level) → **[INPUTS]** → (select the required input in the list) → [✎]

10.4.4.2 When setting inputs, the following parameters are changing:

1) for IN1/Z input:

- name (default [IN1/Z] INPUT);
- operating mode: Unused, Universal Input, Power Control, Fire Zone;
- type of contact connected to the device input: N.O. - normally open, closes when triggered, N.C. - normally closed, opens when triggered;
- active level (for the Universal and Power control modes): 0 – triggering when the resistance decreases, 1 – triggering when the resistance increases;

2) for IN2 input:

- name (default INPUT [IN2]);
- operating mode: Unused, Universal Input, Power Control;
- active level (for the Universal input, Power control modes): 0 – triggering when the voltage decreases, 1 - triggering when the voltage increases.

3) for inputs IN1, IN2 of FCP:

- name;
- operating mode: "Not used", "Universal input", "Power control";
- active level (for the modes "Universal input", "Power control"): "0" - triggering when the input circuit is shorted, "1" - triggering when the input circuit is opened;

4) for inputs INx modules AM-Multi+, AM-OUT1R+, AM-IN4:

- name (default "INPUT [INx]");
- operating mode: "Not used", "Universal input", "Power control". Detailed information about these parameters is given in datasheets for these modules;

5) for the CON input of the AM-OUT1R+ module (control of the presence of supply voltage 230V AC):

- name (default [IC CONTROL]);
- operating mode: "Not used", "Power control";

6) for the address button:

- name (default - address button type and S/N);
- operating mode: "Not used", "Button";
- parameter - "With fixation", "Without fixation".

Explaining for input modes:

1) Unused – status of input does not lead to any reaction of the FCP;

2) Universal Input – changes in physical quantities to the active level lead to messages about the triggering in the Service tab (Fig. 8.7.1);

3) Power Control – changes in physical quantities to the active level lead to the appearance of fault reports of external PSU and the FCP transition to the fault warning mode (8.6);

4) Fire zone is a change in resistance of the input that leads to a message about a fire in the zone and the transition of the FCP to the fire alarm mode (8.4) or a fault in a zone and the transition of the FCP to the fault warning mode.

More detailed information on the operating conditions of the inputs can be found in the passport for the AM-Multi module.

10.4.4.3 An example of the IN1/Z input setting dialog box in the Fire Zone mode of the AM-Multi module is shown in Figure 10.4.5.

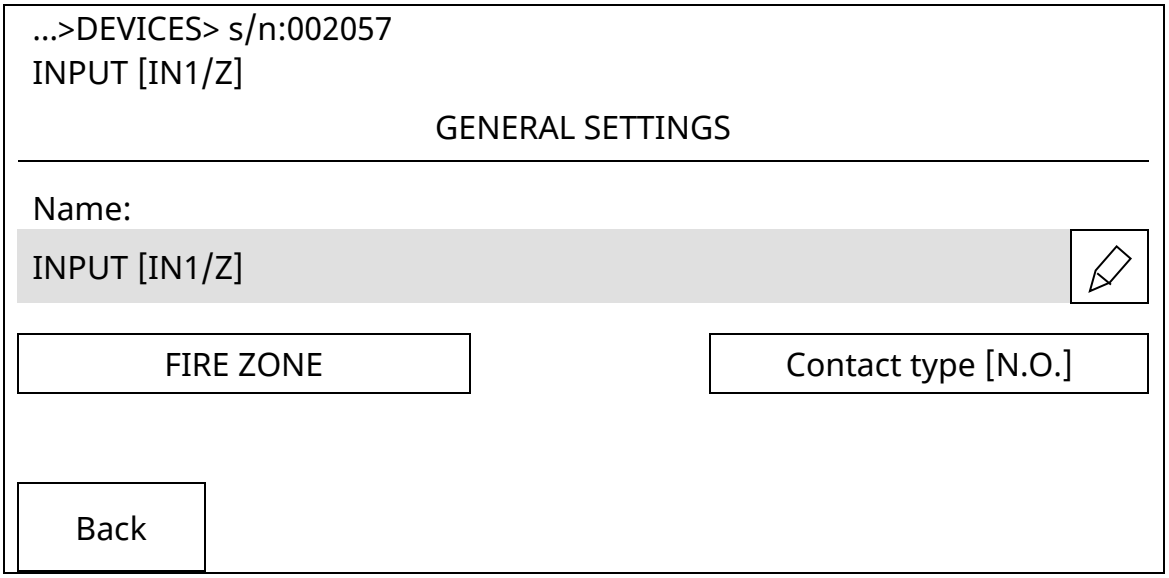


Figure 10.4.5 – Dialog box for entering input parameters

10.4.4.4 To open the virtual keyboard dialog box (7.4.4) for assigning or editing an input name, touch the [✎] button.

After touching the Fire zone mode field (Fig. 10.4.5) a dialog box with the list of possible modes opens. In this dialog box, you have to touch the field with the required mode to select it or the [**X**] field to exit this dialog box without any changes.

After touching the Contact type [N.O.] field (Fig. 10.4.5) the value of the field changes to Contact type [N.C.].

After adjusting the settings, touch the [**Back**] button.

10.4.4.5 The example of the IN1/Z input setting dialog box in the Universal Input mode of the AM-Multi module is shown in Figure 10.4.6.

The IN1/Z input setting dialog box in the Power Control mode of the AM-Multi module is similar, except for the mode name.

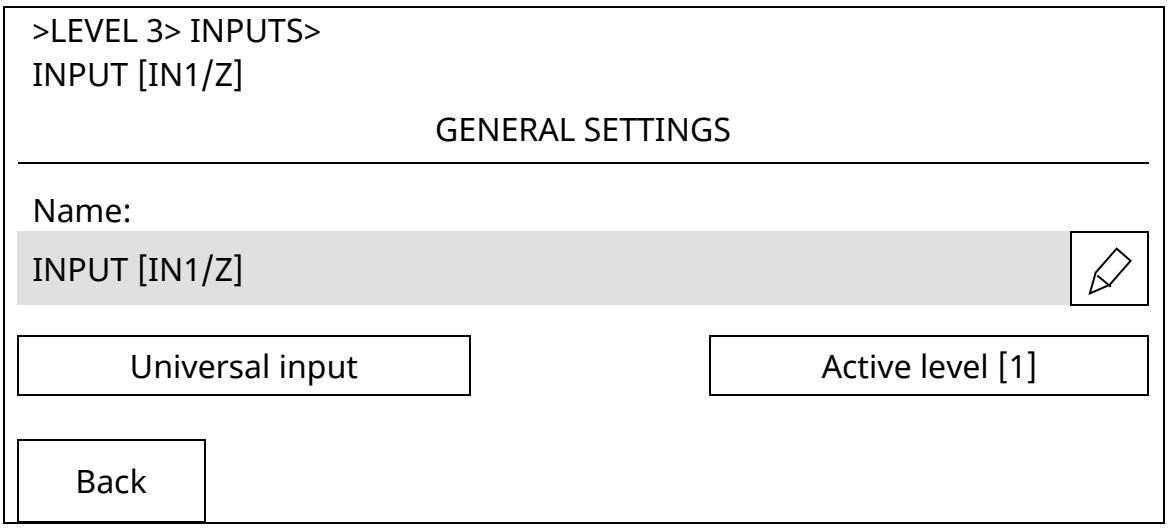


Figure 10.4.6 – Dialog box for entering input parameters

By touching the Active level [1] field (Fig. 10.4.6) the value of the field changes to Active level [0].

The IN2 input setting dialog box of the AM-Multi module in the Power Control and Universal Input modes looks similar, except for the input name.

10.4.4.6 The dialog box for setting the inputs IN1, IN2 of the FCP is similar to that shown in Fig. 10.4.6.

10.4.4.7 The dialog box for setting the inputs of AM-Multi+, AM-OUT1R+ and AM-IN4 modules is similar to that shown in Fig. 10.4.6, except for the “Active level” field.

10.4.5 Output settings

10.4.5.1 To open the dialog box for setting the selected output:

1) from the list of devices, when it is known which of the addressable components contains the selected output (10.4.3.1);

2) from the list of outputs, when the name of the selected output is known:

- (enter the third access level) → [**OUTPUTS**] → (select the required output in the list) → [✎].

10.4.5.2 When setting each output in the AFAS, the following parameters are changing:

1) for controlled outputs:
- output name (default, for example, SIREN OUTPUT 1);
- operating mode: Unused, Not controlled, Controlled, Siren, Scenario;
- delay time (except for Scenario) – from 1 to 10 min with the discreteness of 1 s;
- reenable (for the “Siren” mode).

2) for not controlled outputs:
- output name (default, for example, OUTPUT [REL1]);
- operating mode: Unused, Not Controlled, Scenario;
- delay time (except for Scenario) – from 1 to 10 min with the discreteness of 1 s;

3) to output AL FCP:
- output name (default, for example, ALARM OUTPUT);
- operating mode: Controlled, Not Controlled;
- delay time – from 1 to 10 min with the discreteness of 1 s;

4) for FT FCP output:
- name of the output (by default, for example, FAULT OUTPUT).
- operating mode: Controlled, Not Controlled;

5) for the sound address announcer:
- name;
- operating mode: "Not used", "Siren", "Scenario";
- delay time (except for Scenario) – from 1 to 10 min with the discreteness of 1 s;
- reenable (for the “Siren” mode).
- sound level;
- sound tone.

Explaining output operation:

1) Unused – in any event, the output does not work. This mode does not apply to the AL and FT outputs of the FCP;

2) Not controlled – the output is triggered after the transition of the FCP to the fire alarm mode or according to the scenario, a short circuit or load open is not monitored;

3) Controlled – the output is triggered after the FCP enters the fire alarm mode or according to the scenario, in case of a short circuit or load open the FCP switches to the fault warning mode, not related to the warning status indication on the front panel of the FCP.

The presence of voltage and short-circuit resistance between the wires of the line on the private key is controlled for the AL output, the presence of current through the public key is controlled for the FT output, and the resistance of the short-circuit between the line wires and the resistance of the line wires are controlled for other outputs with control.

4) Siren – the output is triggered after the transition of the FCP to the fire alarm mode, in case of a short circuit or load open the FCP switches to the fault warning mode, the status is displayed on the front panel of the FCP using the Alert indicator.

The detailed information on output parameters is in the datasheets for the AM-Multi, AM-Multi+, AM-OUT2R, AM-OUT1R+, M-OUT8R modules, Alarmo sirens, and section 5 of this manual.

10.4.5.3 The example of the AM-Multi module OUT output setting dialog box is shown in Figure 10.4.7. The setting window of other outputs has a similar appearance, except that in the dialog box for setting the FT output of the FCP, there is no Delay time field parameter.

10.4.5.4 When touching the [✎] button next to the Name field the system goes to the virtual keyboard (7.4.4) to assign an output name or to edit this name.

After touching the Not Used mode field (Fig. 10.4.7), a dialog box with a list of available modes opens, where you have to touch the field with the required mode to select it or the [**x**] field to exit this dialog box without changes.

After touching the [✎] field next to the “Delay time” field (Fig. 10.4.7), a numeric keypad appears on the display to enter the numeric value of the delay time.

After adjusting the selected settings, touch the **[Back]** button.

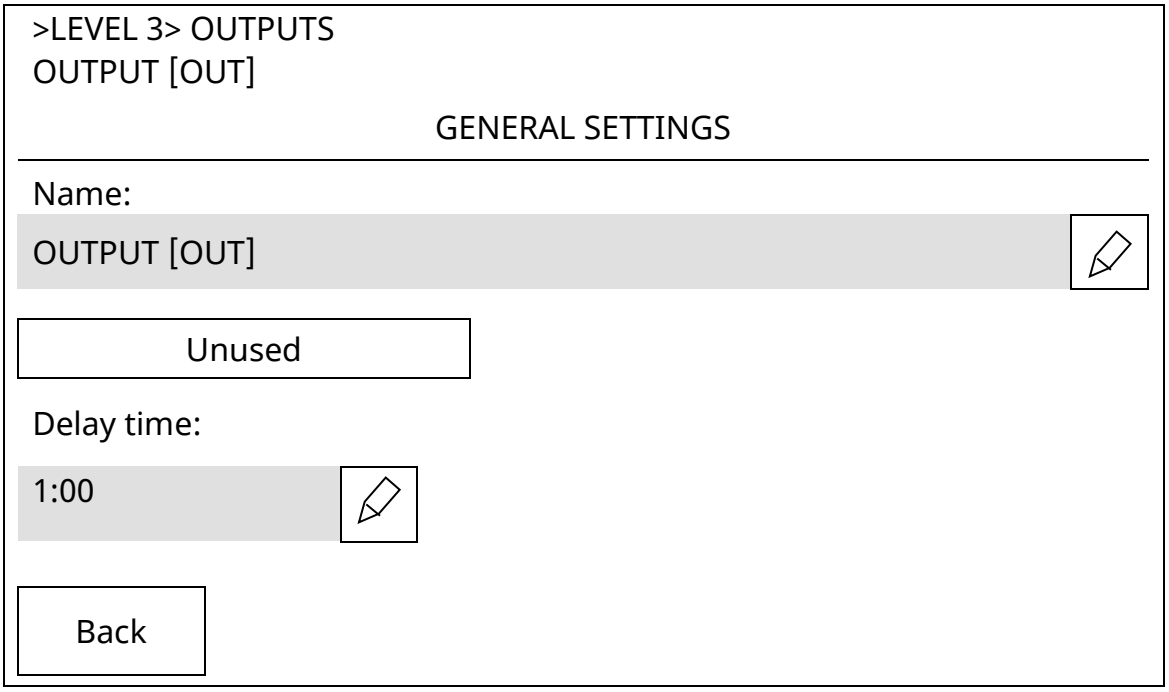


Figure 10.4.7 – Dialog box for entering output parameters

10.4.6 Detector settings

10.4.6.1 These are the detector parameters available for setting:

1) AHD: detector name, detector class (default – A2) and the channel name (by default – HEAT);

2) ASD: detector name, channel name (default – SMOKE), sensitivity (default - medium);

3) AMCP – detector name and contact group name (by default – MANUAL).

Detector S/N is its default name. The detector name changing procedure is given in 10.4.3.2.

10.4.6.2 You can change the name of the channel or contact group of the detector according to the algorithm:

- (enter the third access level) → [**DEVICES**] → (select the required addressable component in the list) → [**Next**] → (select the required channel in the list) → [✎] → [✎] → (enter the new name on the virtual keyboard) (see 7.4.4).

To change the sensitivity of the ASD use the following algorithm:

– (enter the third access level) → [**DEVICES**] → (select the required addressable component in the list) → [**Next**] → (select the smoke channel in the list) → [✎] → (touch the field in which the smoke channel sensitivity is indicated) → (touch the required line in the list of sensitivity levels) → [**Back**].

If in the area where the ASD is installed, there is a high probability of the occurrence of factors that may be the cause of false fire alarms, it is recommended to set a low sensitivity of the ASD.

The high sensitivity ensures faster operation of the ASD during a fire, but also increases the probability of false alarms.

The example of dialog box for smoke detector channel setting is shown in Figure 10.4.8.

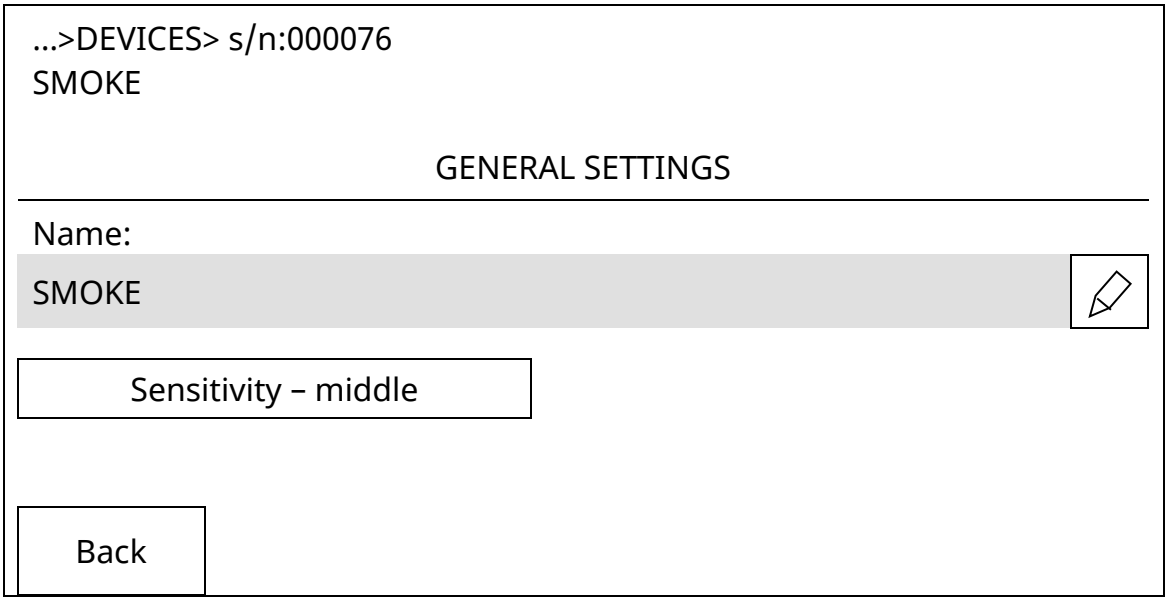


Figure 10.4.8 – Dialog box for setting the heat channel

To change the heat channel class, follow this sequence:

- (enter the third access level) → [**DEVICES**] → (select the required addressable component in the list) → [**Next**] → (select the heat channel in the list) → [ ] → (touch the field in which the heat channel class is specified) → (touch the required line in the class list) → [**Back**].

The example of the dialog box for heat detector channel setting is shown in Figure 10.4.9.

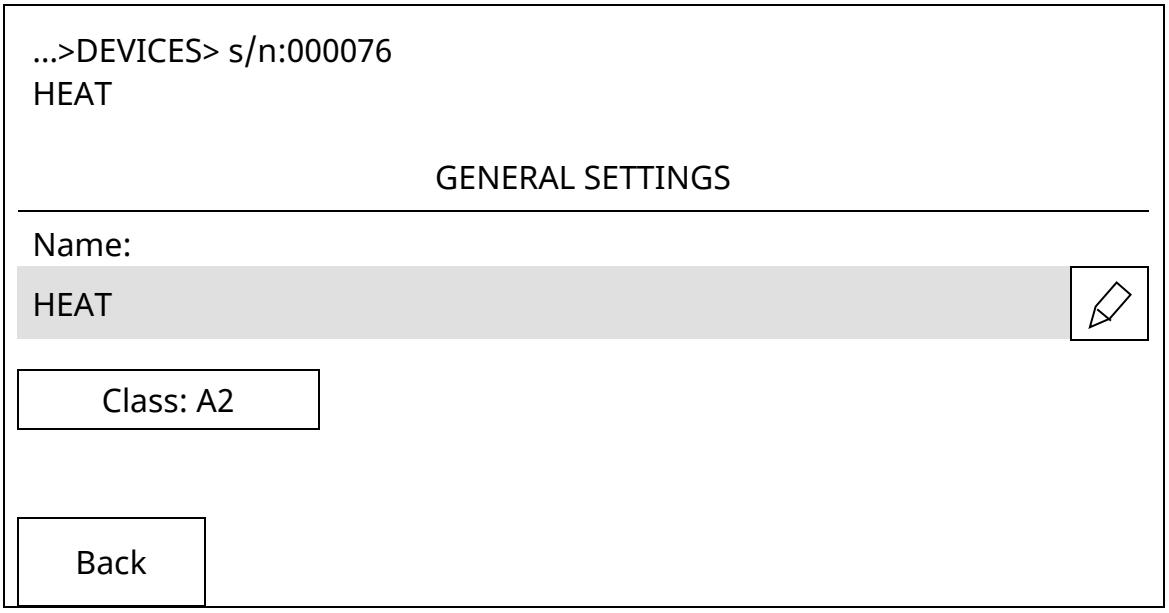


Figure 10.4.9 – Dialog box for setting the heat channel

10.4.7 Search for addressable component location

10.4.7.1 To visually find the addressable component among several similar ones, follow this sequence of actions:

- for addressable component unregistered or registered in a zone:

- (enter the third access level) → [**DEVICES**] → (highlight the line with the device you want to find) → [**Next**] → [**Search**] (in the addressable list dialog box of the addressable component), or

▪ just for the addressable component registered in a zone:

- (enter the third access level) → [**ZONES**] → (select the line with the required zone in the list of zones) → [**Next**] → (select the line with the required addressable component in a zone)) → [**Next**] → [**Search**] (in the channel list dialog box of the addressable component).

The selected addressable component changes the indication: from single green blinking with a period of 4 s to double alternating green and red blinking with a period of 2 s, so that it will stand out among other similar addressable components.

The standby mode indication can be restored automatically in 10 minutes, or manually – by performing the Reset procedure (9.10).

10.4.8 Filters

10.4.8.1 In the general lists [**DEVICES**], and [**OUTPUTS**] there is a function of forming lists (filtering) on the following grounds:

- addressable component type;
- AI to which the component is connected;
- Addressable components with no connection.

To go to the filter dialog box associated with a list, you have to touch the [☰] button in the dialog boxes of Fig. 10.4.1 or Fig. 10.4.2.

10.4.8.2 The example of a dialog box with the list of filters is shown in Figure 10.4.9. To enter this dialog box, you have to touch the [☰] button in the list of devices ([**DEVICES**] button). A functionally similar dialog box is opened in the same way from the list of outputs.

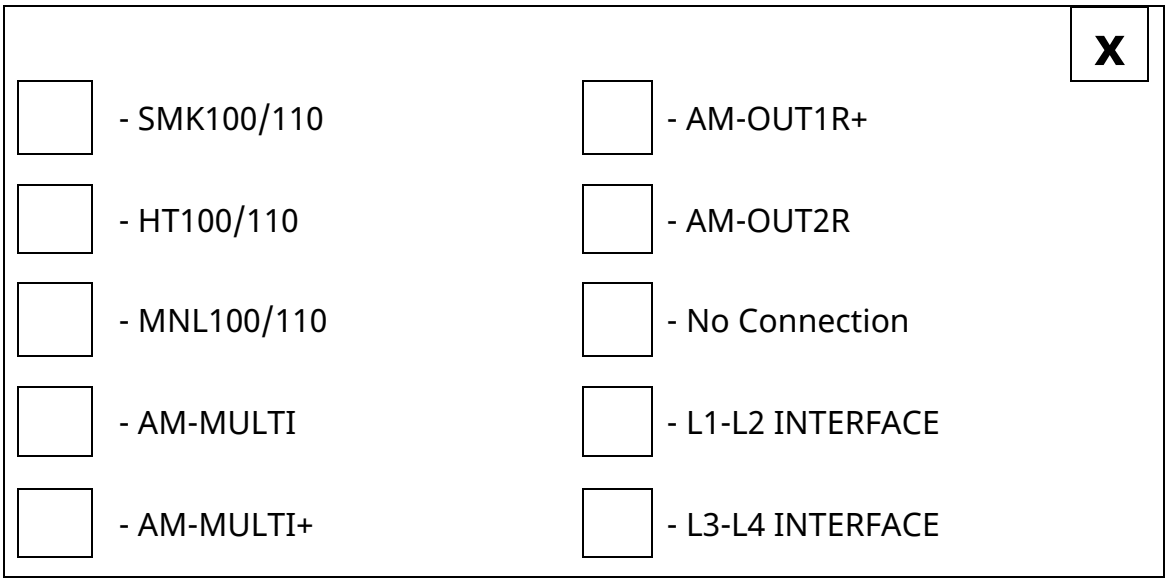


Figure 10.4.9 – Filter dialog box

10.4.8.3 To apply the required filter, touch the rectangle to the left of this filter name. When the rectangle changes color, touch the [**x**] button in the upper right corner of the display. The list that will be displayed contains only those addressable components that meet the filtering condition.

10.4.9 Addressable components testing

10.4.9.1 Testing here means transition of the addressable component into a fire alarm mode using a command from the front panel of the FCP. The testing operation applies to ASD and AHT, access to which is limited during operation.

The testing procedure is as follows:

1) for addressable component registered or not registered in a zone:

- (enter the third access level) → [**DEVICES**] → (highlight the line with the device you want to find) → [**Next**] → [**Test**] (in the channel list dialog box of the addressable component), or

2) just for the addressable components registered in a zone:

- (enter the third access level) → [**ZONES**] → (select the line with the required zone in the list of zones) → [**Next**] → (select the line with the required addressable component in a zone)) → [**Next**] → [**Test**] (in the window with channel list of the addressable component).

The indication will change on the selected addressable component: from single blinking green with a period of 4 s to blinking red with a period of 0.5 s. If the addressable component is registered in a zone, the FCP will also switch to fire alarm mode.

To return the addressable component and the FCP to the normal display of the standby mode, press the Reset button on the front panel of the FCP (9.10).

10.5 [SMK DUST LEVELS] button

10.5.1 The **[SMK DUST LEVELS]** button provides access to a reference assessment of smoke chamber contamination of all ASDs located in the AFAS, according to the algorithm:

- (enter the third access level) → **[SMK DUST LEVELS]** → (select the required addressable component in the list) → (touch the line with the selected addressable component).

The view of the help dialog box is shown in Figure 10.5.1. The contamination level is shown as a percentage of the threshold value set in the ASD.

Warning! The contamination level of 100% is also deduced in the case of the incorrectly assembled smoke chamber of ASD or action of powerful electromagnetic disturbances.

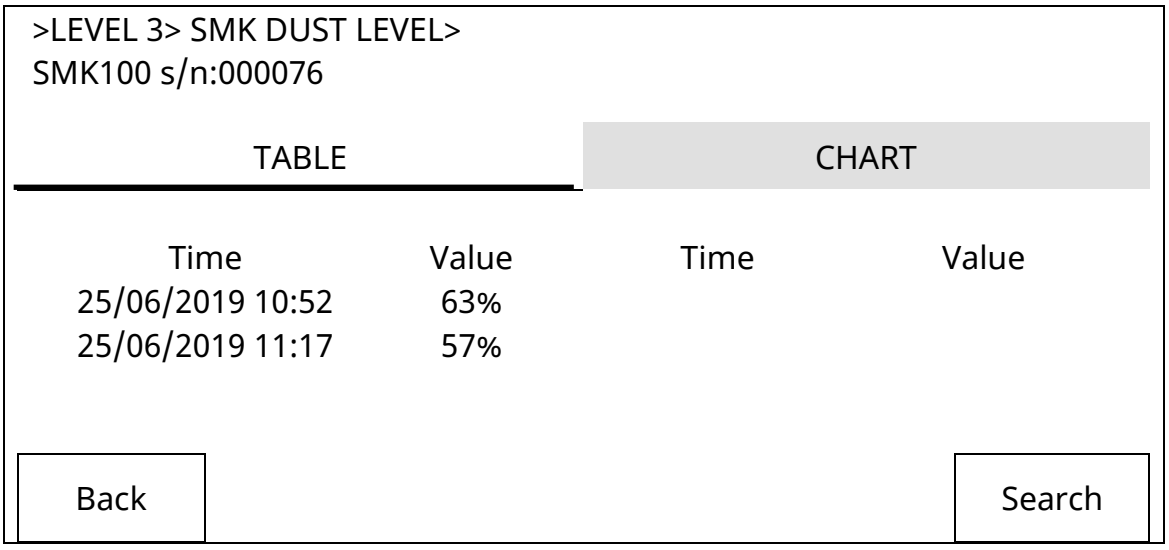


Figure 10.5.1 - Help dialog box to check the smoke detector chamber contamination

10.5.2 If in the dialog box of Fig. 10.5.1 you touch the **CHART** field, the chart will be displayed instead of the table, it shows the nature of the contamination level changes.

10.5.3 If in the dialog box of Fig. 10.5.1 you touch the [**Search**] button, the indication on the detector the data of which is being viewed will change: from single blinking green with a period of 4 s to double alternating green and red blinking with a period of 2 s, thanks to which the detector can be visually found indoors (similar to 10.4.7.1).

10.6 [INSTALLER LOG] button

10.6.1 The installer log contains the list of service messages about events hidden from the user: the results of individual battery tests, data packets sent through the interfaces of the FCP, etc. These messages can be used to analyze the work of FCP and AFAS.

In particular, if the FCP displays a message about the failure of the AFAS due to contamination of the smoke chamber, the installer log records the ADC data received from this ASD, in conventional units (ON - with the LED on, OFF - with the LED off).

If necessary, you can get the current value of the smoke chamber contamination of the selected ASD in conventional units:

- (enter the third access level) → [**DEVICES**] → (select the required ASD in the list) → [**Next**] → **F1** (on the front panel of the FCP) → [**BACK**] → [**BACK**] (go to the Installer log menu item)

Log capacity – 512 messages.

Warning! The installer log is cleared after FCP rebooting.

10.7 [INSTALLER] button

10.7.1 If touch the **[INSTALLER]** button, a dialog box with the [**CONTACT INFORMATION**] and [**PASSWORD**] buttons open. The description of the button application is given below.

10.8 [CONTACT INFORMATION] button

10.8.1 After touching this button, a dialog box will open, which by default contains information about the contact phone numbers of the FCP manufacturer. After resetting to factory settings, all data is displayed in Ukrainian.

At the customer's request, the content of the data can be changed. New data is entered using the virtual keyboard (Fig. 7.5) after pressing the [✎] button opposite the selected line.

10.9 [PASSWORD] button

10.9.1 Touch the [**PASSWORD**] button to edit the installer name and access code. The view of the editing dialog box is shown in Figure 10.9.1.

Warning! After editing, the installer's access code becomes the new third-level access code instead of the default access code (10.1.1).

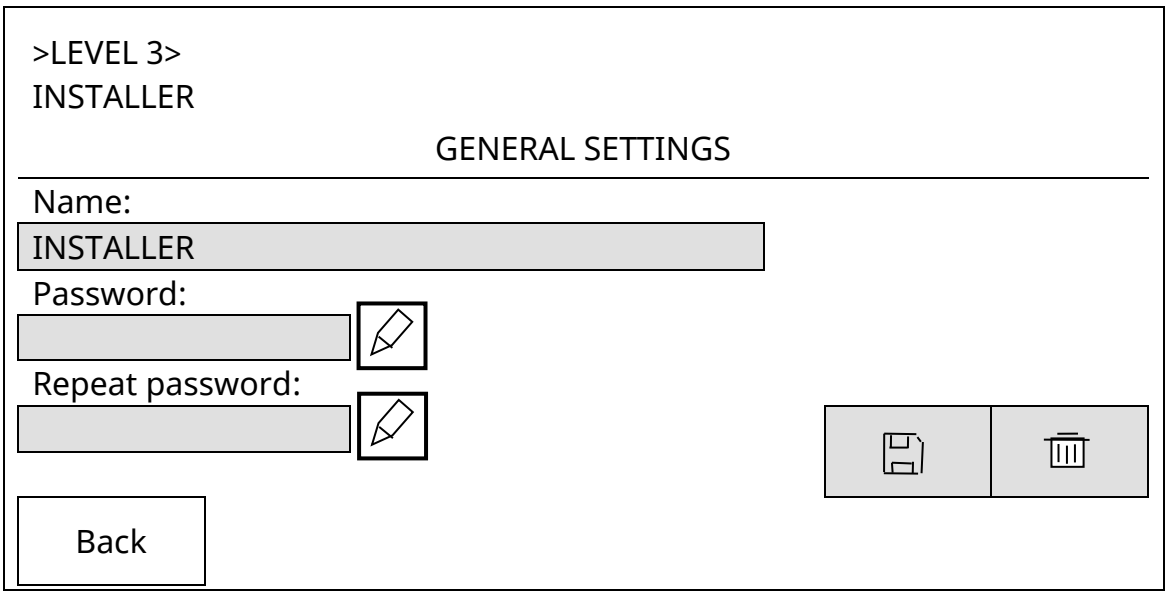


Figure 10.9.1 – Installer profile editing dialog box

10.10 [SYSTEM SETTINGS] button

10.10.1 If you touch the **[SYSTEM SETTINGS]** button, the following dialog box opens (Fig. 10.10.1) containing [**DAY/NIGHT MODE**], [**FARS SETTINGS**], [**RESET SETTINGS**], [**ADDRESSABLE INTERFACES**] buttons. The description of the buttons is given below.

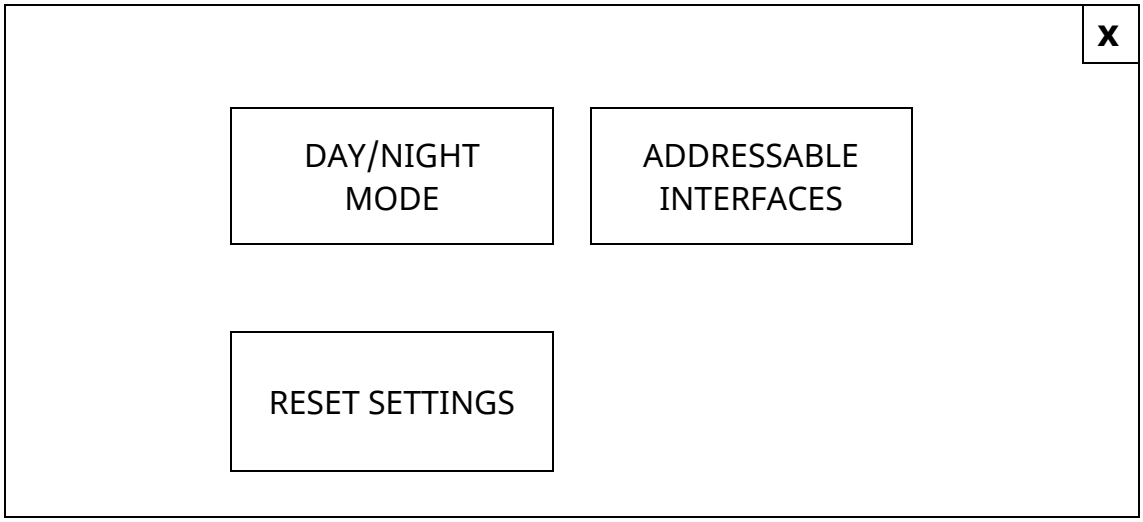


Figure 10.10.1 – Menu of the SYSTEM SETTINGS dialog box

10.11 [RESET SETTINGS] button

10.11.1 **To set the factory settings in the FCP**, carry out the following steps:

a) enter in the third access level (10.1.1);

b) touch the [**SYSTEM SETTINGS**] buttons, then [**RESET SETTINGS**] on the FCP display. There should be a dialog box on the display asking, DO YOU REALLY WANT TO RESET SETTINGS? and answer options: Yes or No;

c) touch the Yes field. The display of the FCP sequentially displays messages about booting the system, a request to select the interface language, messages about loading settings. Several beeps should sound.

After resetting to factory settings, the current AFAS configuration data is lost, but the current second and third-level access codes remain unchanged.

10.12.2 If the AFAS includes several FCPs, it is not possible to set the factory settings in any FCP, using the front panel of another FCP.

10.12 [ADDRESSABLE INTERFACES] button, AI settings

10.12.1 When touch the [**ADDRESSABLE INTERFACES**] virtual button on the touch screen AI settings dialog box opens. The view of the dialog box for selecting AI is shown in Figure 10.12.1, for setting of AI – in Figure 10.12.2

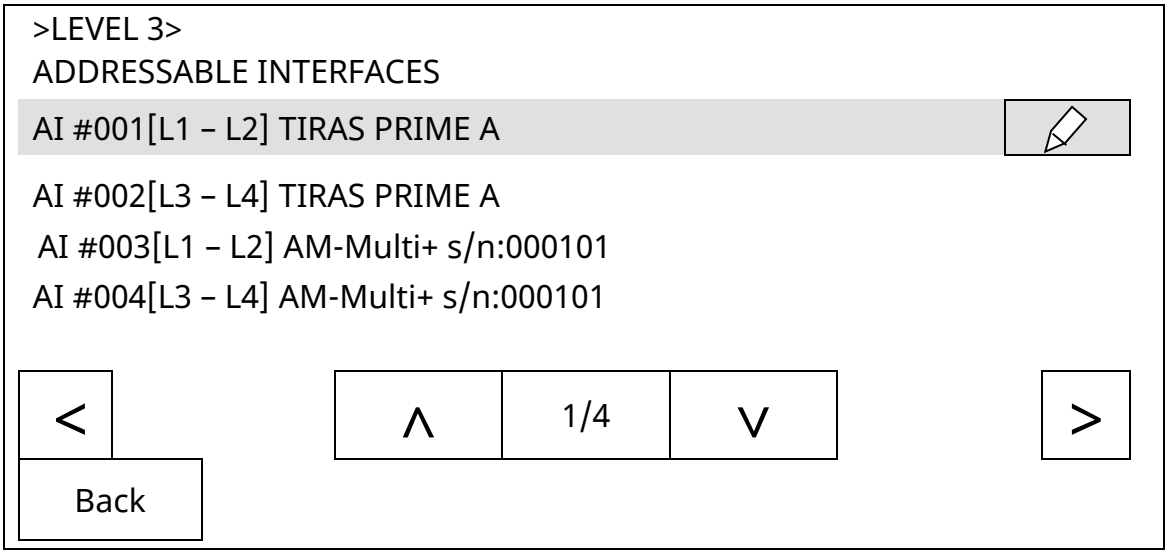


Figure 10.12.1 – AI selecting dialog box

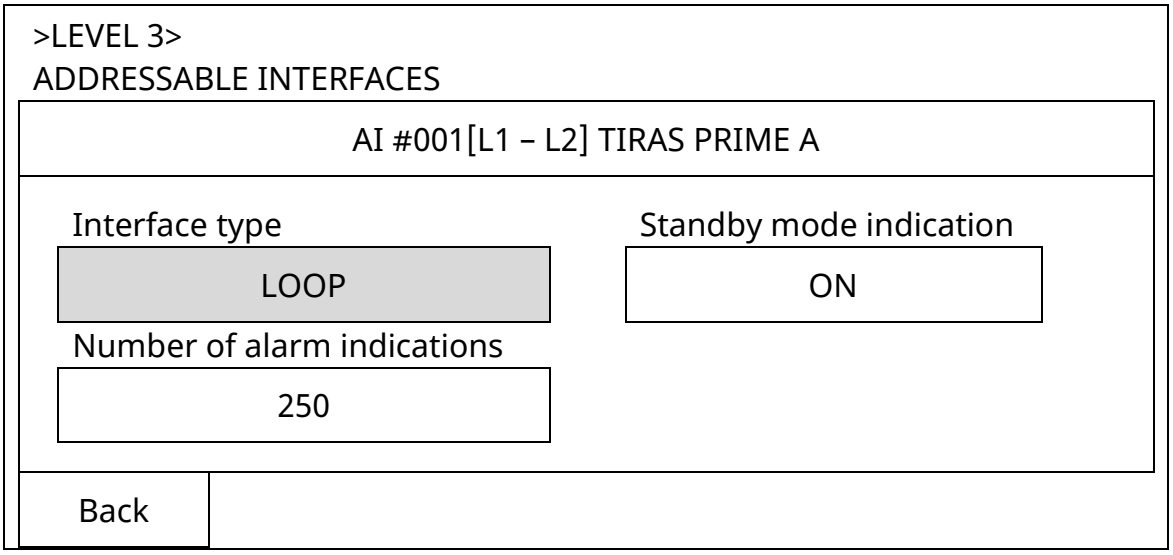


Figure 10.12.2 – AI settings dialog box

Settings in dialog boxes shown in figures above:

1) the name of the interface to be set – the active field is lighting. Select the required AI and touch the [ ] button;

2) indication of the standby mode – to turn off touch the field “ON”. If the standby display is off, the standby indicators on the addressable components in this AI do not blink. This parameter does not apply to a fire alarm or fault condition;

3) the number of alarm indications – the maximum number of addressable components in the selected AI, which will set the indication of the fire alarm mode in case of fire. Only the number is limited, the location of the addressable components on the AI does not affect this parameter. All addressable components that go into the fire alarm mode after reaching the set number will not have a fire alarm status indication and a standby indication, but a fire alarm message will be displayed on the FCP display. After resetting the fire alarm mode with the [Reset] button on the front panel of the FCP, the indication of the standby mode on the detectors is restored.

To change the number of alarm indications, touch the numeric value field and enter a new number on the numeric keypad that appears on the touch screen;

4) type of interface: loop or radial. To change the type of AI, touch the field.

Warning! If a radial type of AI is installed, its automatic diagnosis for short circuit or open circuit is switched off. Thus, if a short circuit has been eliminated in such AI, then you have to reset the FCP (9.10).

5) AI load mode (setting available only for AI connected to M-LOOP modules):

- "long length" – current consumption of AI is not more than 0.06 A,
- "large load" - current consumption of AI is not more than 0.08 A.

10.13 [DAY/NIGHT] mode

10.13.1 The dialog box for setting the FCP operating modes during the day and night is shown in Figure 10.13.1.

The following operating conditions are set:

1) the indication of the standby mode on addressable components in AI at night is switched off (green indicators do not blink);

2) delays set in the settings for all types of outputs are automatically disabled at night (the Delay indicator on the front panel of the FCP lights up)

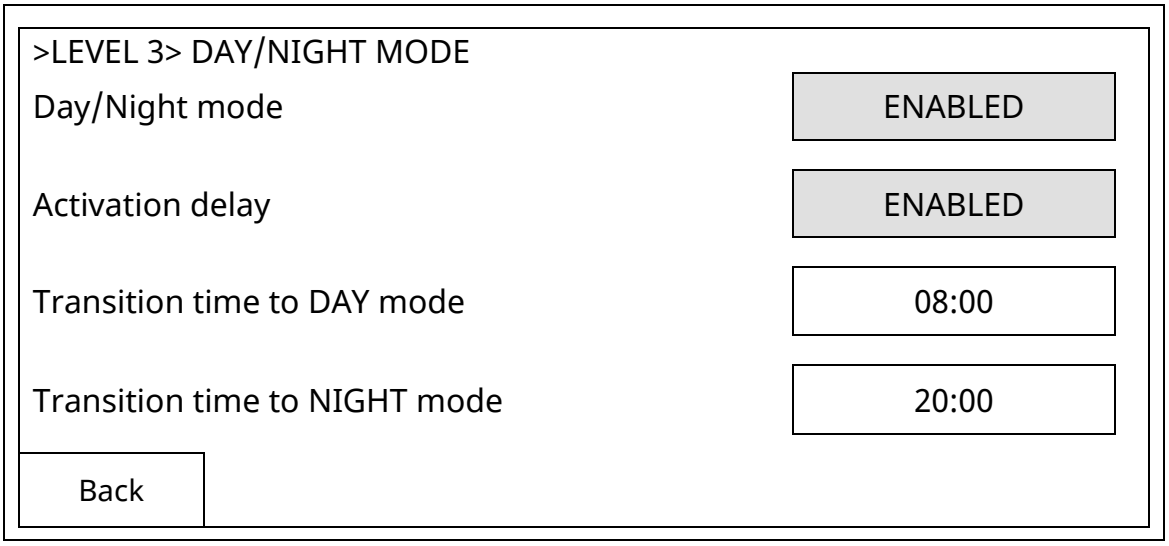


Figure 10.13.1 – Day/Night settings dialog box

10.13.2 The parameters in the given dialog box have the following values:

1) Day/night mode: Enabled – the function of switching from day to night mode and vice versa is activated in the FCP, Disabled – the FCP works without switching operating modes;

2) Activation delay: Enabled – when the FCP switches from day to night time, the delays on the outputs are automatically turned off, and when switching to daytime, they are automatically turned on, Disabled – when the FCP switches from day to night time delay on the outputs do not turn off. If you set the value of this parameter Disabled during the night period, then when the FCP switches from night to day time, the delays on the outputs are not activated;

3) Transition time to the DAY mode – the time in hours and minutes when the Day mode is turned on in the FCP;

3) Transition time to NIGHT mode – the time in hours and minutes when the Night mode is turned on in the FCP.

When you touch the transition time field, a numeric keypad appears on the touch screen to adjust the time.

10.14 [COMMUNICATION SETTINGS] button

10.14.1 If touch the **[COMMUNICATION SETTINGS]** button, a dialog box opens (Fig. 10.14.1), contains **[EXPANSION SETTINGS]**, **[FARS SETTINGS]**, **[COMMUNICATION CHANNELS]** buttons.

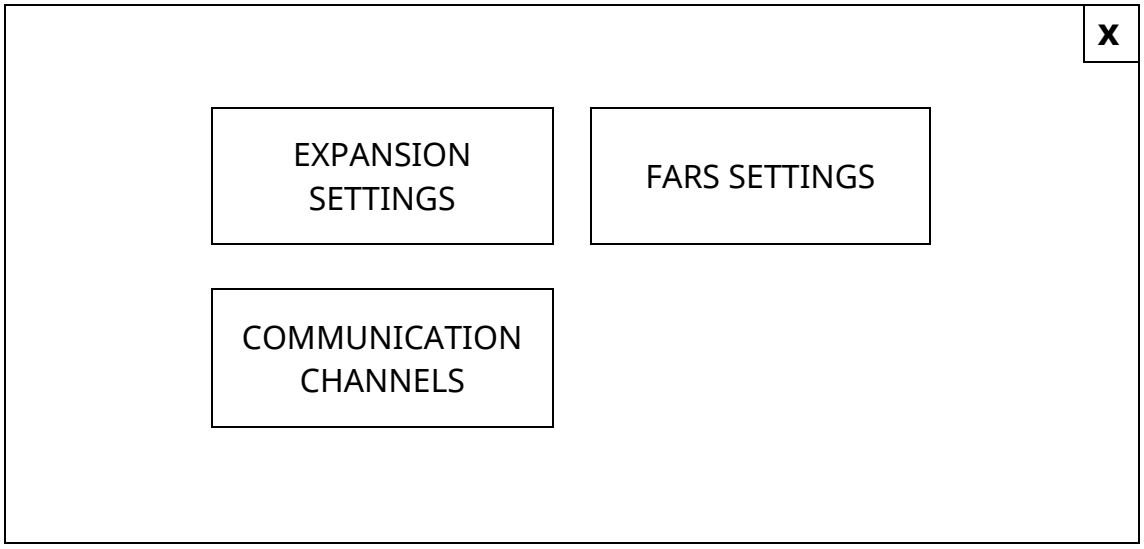


Figure 10.14.1 – "COMMUNICATION SETTINGS" dialog box

10.15 [EXPANSION SETTINGS] button

10.15.1 If touch the [EXPANSION SETTINGS] button, a dialog box opens (Fig. 10.15.1) containing the menu for enabling/disabling Ethernet expansion interfaces.

When selecting the menu GENERAL can be set following parameters:

- expansion interface state – ENABLE or DISABLE, each of the Ethernet ports is enabling or disabling separately;
- name of the FCP – change the TIRAS PRIME A default name to distinguish the FCPs from each other, if one FCP displays event messages from other FCPs.

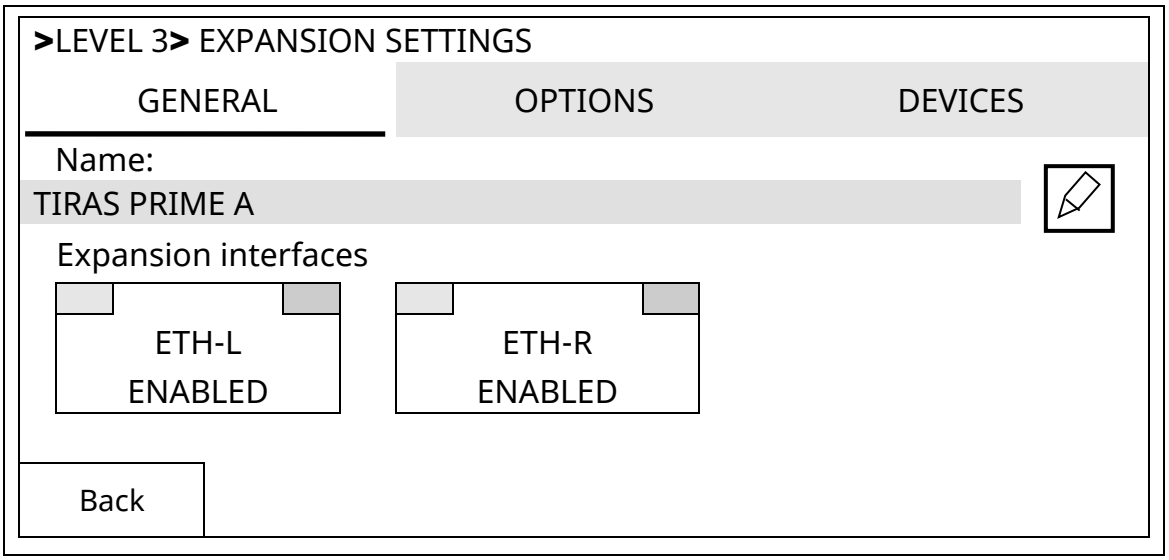


Figure 10.15.1 – the dialog box for Ethernet expansion settings

When selecting the OPTIONS menu (Fig. 10.15.2) can be set following parameters:

- **Main FCP mode**: ON or OFF. If the Main FCP mode is “ON”, it is possible to access both the second access level of its menu and the “DISABLING” menu of other FCPs, as well as remote reset of fires and faults of other FCPs. The Main FCP mode can be enabled on any FCP within the AFAS, but only on one at a time. When enabled, the AFAS meets the requirements of DSTU EN54-14 for hierarchical systems. If the mode is off on any FCP, the AFAS is considered a network;

- **Events displaying mode** – ALL FCPs or ONLY OWN. If the Main FCP mode is enabled, the ALL FCP event display mode is set automatically. If the Main FCP mode is disabled, you can set event displaying modes manually for any FCP of AFAS;

- **FCP number on FARS** – logical address of FCP within AFAS, from 1 to 4. Messages from each FCP on FARS are transmitted with an individual object number, which contains the logical address at the end, for example 12342, where 1234 is the common object number (see p.10.11), 2 – logical address of the FCP. If the AFAS includes 4 FCPs, then you should create four object cards on the FARS, where the first four digits are the general object number, and the fifth is the logical addressable of the FCP;

- **Line control** – detection of a fault in the “ring” connection between the FCP in case of data transmission fails or lack of communication between them on one or both interfaces. The option can be enabled only if both Ethernet ports are enabled on the FCP (Fig. 10.15.1). If one or both ports are disabled, the option automatically goes to the DISABLED state.

Warning! In the AFAS with a “ring” connection between the FCP, it is recommended to enable the expansion line control on only one FCP (preferably on the main one), but Ethernet ports should be enabled on all FCP systems. In AFAS with a radial line, line control should be disabled in all FCPs.

When you select the DEVICES menu, the display shows the list of FCPs connected within the AFAS, and in which the corresponding Ethernet ports are enabled.

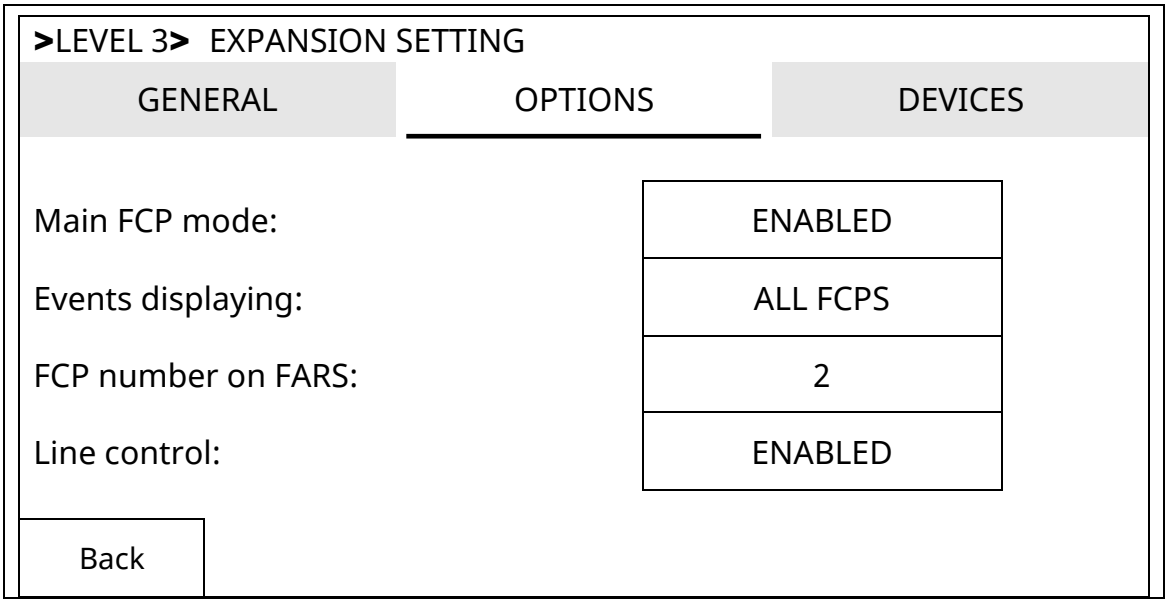


Figure 10.15.2 – Ethernet expansion dialog box, OPTIONS tab

10.16 [FARS SETTINGS] button

10.16.1 If touch the **[FARS SETTINGS]** button, the following dialog box will open (Fig. 10.16.1), it contains:

1) fields of the object and hidden numbers. Numbers can be changed using the virtual numeric keypad, which opens when you touch the appropriate field;

2) the field of the test messages to FARS period. You can change the period using the virtual numeric keypad, which opens when you touch the field;

3) button for Enabling/Disabling transmission to FARS (by default - Disabled). To change touch the button;

4) menu of transition to settings of communication channels and SIM cards used in the M-GSM module (communicator).

Object and hidden numbers are four-digit numbers that should be the same as in the object card on the FARS.

The test period can be selected from a range of 1 to 120 minutes. It is recommended to set the testing period to not more than 3-4 minutes.

The type of communication channel depends on the value of the testing period (Table 5.3):

- test period not more than 90 s – type 1, the channel failure is detected after a time not more than 100 s;

- test period more than 90 s – type 2, channel failure is detected after a time not exceeding 240 s.

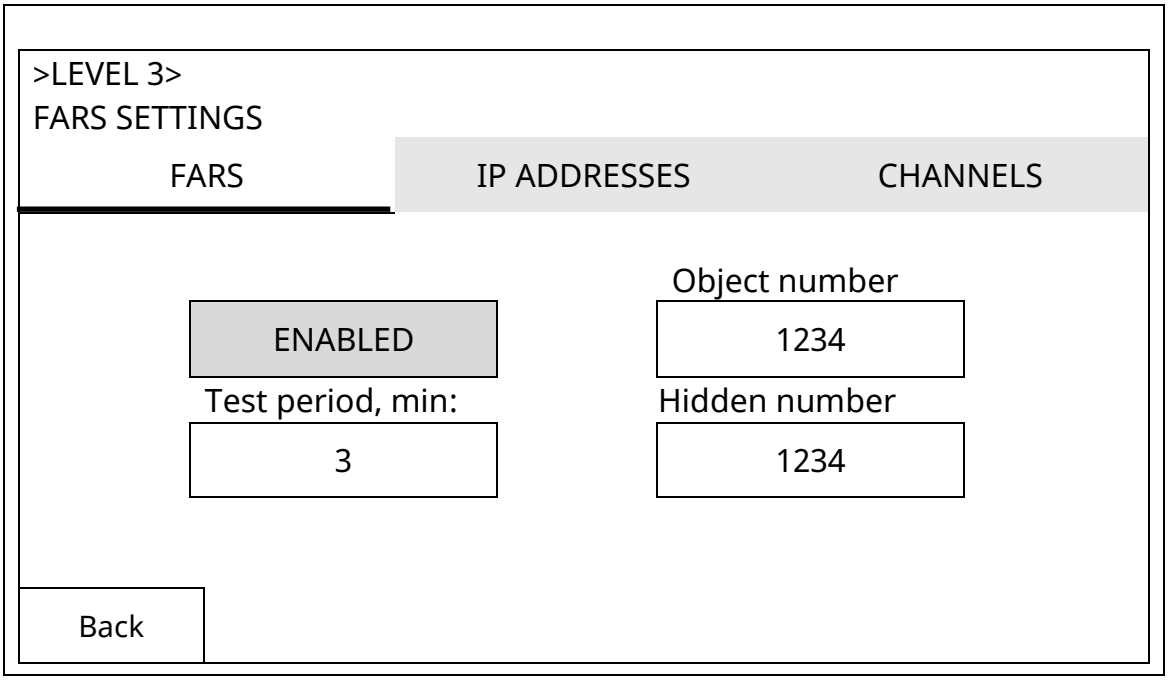


Figure 10.15.1 - Object settings dialog box

10.16.2 If touch the [**IP ADDRESSES**] field, the dialog box opens (Fig. 10.16.2) provided entering the addresses and port numbers of the FARS. IP address 1 is the primary one.

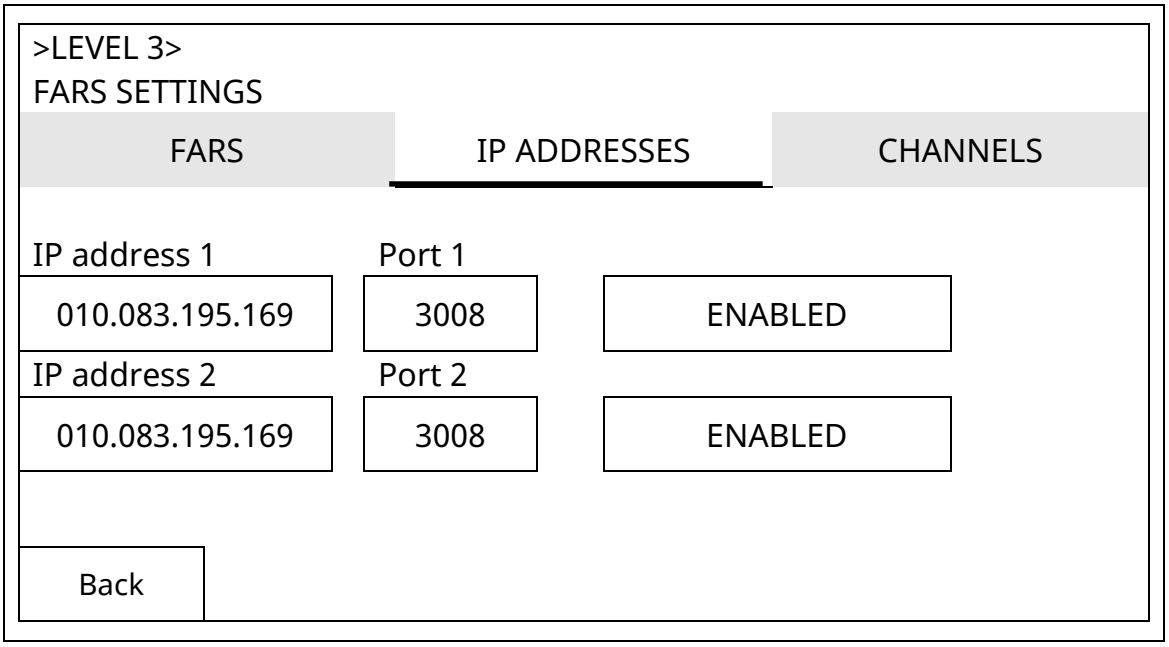


Figure 10.16.2 – IP addresses settings dialog box

10.16.3 If touch the field **[COMMUNICATION CHANNELS]**, a window will open to select the channel via which the FCP will send messages to the FARS (Fig. 10.16.3).

If selected communication channel is ETH-L or ETH-R port of the FCP, this port must be disabled as the expansion interface (10.15.1).

Only one of ports (ETH-L or ETH-R) can be selected to communicate with FARS, but can be selected GSM (via M-GSM module) and one of ETH-L or ETH-R ports at the same time.

10.16.4 In the AFAS, which consists of several FCPs, the FARS settings should be performed only on the device on which the M-GSM module is installed. For other FCPs “FARS” field parameter should be “DISABLE” (Fig. 10.16.1), and for the transmission of their messages to the FARS should be set “FCP number on FARS” (see 10.15.1).

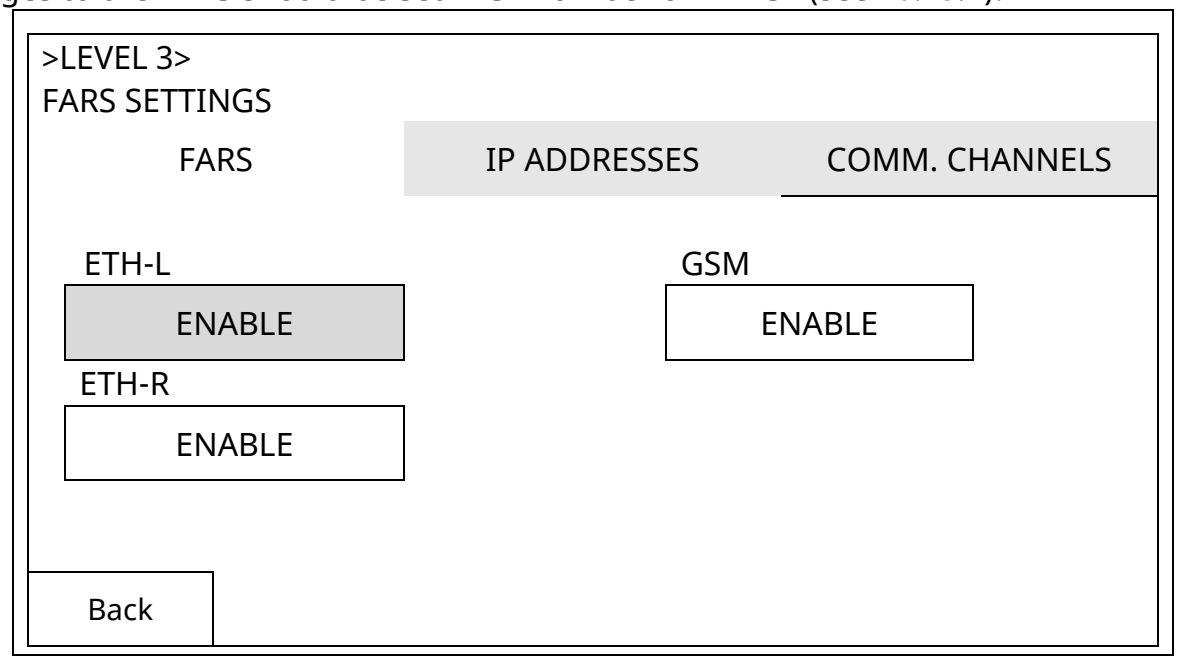


Figure 10.16.3 – Dialog box for communication channel selection

10.17 [COMMUNICATION CHANNELS] button

10.17.1 When touch the **[COMMUNICATION CHANNELS]** button, the dialog box opens with the settings of the FCP ports, which can be used for remote configuration of the FCP, communication with the FARS or for diagnostic purposes.

10.17.2 In fig. 10.17.1 shows an example of setting up an Ethernet port. These settings do not apply to the use of Ethernet ports for communication between the FCPs (10.15).

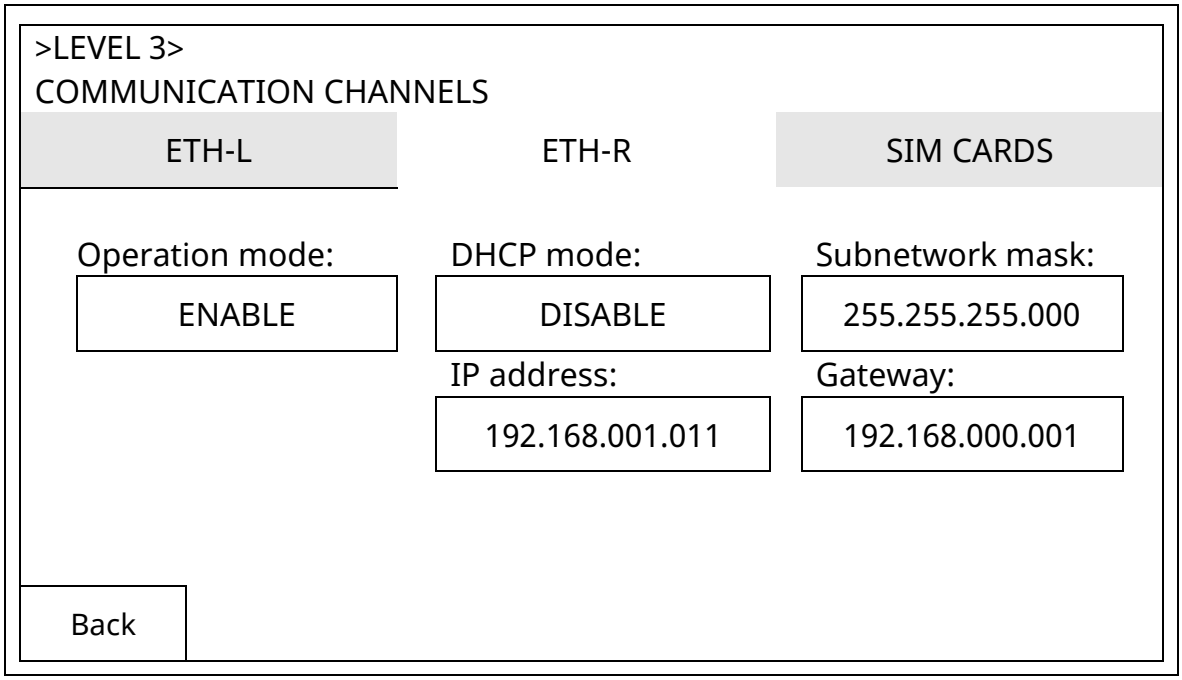


Figure 10.17.1 – Dialog box for Ethernet ports setting

The contents of the settings fields:

1) **"Operating mode"**– the port can be enabled for use or disabled. If the port is enabled for communication with another FCP in the menu of Fig. 10.15.1, the "ENABLE" mode is set automatically;

2) **"DHCP mode"** - if enabled, the settings in other fields are set automatically by the DHCP server, if disabled, the settings are set manually;

3) **"IP address"**, **"Subnetwork mask"**, **"Gateway"** - these parameters are assigned by the administrator of the local network of the object where the AFAS or DHCP Server is installed.

10.17.3 After selecting the "SIM CARD" field (Fig. 10.17.1) the window of data settings for SIM-cards opens (Fig. 10.17.2). May be inserted and used 1 or 2 SIM cards in the M-GSM module. The card in the SIM1 slot of the M-GSM module is the primary one, SIM2 – is the backup. The card status can be changed by touching the [**ENABLE**] or [**DISABLE**] button in the SIM1 and SIM2 setting field.

If you use two SIM cards, the communicator will correspond to the Type 2 communication channel (see Table 5.3).

If the PIN-code is removed from the SIM-card, the value specified for it in the PIN-code field in Fig. 10.17.2, is not analyzed.

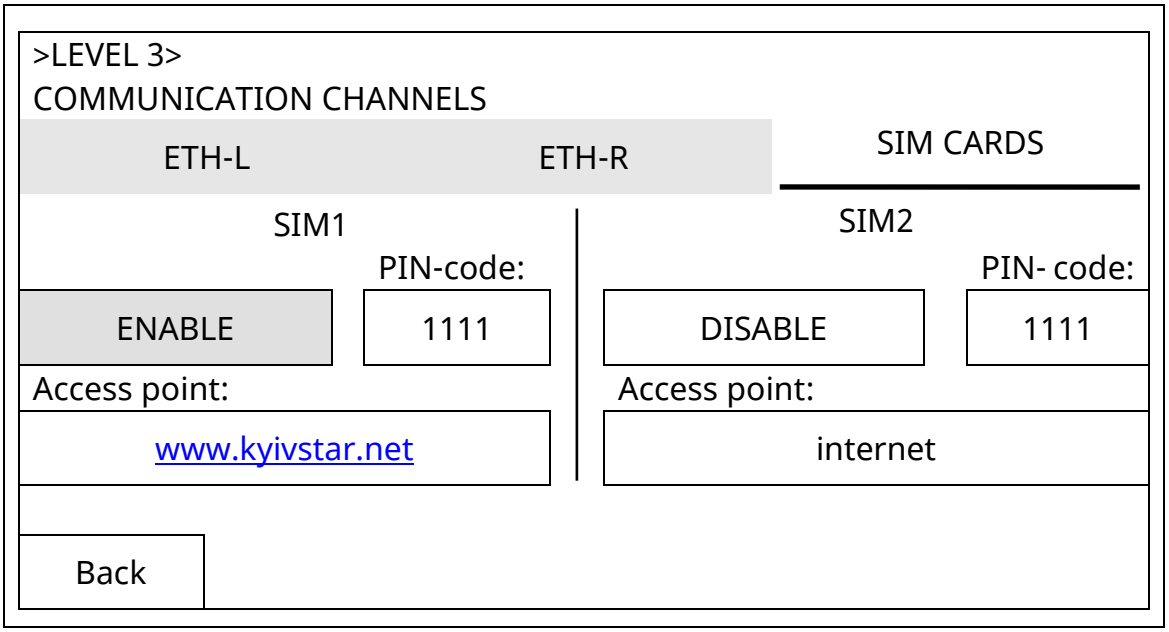


Figure 10.11.3 – SIM-card settings dialog box

The names of typical access points are given in Table 10.11.1. You can also enter any other names given by your GSM network operator.

Table 10.17.1 - Typical access point addresses

Access point	**Mobile telecommunication operator**
www.kyivstar.net	Kyivstar
www.ab.kyivstar.net	Kyivstar Ace&Base
www.umc.ua	MTC
internet	Life, MTC
internet.beeline.ua	Beeline
hyper.net	Jeans (Hyper)
www.jeans.ua	Jeans
speed	Life (faster)
www.djuice.com.ua	Djuice
internet.ua	Wellcome, Mobi-GSM

10.17.4 After switching on, the FCP automatically establishes a connection to the FARS via SIM1 on the first (main) of the set communication channels. In case of no connection with FARS, for example, in channel 1, the FCP attempts to contact it using channel 2. If there is still no connection with FARS, the FCP checks communication with publicly available services (google.com, facebook.com) and only in the case of a response from them switches to SIM2. All transitions are cyclic. If the FCP has established communication with the FARS from the non-primary channel and or SIM2, then at intervals of 20 minutes it attempts to return to the main channel and SIM1.

10.17.5 Identical messages on the FARS (for example, the same fault in one zone) are limited to 10 messages per hour. The record counter is restored by the Reset operation.

10.18 [SCENARIOS] button. Scenarios setting

10.18.1 General settings

10.18.1.1 When touch the [SCENARIOS] button, a dialog box (Fig. 10.18.1) opens with a list of programmed scenarios. Initially, there is no scenarios in the dialog box. To crate

scenario press [**F2 - ADD SCENARIO]**. To edit the Scenario name, touch the [✎] button and make the necessary changes using the keyboard on the FCP display.

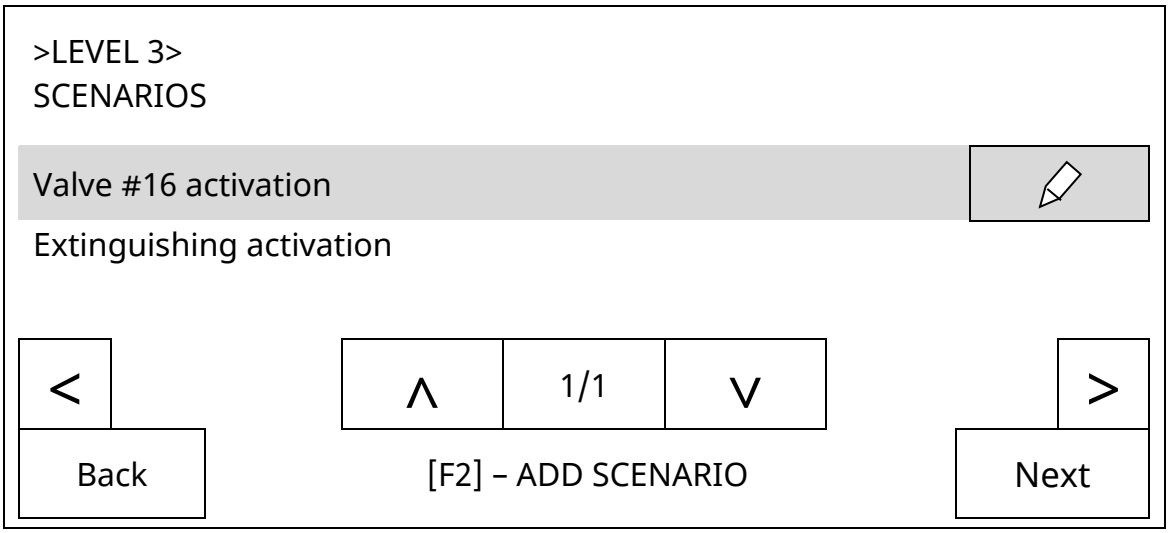


Figure 10.18.1 – List of scenarios

10.18.1.2 Scenarios are intended to extend the functions of the AFAS by means of automated control of electrical equipment. Execution of the scenarios does not affect the operation of the FCP in the modes listed in Section 8, but may be related to these modes.

Warning! Programming of scenario, setting its actions and conditions of activation, selection of groups, zones, inputs, outputs, address components is performed within only one FCP of AFAS, but the selection and setting of some activation conditions is allowed within the whole AFAS. It is means that if AFAS consists of several FCPs, events on one FCP may be activation conditions for scenario of other FCP. For example, it is possible to create scenario for FCP#3, where Fire alarm in Zone17 of FCP#1 activate the output triggering of AM-OUT1R+ module connected to FCP#3.

10.18.2 Actions programming and setting

10.18.2.1 A scenario is a predetermined sequence of actions controlled by the FCP. No more than 128 scenarios can be programmed. A single scenario can contain from 1 to 16 actions. The following types of actions are provided:

- output control – activation/deactivation of assigned output (or outputs) after occurrence of specified conditions;
- delay - the time interval before the assigned output (outputs) is activated/deactivated;
- pause - waiting for an additional condition or conditions without limiting the waiting time;
- repeat – restart of scenario.

To create an ACTIONS LIST for scenario:

- (in SCENARIOS menu (Fig. 10.18.1) select the line with the required scenario) → (touch the selected line) → [**ACTIONS LIST**] (in the upper right corner of the window) → [F2 **- add action**].

A list of available actions will appear on the screen (Fig. 10.18.2).

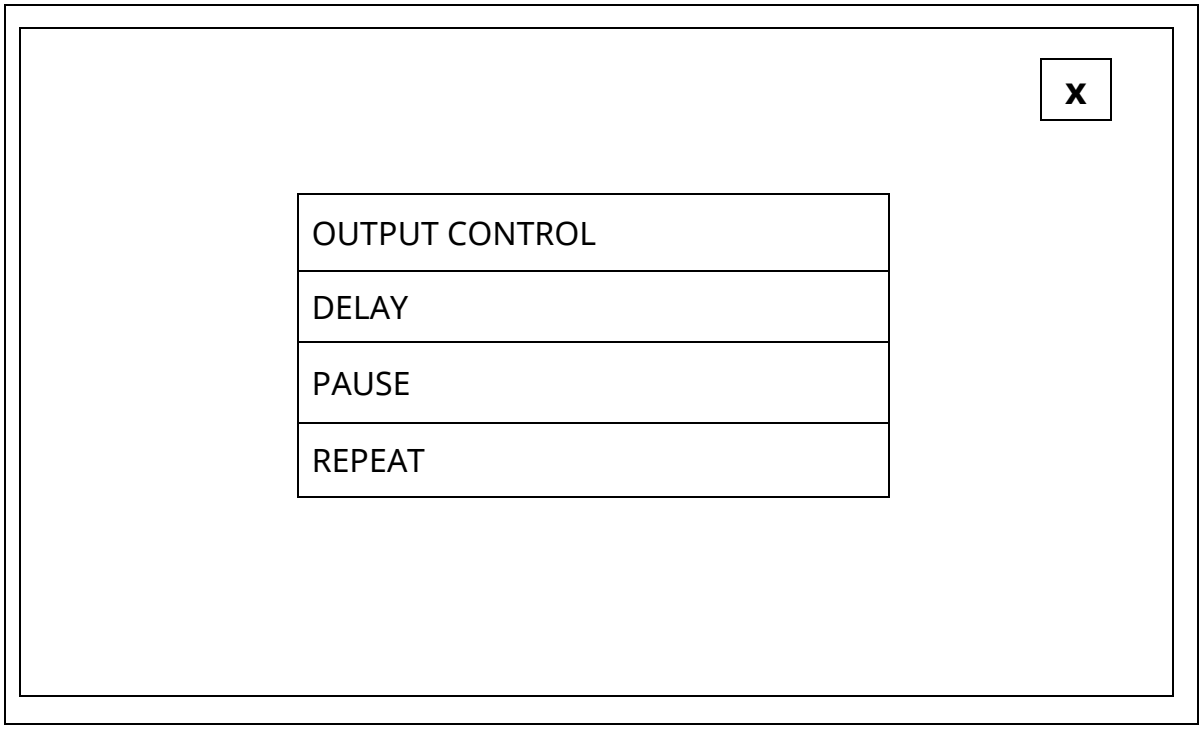


Figure 10.18.2 – ACTIONS LIST for scenario

An example of Action sequence in specified scenario is shown in Figure 10.18.3

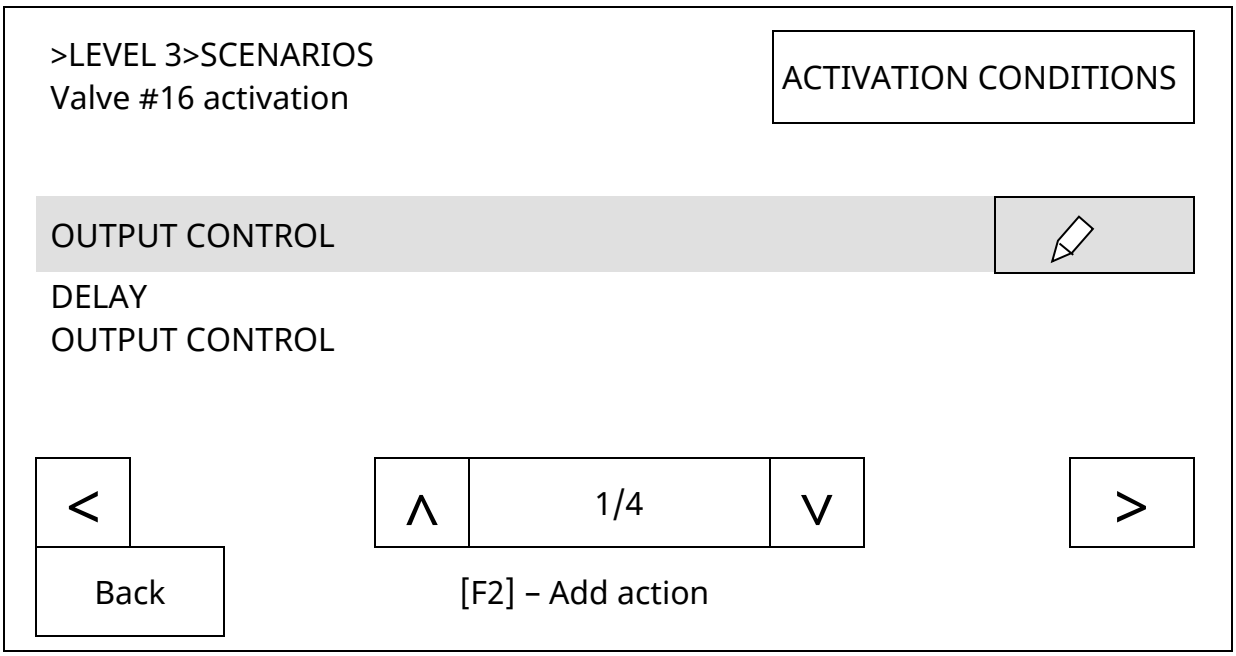


Figure 10.18.3 – Actions sequence in scenario

Warning! After running the scenario, the actions in it will be performed in the order in which they are listed. An incorrectly selected action can be removed from the list, but new action is added only at the end of the list, so if you want to add a new action inside the list, you should delete all actions from the end of the list to the location of the new action.

10.18.2.2 If in dialog box (fig. 10.18.3) in the highlighted line of action touch the [✎] button, the dialog box for setting the parameters of this action opens:

1) for "**Output control**":

- "Type" - after touching this line opens a list of actions (Fig. 10.18.2), in which you can change the previously selected type of action to another;

- "Output" - touching this line opens a list of outputs selected for activation in this action. Previously, there is no list of outputs. If you press the **[F2]** button on the FCP front panel, a list of outputs appears. In the list can be selected select one or more outputs that will be activated or disactivated in a single scenario action. It is allowed to select no more than 8 outputs. Outputs should be set Scenario mode as given in 10.4.5;

- "Control type" - after touching this line changes from "Activation" to "Deactivation" and vice versa;

- "Delete" - after touching this line, the action is deleted from the scenario;

2) for "**Delays**":

- "Type" - after touching this line opens a list of actions in Fig. 10.18.2, in which you can change the previously selected type of action to another;

- "Delay time" - after touching this line, the numeric keypad appears on the display, set the time interval in the format: XX: SS (minutes: seconds);

- "Delete" - after touching this line, the action is deleted from the scenario;

3) for "Pause":

- "Type" - after touching this line opens a list of actions in Fig. 10.18.2, in which you can change the previously selected type of action to another;

- "Conditions" - after touching this line, a list of conditions (10.18.2.3) opens, which are set to perform the next paused step of the scenario (action or end of the scenario). The selection of conditions from the list is similar to 10.18.3. The list should contain only those conditions that are required to perform the next step of the scenario. No more than 8 conditions can be selected;

- "Logic type" - by default - "OR", after touching this line changes to «AND». If the "OR" logic is selected, then the next paused action is activated when any of the conditions from the list occurs, if the "AND" logic is selected, then the next paused action is activated only when all the conditions from the list occurs;

- "Delay time" - after touching this line, the numeric keypad appears on the display, on which you want to set the time interval in the format: XX: SS (minutes: seconds, no more than 60 minutes 59 seconds). If the delay time is 0, then the scenario expects the condition occurrence, if the delay time is greater than 0, then the scenario expects either the conditions occurrence or the delay countdown to end.

Warning! If the delay time is not 0 and if any condition or conditions programmed for the pause occurred before the Pause action started, these conditions are considered absent and the next pause action will not be performed at all when selecting the logic type «AND», or will start to run after the set delay time when selecting the logic "OR ";

- "Delete" - after touching this line, the action is deleted from the scenario;

4) for "**Repeat**":

- "Type" - after touching this line opens a list of actions in Fig. 10.16.2, in which you can change the previously selected type of action to another;

- "Delete" - after touching this line, the action is deleted from the scenario.

10.18.2.3 The list of conditions for setting the **Pause** action includes:

1) System reset - press the [Reset] button on the front panel of the FCP. **Warning!** In AFAS, which consists of several FCPs, the scenario programmed on the slave FCP can be activated by pressing the [Reset] button on the main FCP. The scenario programmed on the main FCP cannot be activated by pressing the [Reset] button on the slave FCP;

2) General alarm - alarm in any zone of the FCP. In the AFAS, which consists of several FCPs, the activation condition may be triggered in the zone of another FCP, if in the FCP where the scenario is activated, configured to receive messages from all FCPs (10.15.1, Fig. 10.15.2);

3) General fault - the transition of the FCP to the fault warning mode (8.6). In the AFAS, which consists of several FCPs, the condition for activation may be the transition to this mode of another FCP, if the FCP, where the scenario is activated, is set to receive messages from all FCPs. If the FCP is already in fault warning mode, new faults do not activate the scenario;

4) No faults - the scenario is activated during the transition of the FCP from the fault warning mode to the standby mode;

5) detector alarm - activation of a predefined detector. If you touch the line with this condition, a list of detectors opens (ASD, AHD, AMCP). Only one detector can be selected. If the selected detector is also registered in the zone with verification of types A, B, its activation, which is the first activation in the zone, does not activate the scenario;

6) alarm in the zone - activation in a predefined zone. If you touch the line with this condition, a list of zones opens. Only one zone can be selected;

7) alarm in the group - activation in a predefined group of zones. If you touch the line with this condition, a list of zone groups opens. Only one group can be selected;

8) pre-alarm in the zone - the first activation of the detector in the zone with the set verification of types A, B (10.3.2.2). If you touch the line with this condition, a list of zones opens. Only one zone can be selected;

9) reset alarm in the zone - automatic cancellation of the fire alarm state after the end of the time of waiting for the second alarm in the zone with verification of types A, B. Resetting the alarm button [Reset] on the FCP front panel is not a condition for activating the scenario. If you touch the line with this condition, a list of zones opens. Only one zone can be selected;

10) fault of the main power supply - fault of supply voltage of 230V AC on the FCP;

11) main power supply is restored - restoration of supply 230 V AC (see above);

12) battery failure - the occurrence of a fault related to the FCP battery;

13) battery is restored - recovery of a fault related to the battery of the FCP;

14) output fault - the fault of output with set parameter “Controlled”. If you touch the line with this condition, a list of outputs opens. Only one output can be selected;

15) output is restored – restore of output with set parameter “Controlled”. If you touch the line with this condition, a list of outputs opens. Only one output can be selected;

16) input fault - the fault of specified input. Touching the line with this condition opens a list of inputs. Only one input can be selected. This condition applies to parametric inputs that control the resistance and in which the fault condition is provided. To be used in a scenario, the inputs must be set to Controlled mode;

17) input is restored - restoration of specified input. Touching the line with this condition opens a list of inputs. Only one input can be selected;

18) input activation- activation of the input. For use in the scenario, the should must be set in any mode except for "Not used";

19) alarm in the ECD zone - activation of any ECD zone. If you touch the line with this condition, a list of ECDs opens. Only one ECD can be selected;

20) start of fire extinguishing – activation of the selected ECD. The setting procedure is similar to the previous condition;

21) completion of extinguishing - the end of the time of release of extinguishing agent by selected ECD. The setting procedure is similar to the previous condition;

22) manual release – manual release of extinguishing for the selected ECD. The setting procedure is similar to the previous condition;

23) automation enabled - transfer of the selected ECD in the Automation mode. The setting procedure is similar to the previous condition;

24) automation disabled - transfer of the selected ECD in the Manual mode The setting procedure is similar to the previous condition;

25) reset ECD - pressing the "Reset" button on the front panel of ECD or transfer the reset command from the FCP;

26) button activation - pressing the addressable button with the specified S/N and name;

27) button deactivation - return of the addressable button to the original state.

10.18.3 Programming and setting of activation conditions

10.18.3.1 After creating the list of actions for the scenario it is necessary to add conditions for its start. In the dialog of Fig. 10.18.3 touch the **[ACTIVATION CONDITIONS]** button. The result is shown in Fig. 10.18.4.

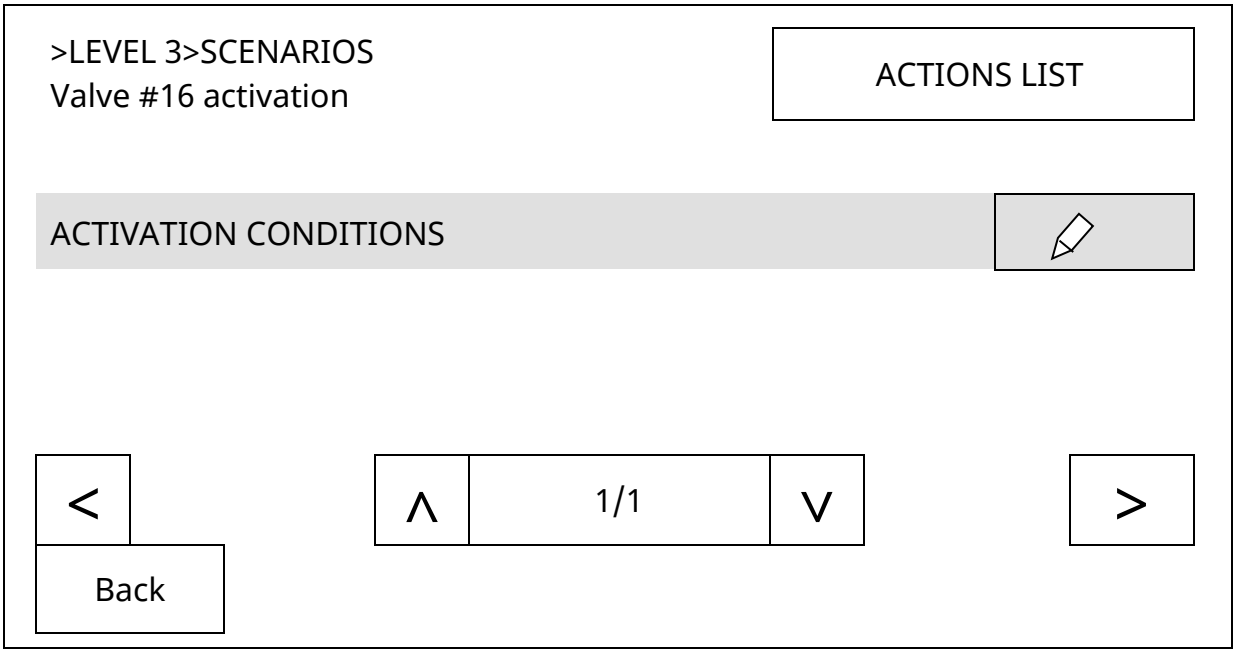


Figure 10.18.4 – ACTIVATION CONDITIONS dialog box

If you touch the [✎] button in the selected line (Fig. 10.18.4), the window of general settings of the scenario activation conditions opens:

- **type of logic** - "OR" (default) and «AND». If the "OR" logic is selected, the scenario is activated if any of the conditions from the list occurs (Fig. 10.18.5), if the "AND" logic is selected, the scenario is activated only when all the conditions from the list occur;

- **timeout** - the time interval before the automatic activation of the scenario. If it is 0 (default), the scenario is activated only if programmed conditions occur. If the timeout is not 0, the scenario is activated either the programmed conditions occur during the timeout countdown or after the end of the timeout, even if some of the activation conditions are missing. Timeout duration - no more than 60 minutes 59s. With a "timeout", you can organize a scenario that runs periodically.

10.18.3.2 If in the window of fig. 10.18.4 touch the button of the selected line "ACTIVATION CONDITIONS", the window of Fig.10.18.5 opens, where list of conditions for activating the scenario can be created. By default, there is no condition in the list. To add conditions to the list, press the **F2** button on the FCP front panel.

Warning! You can set up to 8 conditions for activating one scenario.

The [−] button on the highlighted condition line allows you to remove this condition from the list.

Some of the conditions require pre-setting. To set the condition, select the required line in the list (Fig. 10.18.5) and touch it.

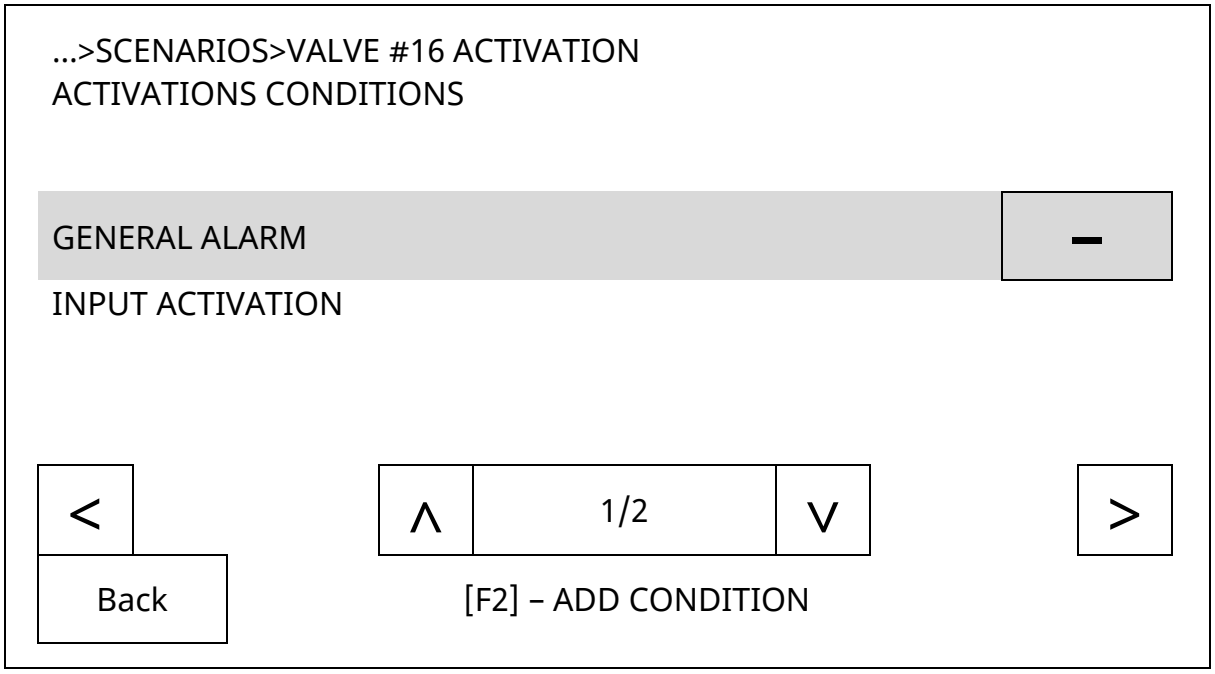


Figure 10.18.5 – ACIVATION CONDITIONS

The FCP provides a general list of conditions for activating scripts

1) system start - power on and initialization of the FCP. The scenario is activated before the end of self-diagnosis of AFAS and re-registration of addressable components;

2) General alarm - alarm in any zone of the FCP. In the AFAS, which consists of several FCPs, the activation condition may be triggered in the zone of another FCP, if in the FCP where the scenario is activated, configured to receive messages from all FCPs (10.15.1, Fig. 10.15.2);

3) General fault - the transition of the FCP to the fault warning mode (8.6). In the AFAS, which consists of several FCPs, the condition for activation may be the transition to this mode of another FCP, if the FCP, where the scenario is activated, is set to receive messages from all FCPs. If the FCP is already in fault warning mode, new faults do not activate the scenario;

4) detector alarm - activation of a predefined detector. If you touch the line with this condition, a list of detectors opens (ASD, AHD, AMCP). Only one detector can be selected. If the selected detector is also registered in the zone with verification of types A, B, its activation, which is the first activation in the zone, does not activate the scenario;

5) alarm in the zone - activation in a predefined zone. If you touch the line with this condition, a list of zones opens. Only one zone can be selected;

6) alarm in the group - activation in a predefined group of zones. If you touch the line with this condition, a list of zone groups opens. Only one group can be selected;

7) pre-alarm in the zone - the first activation of the detector in the zone with the set verification of types A, B (10.3.2.2). If you touch the line with this condition, a list of zones opens. Only one zone can be selected;

8) reset alarm in the zone - automatic cancellation of the fire alarm state after the end of the time of waiting for the second alarm in the zone with verification of types A, B. Resetting the alarm button [Reset] on the FCP front panel is not a condition for activating the scenario. If you touch the line with this condition, a list of zones opens. Only one zone can be selected;

9) fault of the main power supply - fault of supply voltage of 230V AC on the FCP;

10) battery failure - the occurrence of a fault related to the FCP battery;

11) output fault - the fault of output with set parameter “Controlled”. If you touch the line with this condition, a list of outputs opens. Only one output can be selected;

12) input fault - the fault of specified input. Touching the line with this condition opens a list of inputs. Only one input can be selected. This condition applies to parametric inputs that control the resistance and in which the fault condition is provided. To be used in a scenario, the inputs must be set to Controlled mode;

13) input activation- activation of the input. For use in the scenario, the should must be set in any mode except for "Not used";

14) alarm in the ECD zone - activation of any ECD zone. If you touch the line with this condition, a list of ECDs opens. Only one ECD can be selected;

15) start of fire extinguishing – activation of the selected ECD. The setting procedure is similar to the previous condition;

16) manual launch – manual launch of extinguishing for the selected ECD. The setting procedure is similar to the previous condition;

17) automation disabled - transfer of the selected ECD in the Manual mode The setting procedure is similar to the previous condition;

18) button activation - pressing the addressable button with the specified S/N and name.

10.18.3.3 If several conditions are required to run a scenario and the logic "AND" is selected, it is necessary to anticipate possible variants of these conditions so that they do not exclude each other, thus excluding the launch of the scenario.

10.18.4 Launch and stop a scenario

10.18.4.1 By default, all new scripts are inactive when they are created, i.e., they do not start automatically. To FCP begin to monitor the occurrence of conditions for scenario activation its “Status” should be set “Active” (default – “Inactive”) – see Fig.10.18.6. To change “Status” touch to it field.

10.18.4.2 If a message appears in the service mode window about the scenario activation has started, it can be canceled. To do it touch the field of the "Service" tab, select the line with the required scenario (if several scripts are activated), touch this line and select "Yes" to the request to stop the scenario. After that, further actions in the scenario are not performed, but the result of already performed actions is not reset.

10.18.4.3 After pressing the **[Reset]** button on the FCP front panel during the execution of activated scenarios, all outputs that have already activated will return to the original state, but the scenarios continue to run until they end.

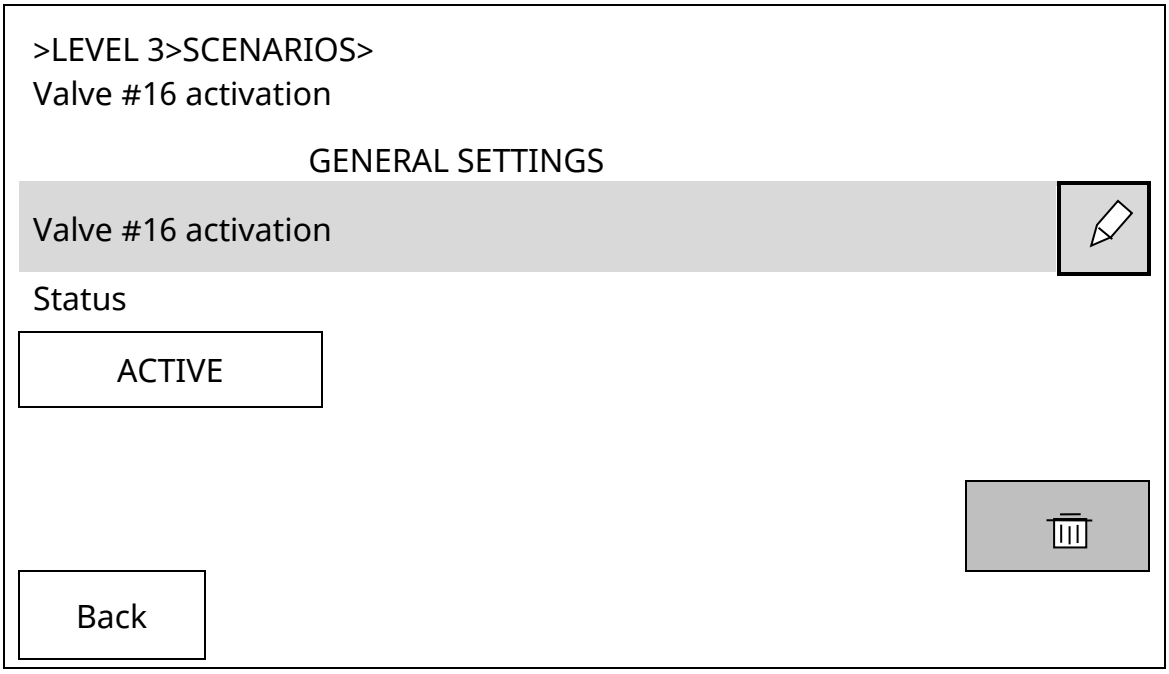


Figure 10.18.6 - SCENARIOS: General settings

10.18.5 Example of scenario

10.18.5.1 The addressable components used in the scenario must be registered in the device list. Scenario tasks (AFAS components are randomly selected):

- REL output of the module AM-OUT1R+ s/n: YYYYYY should be activated when fire alarm in zone 4, and after 1 min should be deactivated.

10.18.5.2 Perform the steps in 10.18.1, select a scenario name.

Sequence of actions of the scenario (3 actions are required) (10.18.2):

1) control of REL output of the AM-OUT1R+ module s/n: YYYYYY – activation;

2) delay 01:00 (min);

3) control of REL output of the AM-OUT1R+ module s/n: YYYYYY – deactivation.

10.18.5.3 Scenario activation conditions (10.18.3.2):

- alarm in the zone: Zone 4.

10.18.5.4 Set the "Active" status for the scenario (10.18.4.1).

10.18.5.5 If you want to program the simultaneous activation of several outputs, the scenario includes several corresponding actions in a row, without delays between them. The outputs will be activated in the order specified in the scenario at intervals of not more than 2 s. Outputs deactivation is also separate action for each output and are programmed similarly.

10.18.5.6 If the device control algorithm has an action that should be performed only after the occurrence of any of the conditions (10.18.3.2), before this action it is necessary to program an additional action "Pause", in the settings of which specify the required condition (or conditions), and set the pause duration to 0.

11 Exploitation of AFAS

11.1 Installing of AFAS

11.1.1 General

11.1.1.1 Before installation, the AFAS components shall be unpacked and inspected for mechanical damage. Damaged components should be sent for repair.

The AFAS should be installed in accordance with the developed project and regulations for building industry.

11.1.1.2 AFAS components shall be located on building structures, taking into account the convenience and speed of access to them for installation, adjustment, inspection, further maintenance.

Regarding the location of the control panel - it is recommended to provide a place nearby for at least temporary installation of the PC and connection of its power supply.

The components of the AFAS should be installed on the building structures in accordance with its manuals.

For installation of ASD, AHD their bases need to be fixed on building designs.

To install FCP, AMCP, modules AM-OUT2R, AM-Multi, AM-OUT1R+, AM-Multi+, AM IN4 it is necessary to open their housings to gain access to the mounting holes.

11.1.1.3 It is not recommended to connect the battery to the control panel, AM-Multi + modules, external BZ before the end of the SPSA installation. Reports of the absence of batteries, which are displayed on the means of indication of PPKP or BZ, do not affect the performance of the SPSA basic functions and the configuration of the SPSA.

11.1.2 Cable installation

11.1.2.1 When installing cables for AI, communication lines with alarms, fire alarm and fault transmission devices, etc., the possibility of shorting the wires of these lines to other cables or metal structures shall be excluded.

It is recommended not to use AI wire twists between the connection points of these lines on the AFAS components or in places where such twists are not provided by the AFAS project.

When installing AI or Ethernet lines, it is necessary to comply with the restrictions and recommendation of cable manufacturers.

Tension and sharp bends of cables should be avoided when turning the front panel of the control panel on the clamps (Fig. 7.2).

It is recommended to mark the cables of the AFAS for the possibility of traceability during repairs.

11.1.3 Connection of AFAS components

11.1.3.1 AFAS components shall be installed in accordance with the information provided in its manuals. In particular, cables should be inserted into component cases only through the holes provided.

11.1.3.2 It is recommended to apply the following general procedure for connecting AFAS components to the FCP:

1) connect power lines to the FCP. Check the start and initialization of the FCP, the presence of voltages on the terminals of the power outputs "+24V";

2) connect AI lines and AI power supply to the FCP. Turn on the FCP power supply and check for voltage at the terminals of the AI;

3) connect the addressable components provided by the project AFAS (detectors and modules) to the AI. To check the connection of addressable components, it is necessary to

use the process of automatic registration of new components (Section 10) with the output of the results on the display of the FCP.

11.1.3.3 The stripped ends of the wires should be securely clamped in the terminals to prevent unstable contact. Especially for addressable components and connection lines with external PSU.

If a stranded cable with significant rigidity is used, its ends should be connected to the FCP terminals so that it is possible to rotate the front FCP panel on the clamps to connect other cables, or at least remove the terminal socket with connected AI before how to rotate the front panel of the FCP.

Warning! It is not allowed to mount wires in the terminals of the external PSU or FCP with the switched on the power supply.

11.1.3.4 AI wires shall be connected according to the design to the pairs of terminals located near to each other. AI #1 is connected to terminals L1-G1, L2-G2, AI #2 is connected to terminals L3-G3, L4-G4.

Radial AIs are connected to individual pairs of terminals L1-G1, L2-G2, L3-G3, L4-G4. Other connection options, for example: L1-G2, L2-G3, L3-G2, L4-G1 - are not allowed.

The LPOW-LGND (AI power) terminals on the MCU should be connected to the "+ 24V", "GND" terminals of FCP or to the 24 V power output of the external PSU.

11.1.3.5 After connecting the external power supply line to the FCP, it must be switched on and checked with a multimeter. They must have a voltage of at least 24 V, and it should not decrease when connected AI.

Warning! If the supply voltage at the specified terminals before the AI connection is present and disappears after the connection, it is likely that the polarity of the connection of one or more addressable components in this AI is incorrect or short-circuited.

After 10 s after switching on the power supply, the voltage of the AI may initially be less than 24 V, but within 20 s it must increase to the nominal value. If this does not happen, the AI is likely to consume more power than the allowable level.

If the main power supply is missing, but there are connected batteries, the FCP is turned on by pressing the START button (Fig.7.3).

11.1.3.6 If the project provides for the use of the M-GSM module, then before connecting the cables to the FCP it is necessary to remove the cover from the FCP, unscrew the screws securing the front panel to the base (Fig. 7.2), turn the front panel up and install the M-GSM module in the socket on the MCU board (3.2).

Warning! The M-GSM module should be installed in the middle of the XS1 socket on the MCU board, i.e., in such a way that two holes on each edge of the XS1 socket remains free.

11.1.3.7 The line to the alarm devices shall be connected to the AL terminal according to Figure B.2. In the output settings set the mode "Controlled".

The line to the fault signal transmission devices is connected to the FT terminal according to Figure B.2. In the output settings set the mode " Controlled".

The load resistance of the outputs AL, FT should be set in the range of values that provide the current limit during operation, specified in table. 5.1.

If the AL ("Alarm") or FT ("Fault") output is not used, the "Not controlled" mode should be set in their settings and no external circuits should be connected.

Siren (alert) connection lines are connected to the terminals OUT1-OUT4 according to Figure B.4.

If no lines are connected to any of the outputs OUT1 - OUT4 of the FCP, and it is configured in the modes "Controlled" or "Alert", between the terminal of this output and the terminal "GND" it is necessary to connect a resistor with resistance according to table. 5.1.

11.1.3.8 Inputs IN1, IN2 of the FCP are connected according to fig. B.3. They do not need to apply any voltage.

11.1.3.9 **Attention!** The scheme of connection to AI bases of ASD and AHD without SCI differs from the scheme of connection to AI of bases of ASD and AHD with SCI (see manuals for corresponding detectors).

11.1.3.10 The components of the AFAS are connected to the FCP in accordance with Fig. B.1.

11.1.3.11 It is recommended to connect external circuits to the REL relay terminals of the AM-OUT1R+ module according to the design after it is registered in the device list and thus its relay returns to the initial state (4.2.7).

11.1.3.12 In a working AI, no more than 30 s after the power of the FCP is turned on, the green indicators on the address components connected to the AI should start flashing frequently, which means the process of automatic registration. After switching the address components to the standby mode, the FCP is ready for settings according to section 10.

11.1.3.13 Finally, the battery is installed in the housings of the FCP, AM-Multi+ modules and external PSU.

Warning! Wires with red insulation should be connected to the terminals of batteries with red markings, wires with black insulation should be connected to the terminals of batteries with black markings.

After installing the battery, make sure that there is no indication of battery failure. If low-voltage battery messages appear on the FCP's touch screen, it is necessary to monitor their charging for several hours. If the batteries do not charge, or after charging the voltage of one battery differs significantly from the voltage of the other battery, or the quality of the battery (9.7.2) indicates significant internal resistance, the battery should be replaced.

11.1.3.14 To connect several FCPs, the connectors RJ45 are mounted on four-pair cables in a direct order (PC-switch) in accordance with the TIA-568B standard (Table 11.1). On both connectors the order of the wires according to the colors of the insulation is the same.

Table 11.1

Contact number	Color of insulation
1	White and orange
2	Orange
3	White and green
4	Blue
5	White and blue
6	Green
7	White-brown
8	Brown

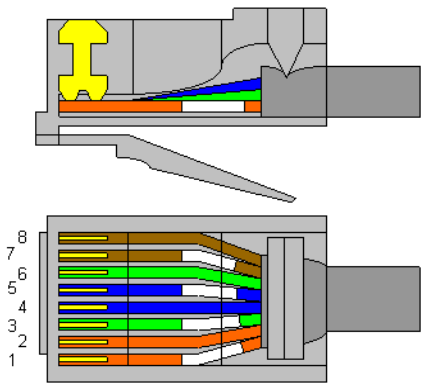


Figure 11.1 – RJ45 connectors

11.2 AFAS settings

11.2.1 During the adjustment do the following:

1) set factory settings in each FCP (10.12);

2) distribute and register the connected addressable components and outputs by zones (10.3);

3) configure zones (names, dependencies, etc.) (10.3);

4) configure the registered addressable components and outputs for the required operating modes (10.4);

5) set the required system settings of FCP (9.4, 10.13, 10.14, 10.15);

6) configure the communicator with FARS, if necessary (10.11);

7) configure the expansion, if necessary (10.15);

8) configure access codes for users of the 2nd, and 3rd levels (9.3, 10.9).

11.2.2 AFAS provides two registration methods for addressable components:

1) automatic registration – after turning on the FCP, all addressable components connected to the AI are automatically added to the list of devices. The procedure is shown in 10.3;

2) manual registration (before joining the addressable components to the AI) – the AFAS parameters are set using a configurator program, create a file that is written to the FCP. The procedure is described in the operator manual for the program.

The manual registration also can be used by means of FCP controls (registration by S/N). The operation order is specified in 10.3.

If in the process of detectors registering (the algorithm steps are shown in 10.3.3), there is a need to identify them by the numbers used in the AFAS project, the following algorithm is recommended:

1) go to the FCP to the menu 10.3.3.2 (registration in the selected zone);

2) install the first detector in the zone;

3) after it appears on the FCP screen, touch the [Back] button (return to the list of addressable components in the zone), highlight the line with the new detector;

4) touch the button to edit the name of the detector, change the default name to the project identifier, confirm the new name;

5) return to the list of addressable components in the zone, enter the sequence of commands **[F2 – add a device to the zone]** → **[Search for new devices]**;

6) install the second detector in the zone, after it appears on the FCP screen, repeat the renaming process;

7) go to another zone, repeat the above algorithm.

After the end of the registration process, in all the lists formed by the FCP the addressable components will be displayed with the names that correspond to their project numbering.

11.2.3 If the AFAS includes several ECD and/or several FCP, change their name (for example, by location) to distinguish the messages coming from them (10.4.3, 10.15.1). Names of addressable components (detectors, outputs, etc.) are given as needed.

11.2.4 After the settings, check the following:

- in the power status dialog box, all the rectangles are green (description of a dialog box – 10.7);
- there are no fault messages on the FCP display;
- fault indicators on external PSU do not blink;
- all detectors, all outputs, and inputs are connected according to the project and the devices are in the standby mode.

11.2.5 Checking serviceability of AFAS is held by means of test operations in zones, and selective simulation of malfunctions.

If the AFAS includes a ECD, test operations are performed after the line is disconnected from the fire extinguishing systems, monitoring the condition of the line by means of measuring equipment.

During test operations:

- the FCP should reflect the current state in accordance with the descriptions of the operating modes (section 7);
- detectors and outputs should go into the state provided by the testing effect on the AFAS;
- notifications should be sent to the FARS if provided by the project;
- the relevant entries should appear in the FCP log.

11.2.6 If scenarios have been set, their execution shall be checked first without connecting the AFAS outputs to auxiliary equipment, simulating the status of the inputs or events that trigger the scenarios. Intermediate and final state of the outputs are monitored by means of measuring equipment.

During the execution of each scenario and after the FCP display shows a message about the completion of the scenario, the status of the AFAS outputs should be as planned.

11.2.7 The documents describing the positioning of the AFAS on the site, instructions on the operation and maintenance of the AFAS components are provided to a customer. It should take into account the control procedure of the AFAS, given in sections 8, 9 of this manual.

11.3 Operation and maintenance of FCP and AFAS

11.3.1 When operating with FCP and AFAS one should:

a) provide and maintain its standby operation mode. In case of no fire alarms, the AFAS should be in a standby mode, without disables and faults. Temporary disable or fault warning modes should be authorized by the responsible person. All changes in the AFAS configuration (change in the number and position of components, change in the communication routes of lines, replacement of cables) should also be authorized by the responsible person and reflected in the location plan of the AFAS;

b) maintain free access to AFAS components for inspection or repair;

c) to ensure the correct operation of AFAS in case of fire alarms, faults, and other events. Personnel in duty should know how to turn on/off the alert, check the status of zones and addressable components, interact with FCP, etc.;

d) to prevent false alarms during installation and maintenance. Take some preliminary measures to prevent the faults of the addressable components of the AFAS in zones where there may be dust, smoke, heat, etc.;

e) ensure timely repair and replacement of defective components. The performance of repaired components should be tested as part of the AFAS.

11.3.2 Maintenance of AFAS consists of scheduled periodic and unscheduled control checks of functioning and in the restoration of detectors characteristics, joint-stock bank, operability of FCP, and other devices.

Scheduled periodic maintenance applies to AFASs, which include a smoke chamber. The maintenance period and method are set in the operational documents of the detectors.

The battery inspection period and the battery of the real-time clock should be set no longer than the service life recommended by the manufacturer. Check the output voltage and battery charge installed in the FCP and PSU, the battery voltage of the real-time clock.

The functioning verification period of the AFAS as a whole should not exceed 1 year. Access to all on-site AFAS components should be provided for this verification. As for the verification method, it is the simulation of fire alarms in different areas to verify the operation of alarms and ECD. For the time of such inspection, the line from the ECD to the fire protection equipment is disconnected.

11.3.3 Unscheduled maintenance is carried out after special events:

a) occurrence of fire;

b) occurrence of false fire alarms;

c) communication faults or natural phenomena that could lead to damage to the AFAS components, even when these damages have not become noticeable;

d) repairs on the premises.

In particular, it is recommended to wipe the touch screen from dust and other contaminants with a soft cloth during repairs or after setting the FCP.

11.3.4 During the maintenance, if necessary, perform FCP reprogramming. This procedure requires a computer, a NuWriter utility with a driver for the MCU microcontroller, a programming file with the expansion *.bin, a USB-USB mini cable. The programming process is as follows:

a) connect the USB-USB mini cable to the PC;

b) turn off the power to the FCP (including the battery);

c) remove the front cover of the FCP housing, turn the front panel to access the USB BOOT service button (Fig. 7.3);

d) press the USB BOOT button and, without releasing it, connect the USB-USB mini cable to the USB mini socket (Fig. 7.2) on the MCU;

e) run the utility program, download the file and perform programming;

f) after receiving a message about the successful completion of programming, close the utility program, disconnect the USB-USB mini cable from the MCU;

g) turn on the power of the FCP.

12 Operating and storage conditions

FCP is intended for continuous 24/7 operations on-premises with regulated climatic conditions without the direct influence of climatic factors of the environment. The range of operating temperatures of the FCP: –5 to +40°C, other components (Table 3.1): –10 to +55°C.

The storage temperature in warehouses should be within the following range: –50 to +40°C, relative humidity not more than 98%, for temperature 25°C. There should be no corrosive impurities in the air in the premise where the FCP is stored.

Appendix A

(reference)

Calculation of battery capacity

A.1 A battery capacity is calculated to ensure the operation of the AFAS in case of no primary power source. According to DSTU-N CEN/TS 54-14:2009, AFAS should operate only from the battery:

- under the condition of the autonomous operation mode of AFAS – for not less than 72 hours in the standby mode and in addition not less than 30 minutes in the fire alarm mode;
- if there is a connection with the FARS, when the term of power failure elimination is not more than 24 hours – not less than 30 hours in the standby mode and additionally for not less than 30 minutes in the fire alarm mode.

A.2 The example of the battery capacity calculation is given below. For each AFAS, the number of components is set separately. Here are the required actions:

1) make the list and indicate the types of components and the number of components of each type in it for the designed AFAS (Table A.1);

2) according to the operating documents determine the current consumption of each of the AFAS component types in the standby mode and fire alarm mode;

Table A.1 – Input data for calculation

AFAS component	I_s, mA	I_{fire}, mA	The number of components, pcs.
FCP Tiras PRIME A	50	50	1
ASD DETECTO SMK100	0,09	0,19	100
ASD DETECTO SMK110	0,13	0,2	50
OSZ siren (24V)	-	70	5
OS siren (12/24V)	-	35	20
M-GSM	25		1
I_s – current consumption of FCP/of the component in the standby mode; I_{fire} – current consumption of the FCP/of the component in the fire alarm mode.			

3) calculate the required capacity of the backup power supply under the autonomous operation mode of the AFAS:

3a) calculate the total current consumption of the AFAS components of each type, and then the total current consumption of the entire AFAS in the standby mode and in the fire alarm mode

- current consumption of AFAS in the standby mode:

$$\mathbf{I_s = I_s\,(FCP) + I_s\,(SMK100) \times 100 + I_s\,(SMK110) \times 50}$$

$$\mathbf{I_s = 50 + 0.09 \times 100 + 0.13 \times 50 = 65.5\ (mA) \approx 0.066\ (A);}$$

- current consumption of AFAS in the fire alarm mode:

$$\mathbf{I_{fire} = I_{fire}\,(PPKP) + I_{fire}\,(SMK100) \times 100 + I_{fire}\,(SMK110) \times 50 + I_{fire}\,(OSZ) \times 5 + I_{fire}\,(OS) \times 20.}$$

$$\mathbf{I_{fire} = 50 + 0.19 \times 100 + 0.2 \times 50 + 70 \times 5 + 35 \times 20 = 1129\ (mA) = 1.129\ (A).}$$

3b) calculate the required capacity of all batteries in the AFAS for the standby mode by multiplying the received total current of the AFAS in the standby mode by the number of hours in the standby mode, then calculate the required capacity of all batteries in the AFAS for the fire alarm mode by multiplying the total fire alarm for the number of hours in fire alarm mode:

C_{BAT} = (0.066 × 72 + 1.129 × 0.5) × 1.25 ≈ 6.666 (A × hours).

4) calculate the required capacity of the backup power supply of AFAS, provided that there is a connection with the FARS, when the time to troubleshoot the power supply does not exceed 24 hours:

4a) calculate the total current consumption of the AFAS components of each type, and then the total current consumption of the entire AFAS in the standby mode and in the fire alarm mode

- current consumption of AFAS in the standby mode:

I_s= I_s (FCP) + I_s (SMK100) × 100 + I_s (SMK110) × 50 + I_s (M-GSM)

I_s = 50 + 0.09 × 100 + 0.13 × 50 + 25 = 90.5 (mA) ≈ 0.091 (A);

- current consumption of AFAS in the fire alarm mode:

I_{fire} = I_{fire} (FCP) + I_{fire} (SMK100) × 100 + I_{fire} (SMK110) × 50 + I_{fire} (M-GSM) + I_{fire} (OSZ) × 5 + I_{pozh} (OS) × 20.

I_{fire} = 50 + 0.19 × 100 + 0.2 × 50 +25 + 70 × 5 + 35 × 20 = 1154 (mA) = 1.154 (A).

4b) calculate the required capacity of all batteries the same way as in 3b) provided that there is a connection with the FARS when the power failure time does not exceed 24 hours:

C_{ACB} = (0.091 × 30 + 1.154 × 0.5) × 1.25 = 4.134 (A × hours).

Note – A margin of 25% is taken into account in calculations 3b) and 4b) to compensate for the decrease in battery capacity due to aging.

A.3 Given that the backup power supply of FCP is provided by two batteries 12 V, 7 A×h, connected in series, i.e. their total voltage is 24 V, and the capacity is 7 A×h, then for the given example, the requirements for backup power are fully complied with.

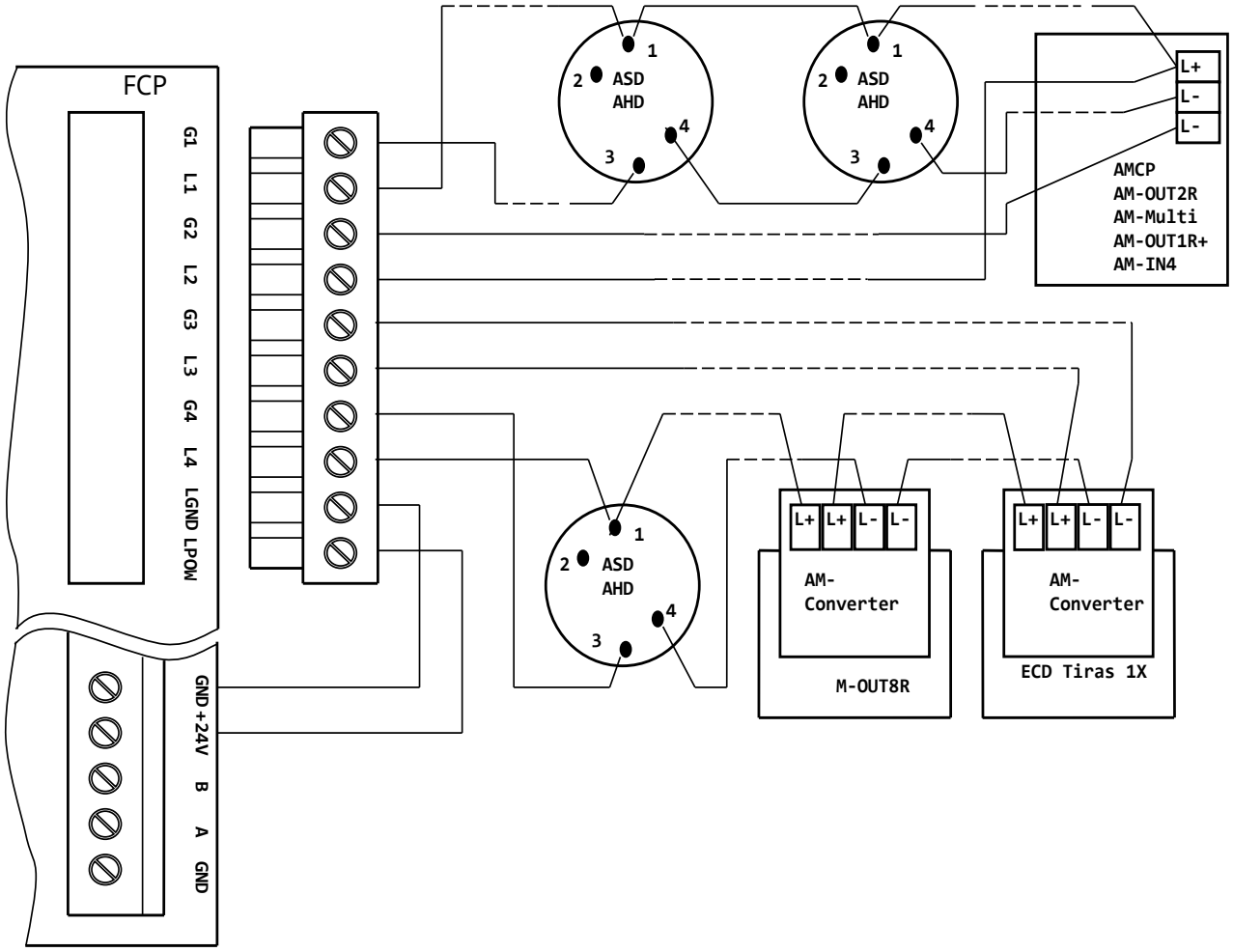
If the capacity calculated according to 3b) and 4b) exceeds 7 A×h, to provide a backup power supply, you should additionally use external PSU with a nominal output voltage of 24 V (for example, PS2415 manufactured by Tiras-12 LLC). Since such PSU provides a nominal output voltage of 24 V and is designed to install two 12 V batteries, 7 A×h in it. You should calculate the number of battery pairs and, accordingly, additional PSU to be used in AFAS

.

Appendix B

(reference)

Examples of connecting devices to the FCP terminals



Notes.

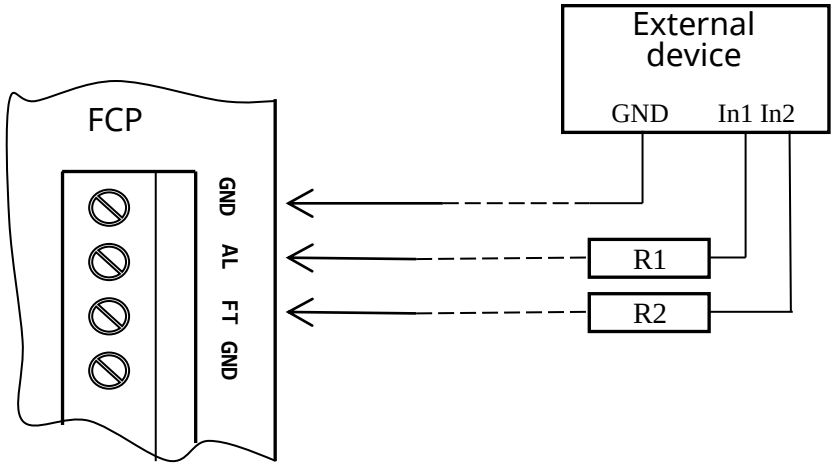
1. The connecting method for ASD and AHD to AI should be in accordance with their operating documents.

2. The connecting method for AMCP, AM-OUT1R+ AM-OUT2R, AM-Multi, AM-Multi+, AM-IN4 to AI should be the same.

3. The figure shows the power supply option of both AI from the power output of MCU peripherals. Instead of this output, it is allowed to use an external PSU with an output voltage from 21 to 30 V.

4. AI wires and AI power supply are mounted in a separate removable terminal block supplied with the FCP.

Figure B.1 - Example of connecting AI with addressable components to the FCP

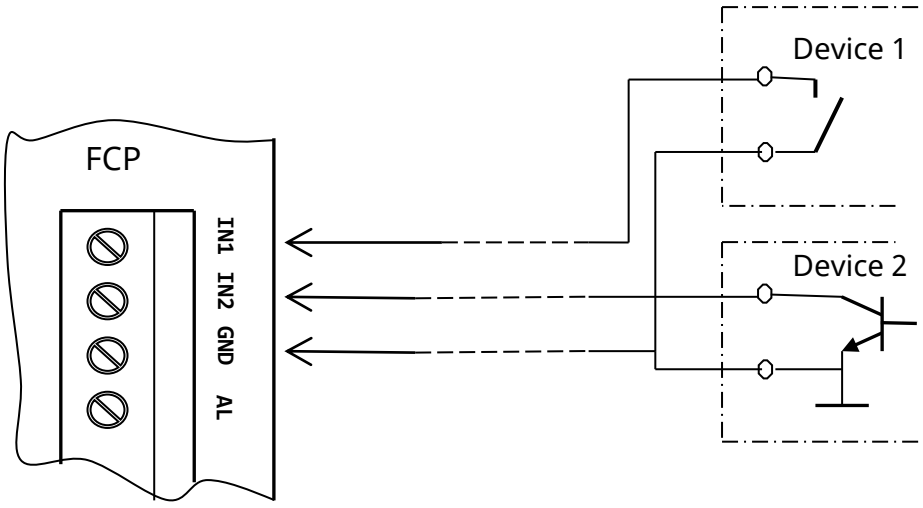


Notes.

1. R1, R2 – load on outputs. Equivalent load resistances are determined by the current required to operate the loads. Recommended values of resistance are provided in Table 5.1. If the AL and FT inputs are set to “No controlled”, loads R1, R2 are not used.

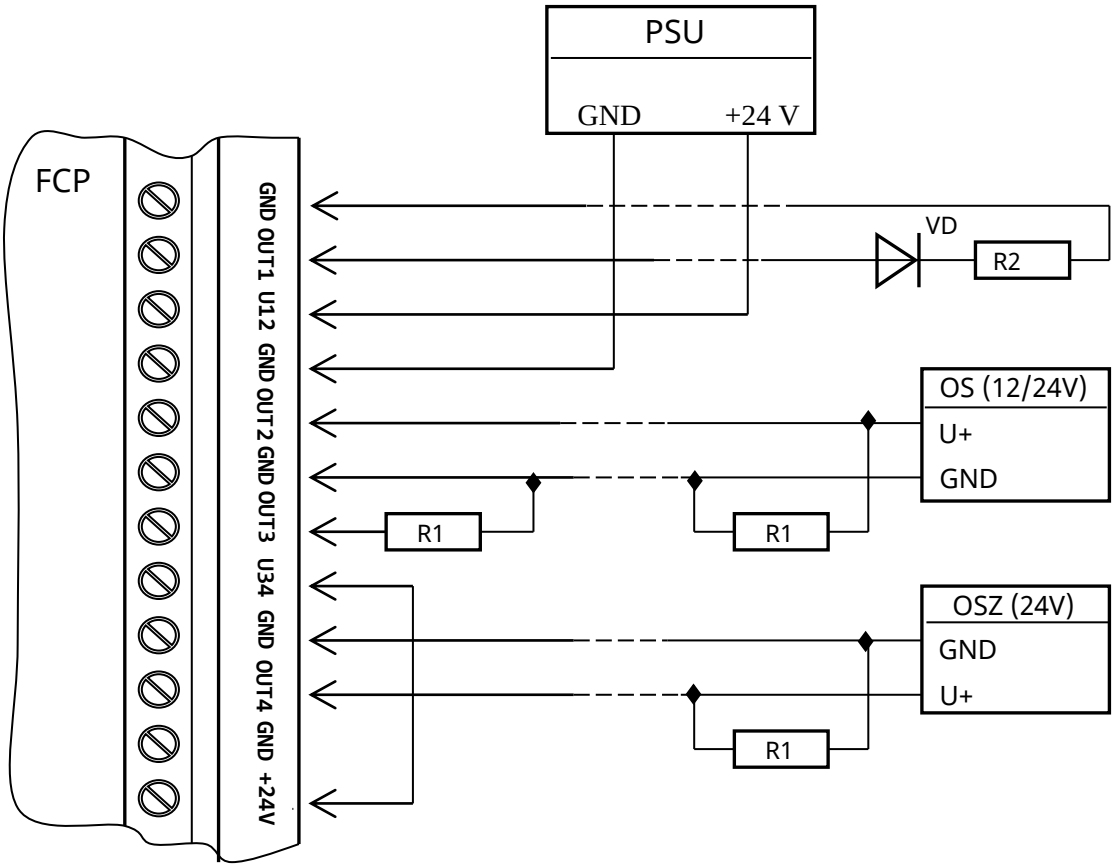
2. In1, In2 – inputs of an external device (e.g., external communicator).

Figure B.2 – Example of connecting loads to the outputs AL (Alarm), FT (Fault)



Note - The names Device 1, Device 2 are shown conditionally. Inputs IN1, IN2 are the same. For example, the inputs IN1 and IN2 can be connected to the outputs of PS2415, respectively, FT and T220.

Figure B.3 – Example of connecting signal sources to inputs IN1, IN2



Notes.

1. R1 – resistors installed at the end of the line. Recommended values of resistances of resistors are provided in Table 5.1;

2. R2 – low-resistance load;

3. VD – additional diode.

4. The output OUT3 in the figure is not used.

Figure B.4 – Example of connecting devices to the OUT1-OUT4 outputs (reference)

Appendix C

(reference)

Message codes sent to FARS in the Contact-ID protocol

Table C.1 – Message codes

Description	Event code
Fire alarm/fire alarm restored	1110/3110
Verification/verification restored Fault/fault in zone restored	1118/3118 1373/3373
Disable/enable zone	1571/3571
Alert output disabled/enabled Fault/fault alert restored	1520/3520 1320/3320
Reset Change FCP settings	1305 1306
No 230V network/230V network restored Battery fault/Battery recovery	1301/3301 1311/3311
Low battery capacity Battery is disconnected (discharged)	1309 1308
Charger fault/Charger restored	1309/3309
Communicator is off/on Communicator fault/Communicator recovery	1354/3354 1350/3350
Triggering universal input Universal input is normal	1140 3140
Universal input open circuit Universal input short circuit	1141 1142
Triggering the power control input Tamper failure/Tamper recovery (on devices)	1140 1341/3341
Test message AL output fault/AL output restored FT output fault/FT output restored AL output fault/AL output restored	1602 1323/3323 1324/3324 1523/3523
FT output fault/FT output restored External device power fault/External device power restored	1524/3524 1337/3337

Appendix D

(reference)

Message on faults

Table D.1 – Messages on faults in FCP

Message on fault	Possible reason
AI short circuit Lx: AI Lx-Lu	Short circuit of the AI line between the FCP terminals and the nearest addressable component
Isolator triggering	In the addressable component with the S/N given in the message, the SCI has triggered due to a short circuit in the AI
GND Open: AI Lx-Ly	Lost contact in the terminal of one of the addressable components in the GND AI line or triggering the SCI in the addressable components around the short circuit
Line open: AI Lx-Ly	Open circuit on the positive wire in the AI line due to lost contact in the terminal of one of the addressable components or line open between the components
Lost connection: S/N	Communication with the addressable component with the given S/N is lost due to a open in the terminals, or a fault in the addressable component, or a short circuit in the AI
Output fault: Alert output x	Open circuit in the line to a siren, no power supply on the alert output, fault of the output voltage sensor in the FCP.
Output fault: Alarm output	Open or short circuit of the line to the load connected to the AL terminal of the FCP or no terminal resistor in this line
Output fault: Fault output	Open or short circuit on the line to the load connected to the FT terminal of FCP.
Output fault: output OUT, Module type, S/N	AM-Multi, AM-Multi+ modules: Open circuit for siren connections, no power supply on the OUT output at the 24V terminal, fault of the output voltage sensor.
Low voltage AI: AI Lx – Ly	Failure of the AI current generator in the FCP. If there are such messages on both AI, the AI to FCP voltage converter is broken or there is no AI supply voltage on the LPOW terminal on the FCP Shirt circuit of M-Loop module loop
Input short circuit: S/N	Short circuit of the parametric input AM-Multi with the given S/N
Input open: S/N	Open circuit of the parametric input AM-Multi with the given S/N
Input fault: S/N	Short or open circuit of AM-Multi+, AM-OUT1R+, AM-IN4 inputs
No battery: Tiras PRIME A	No battery is connected, open terminal or wire the battery
Thermal sensor fault: S/N	Faulty thermistor or its circuit in the AFAS with the given S/N

Smoke chamber dust: S/N	Smoke chamber in the ASD with the given S/N is dusted or incorrectly assembled
Loss of communication with M-GSM	Communication line between the FCP and the M-GSM module is faulty
No M-GSM	M-GSM module is missing or faulty
M-GSM power supply is not normal	M-GSM module power supply fault
Lost communication with FARS	Fault of M-GSM or communication line with FARS (absent/low signal of GSM network, inconsistency of remote settings on FARS and FCP, fault on the part of FARS – see p.10.9.3)
Violation of FARS cryptographic protection	There is another object card on the FARS with the same object number as that on the FCP, or the hidden numbers in the FCP and the corresponding object card on the FARS do not match
No SIM card	The programmed SIM card is missing from the M-GSM module slot or is defective
Expansion line fault	In case if several FCPs are connected by a loop link: A FCP with Line Control function enabled does not accept one of its Ethernet ports for a control packet sent to another port.
Fault on expansion interface ETH-R (or L)	No data packet exchange with the adjacent FCP connected to the corresponding port

D.1 Fault messages from the ECD, M-OUT8R module or addressable components should contain the identifier and the name of the ECD, M-OUT8R module or addressable component, the name of the monitored circuit, and the time of fault detection.

D.2 If there are several messages on faults of inputs or outputs of ECD on the screen of the FCP touch screen of the FCP at the same time there are messages on faults of reference voltage among them, that means the corresponding ECD module is faulty and has to be sent for repair.

D.3 The form and content of any fault report may be changed by the FCP developer.

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