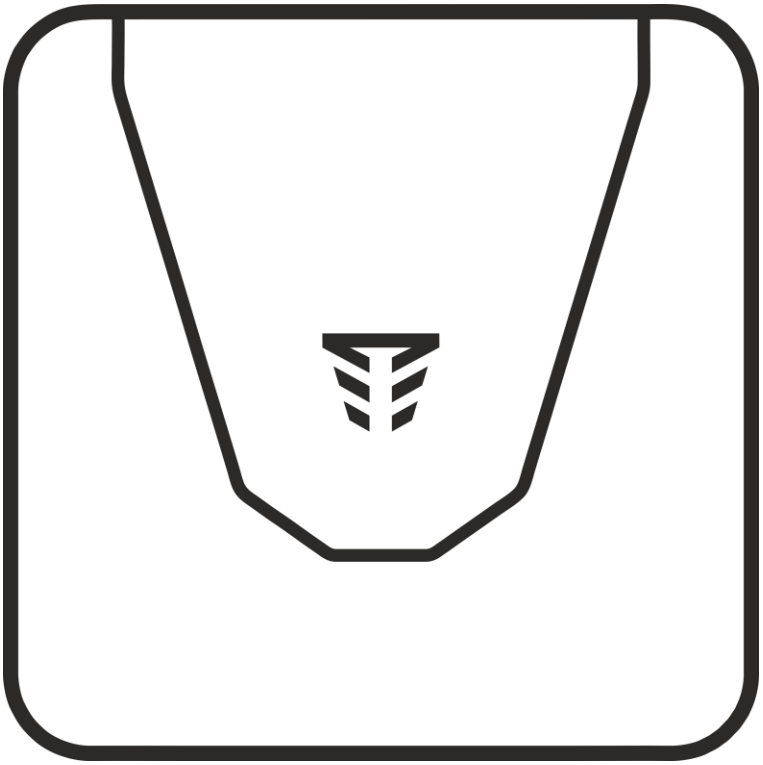
FIRE ALARM SYSTEMS

TIRAS



Input/output device AM-IN4

Passport AAZCh. 425532.015 PS

1O206

EN 54

DSTU ISO 9001:2015

Serial number:

Firmware version:

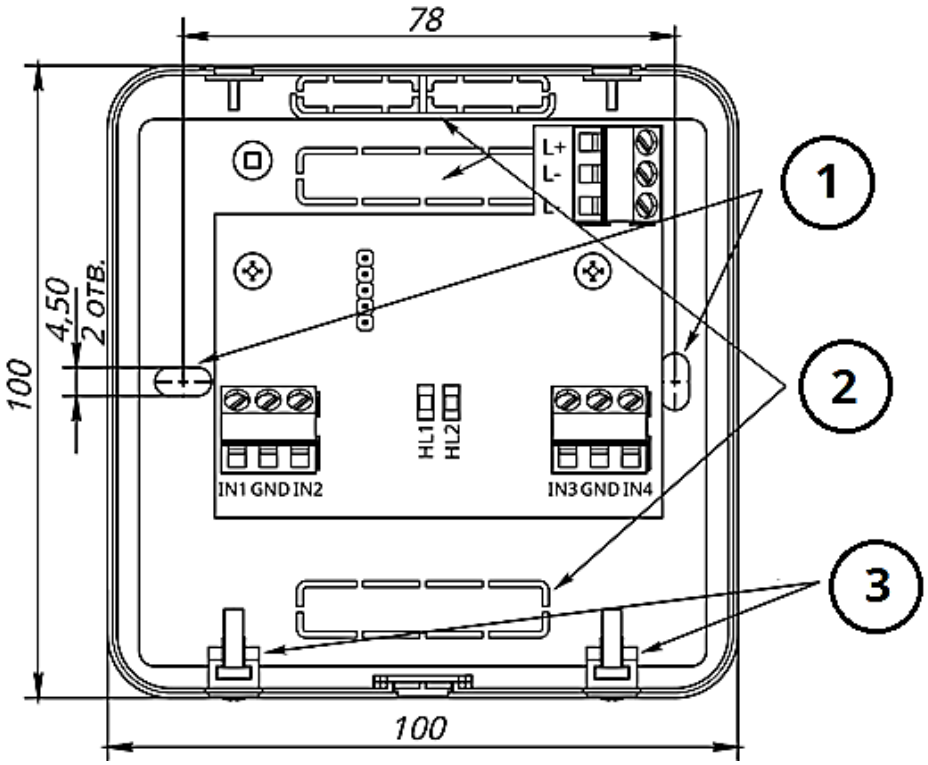
This passport contains information on the design, operation and operation rules of the I/O device AM-IN4 (further - the device), which is used as part of addressable fire alarm system, based on the fire alarm control panel Tiras PRIME A. The device meets the requirements of DSTU EN54-17, DSTU EN54-18 standards.

1 LIST OF ABBREVIATIONS

PSU – power supply unit;
SCI - short circuit isolator;
FCP – Fire control panel "Tiras PRIME A";
AFAS - addressable fire alarm system;
AI - addressable interface;
NC - (normally closed) normally closed;
NO - (normally open) normally open.

2 PURPOSE

The device is designed to increase the number of inputs AFAS. The device is produced in a plastic housing. The appearance of the device with the cover removed is shown in Fig.1.



1. Holes for mounting on the wall.
2. Holes for cable entry.
3. Screws for fixing of a cover of the case.

Figure 1 - Appearance of the device with the cover removed

3 Technical features

3.1 The list of terminals and their functions is given in table. 1. Their location is shown in Fig.1.

Table 1

Terminal name	Functional characteristic
L+	The Input for the connection of a positive AI wire.
L-	The input for the connection of a negative AI wire. There are two terminals separated by SCI.
GND	Common input with circuit ground potential.
IN1 - IN4	Universal parametric inputs

3.2 Technical characteristics of the device are given in table 2.

Table 2

Characteristic name	Value
General	
Dimensions WxHxD, mm, not more than	100×100×30
Weight, kg, not more than	0,1
Enclosure protection degree	IP30
Meantime to failure, hours, not less	40 000
Average lifetime, years, not less	10
Time to detect faults, s, not more than	10
Power supply	
Supply voltage through AI, V	20 – 25
Current consumption from AI, standby mode/input activation mode, mA, not more than	0,35/0,60
Current consumption from AI, standby mode/input fault mode, mA, not more than	0,35/0,65
Parametric inputs IN1 - IN4	
Line resistance in the short circuit state, kOhm	0 – 1,5
Line resistance in the activation state (low level), kOhm	1,6 – 24,9
Line resistance in the standby mode, kOm	25 – 35
Line resistance in the activation state (high level), kOhm	35,1 - 60
Line resistance in the open circuit state, kOhm	60,1 – ∞
SCI	
Maximum SCI opening voltage, V	15,0
Minimum SCI restoring voltage, V	4,2
Maximum current through SCI in the closed state, mA	65
Maximum SCI opening current, mA	75
Maximum leakage current through SCI (in the open state), mA	4,2
Maximum transient resistance of SCI in the closed state, Ohm	0,09

3.3 LED indicators located on the board are used to indicate the operating modes and status of the device. The purposes of the indicators are as follows: (Fig. 1):

1) HL1 (green):

- blinking 1 time in 4 s - standby mode indication;
- blinking with an interval of 0.5 s (for not more than 4 s) - indication of the device registering process in the AI.

2) alternating blinking indicators HL1, HL2 - the device is marked for visual search in the zone.

4 CONNECTIONS

4.1 To access the terminals of the device, unscrew the 2 screws on the underside of the housing (Fig. 1) and remove the cover. Connect the device to the AI and actuators according to Figure 2

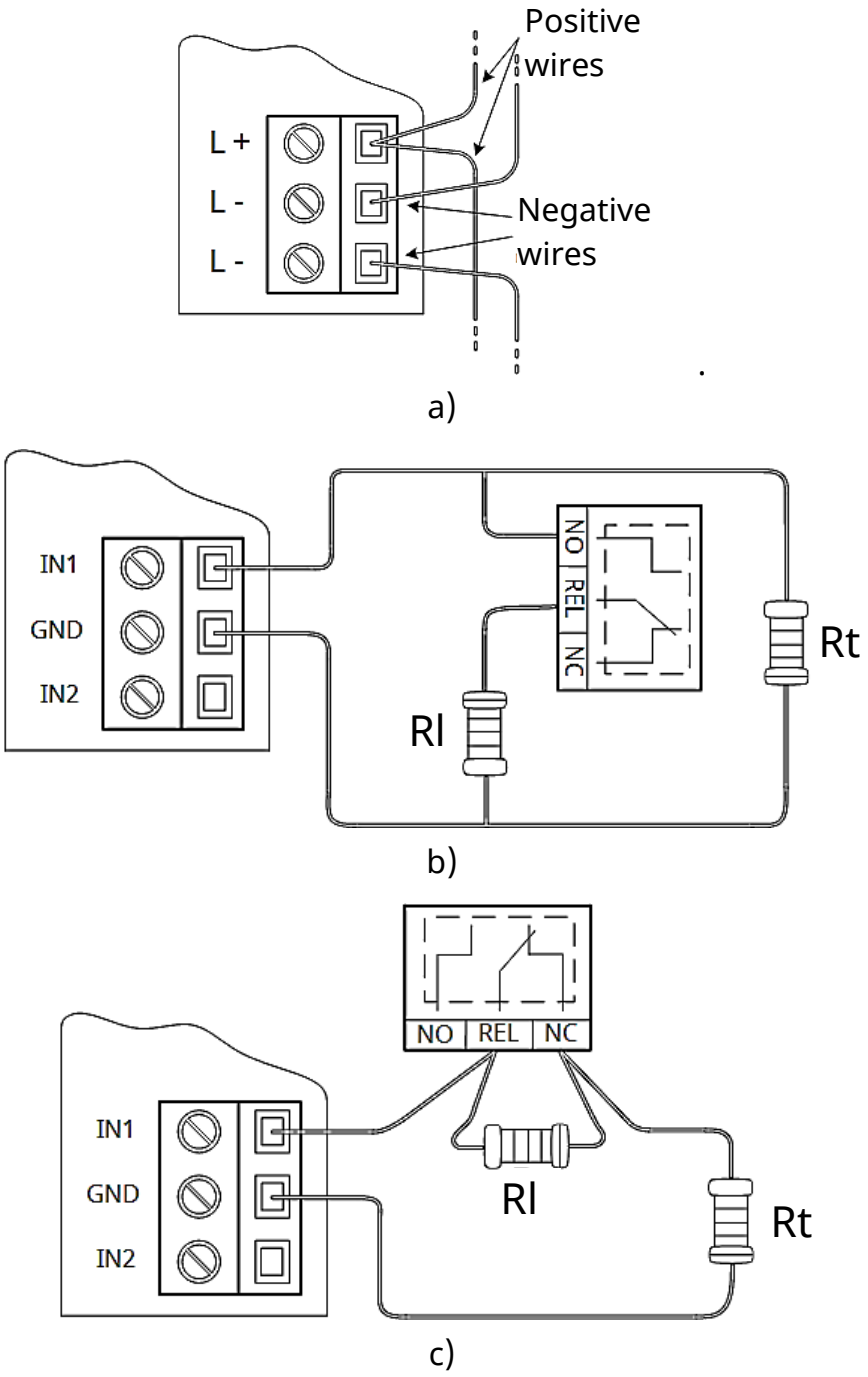


Figure 2 - Schemes of connections of external circuits to the device terminals.

Figure 2 shows:

a) the scheme of the address line connections:

- Positive wires of AI - wires connected to terminals L1-L4;
- Negative wires of AI - wires connected to terminals G1-G4.

b) connection diagram of the activation device (relay with NO contact) in parallel with the terminal resistor Rt.

c) connection diagram of the activation device (relay with NC contact) in series with the terminal resistor Rt.

The connection of inputs IN2 - IN4 is similar to the connection of input IN1.

The activation device is shown as a relay for example.

Also, it is possible to use the button as the activation device, when the resistance of the line provided according to table 2.

The value of the terminal resistor (Rt) shall satisfy the conditions of formation of the standby mode in accordance with table 2.

The value of the additional resistor (Rl) must satisfy the conditions of formation of the active mode (table 2) when the relay (button) triggered.

Notes.

1. When choosing the values of resistances Rt and Rl, you should take into account the total resistance of the line when the relay is activated, this value should not be equal to Rd - the resistance of the indeterminate state of the line. Rd is 100 ohms between the ranges of inputs modes.
2. Switching the device to activation warning mode is only possible from the standby mode. In the event of a fault (line short circuit or line open circuit), the device can be restored when returning to the standby mode.

4.2 Wires inside the housing should be laid in such way that they do not interfere with closing the cover and do not fall between the indicators and the window in the housing cover.

4.3 Wires can only be connected to the terminals of the device when there is no voltage from external power supplies.

5 SETTINGS

5.1 When the supply voltage appears in the AI on the connected device, the automatic registration indication (3.3) is switched on. Then the device goes into a mode that depends on the inputs settings and the state of external devices connected to it (Fig. 2).

The inputs of the device are set according to the FCP operation manual.

5.2 By default, the outputs of the device are set to "Not used".

6 PACKAGING

6.1 After unpacking the device it is necessary:

- visually inspect the device and make sure there is no mechanical damage on it;
- check the delivery set according to table 3.

Table 3

Name	***Code***	***Quantity, pcs***
Device AM-IN4	AAZCh.425532.015	1
Passport	AAZCh.425532.015 PS	1
Resistor 0,5W – 30 kΩ ± 1%		4*
Resistor 0.5 W – 10 kΩ ± 1%		4**
Notes: * - Rt for IN1-IN4; ** - Rl for IN1-IN4.		

7 OPERATION, STORAGE, AND TRANSPORTATION CONDITIONS

The device is intended for continuous 24h operation in the premises under regulated climatic conditions. Operating temperature range: from - 10˚C to +55˚C, at relative humidity 93%.

Packaged devices are stored in warehouses under the following conditions: air temperature

from - 50˚C to +55˚C, relative humidity should not exceed 98% at a temperature of 35˚C. There should be no aggressive impurities in the air causing corrosion in the premises where the devices are stored.

Packaged devices are transported by low-tonnage shipments at any distance by road and rail in closed vehicles in accordance with the rules of transportation applicable to each type of transport. When placing and securing boxes with packed devices during transportation, ensure a stable position of the boxes to prevent shifting and bumps between them. During loading and transportation, the requirements of handling signs on the packaging should be met.

8 INFORMATION ON DECLARATIONS OF CONFORMITY TO TECHNICAL REGULATIONS AND CERTIFICATES

This device meets the requirements of following mandatory technical regulations:

- Technical regulations on electromagnetic compatibility of equipment;
- Technical regulations on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Certificate of compliance with the requirements of DSTU EN 54 series standards issued by the State Certification Center of the SES of Ukraine.

The Quality Management System of Tiras-12 LTD is certified in accordance with DSTU ISO 9001: 2015.

The full text of declarations of compliance with technical regulations and certificates are available on the website https://tiras.technlogy.

9 ACCEPTANCE CERTIFICATES

The device meets the requirements of regulatory and technical documents and is recognized as suitable for operation. Evidence of acceptance is a sticker on the passport. The date of acceptance coincides with the date of manufacture.

10 WARRANTIES AND REPAIRS

"Tiras-12" LTD (further - the manufacturer) guarantees compliance of the device with the requirements of current regulatory and technical documents during the warranty period under the conditions of transportation, operation and storage.

The warranty period is 36 months and starts at the date of sales specified in the operation documents for the device or in other accompanying documents (sales contract, invoice, bill, etc.). If you cannot provide a document confirming the date of sale of the device, the warranty period starts from the date when the device was produced.

_____ _____

(date of sale) (seller's signature) Stamp

The device is repaired by the manufacturer. This device is repaired for free, in case the warranty period is not expired, it was operation in accordance with this passport.

The device is sent for repair, together with a letter, which should include: the description of the malfunction, the place of operation and the contact phone of the person in charge of repair.

11 LIMITATIONS OF LIABILITY

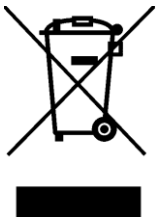
The manufacturer reserves the right to refuse warranty service of the device in controversial circumstances. The manufacturer also has the right to make a final decision on whether the device is to be serviced under the guarantee.

Actions and damages that result in loss of warranty service:

1) damage caused by natural phenomena (fire, flood, wind, earthquake, lightning, etc.);
2) damage caused by a violation of the installation rules or the provision of improper conditions for the operation of the device, including:
   - faulty grounding;
   - over-voltage;
   - high humidity and vibration;
3) damage caused by foreign objects entering the device, liquids, insects and others;
4) mechanical damage to components of the device (chips, dents, cracks, broken contact terminals, etc.);
5) damage resulting from unauthorized repair;
6) damage caused by violation of the rules of transportation, storage and operation;
7) changing, removing, rubbing or damaging the serial number of the device (or labels with serial numbers on the device).

12 DISPOSAL

After the expiry of the service life of the device its utilization is carried out in accordance with the current legislation, separate from household waste.



In accordance with the EU Directive 2012/19/EU on waste electrical and electronic equipment, the disposal of device should be done separately from household waste. To dispose of the device, it should be delivered to a point of sale or a local processing point.

Edited on 09.09.2022

TIRAS

tiras.technology

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