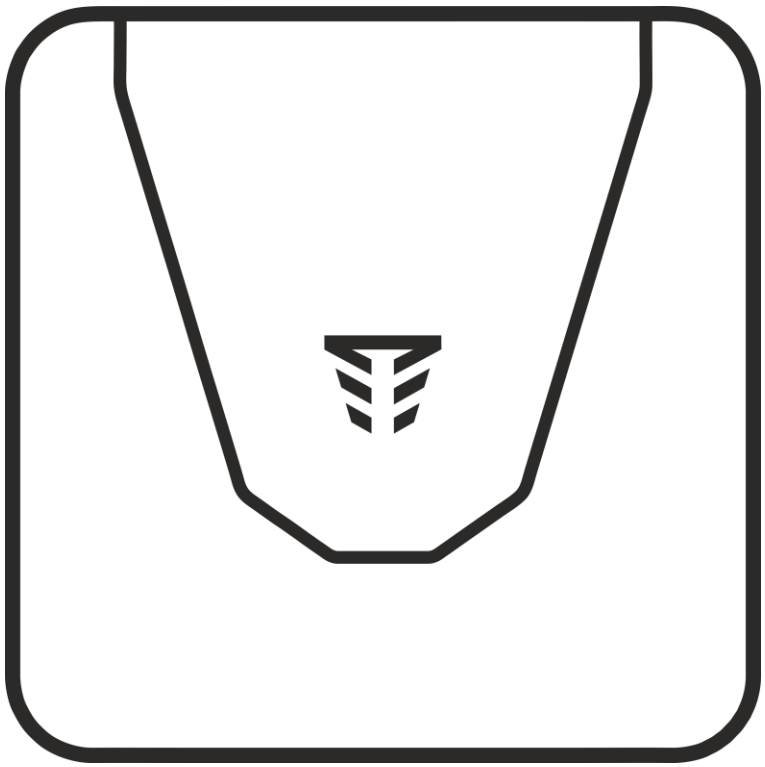
FIRE ALARM SYSTEMS

TIRAS



Input/output device AM-MULTI+

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 addressable I/O device with built-in power supply equipment and short-circuit isolator AM-Multi+ (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 standards DSTU EN54-2, DSTU EN54-4, DSTU EN54-17, DSTU EN54-18.

Detailed information on the installation, configuration and operation of the device as part of the addressable system is given in the operation manual for the device.

1 LIST OF ABBREVIATIONS

PSU - power supply unit;
FCP – Fire Control Panel "Tiras PRIME A";
AFAS- addressable fire alarm system;
AI - addressable interface;
Battery - rechargeable battery;
SCI - short circuit isolator.

2 PURPOSE AND GENERAL INFORMATION

2.1 Purpose

The device is available in a plastic case and is designed for:
- increasing the number of the AFAS inputs and outputs;
- increasing the number of the AFAS outputs;
- increasing the number of the AFAS relay outputs;
- increase in the number of AI in AFAS.

2.2 General information

1) 5 universal parametric inputs (IN);
2) 2 controlled alert outputs (OUT);
3) 2 power outputs "+ 24V" (with protection);
4) backup power – 12V battery with a capacity of 7 A·h;
5) smart charger with battery quality control;
6) switching power supply 12V/2A;
7) connection of additional modules (up to 2):
   - M-OUT2R (two additional relay outputs);
   - M-LOOP (additional AI).

3 TECHNICAL FEATURES

Technical features of the device are shown in table 1.

Table 1

Name	Value
General	
Dimensions WxHxD, mm	280x280x85
Weight without battery, kg, not more than	1,6
Enclosure protection class	IP30
Average operating time per failure, h, not less than	40 000
Average service life, years, not less than	10
Fault detection time, s, not more than	10

End of Table 1.

Power supply	
Main power supply, voltage (V), frequency (Hz)	187-242, 50±1
Backup power supply (battery), voltage (V) / capacity (A·h)	12/7
Battery charging current, mA, not more than	500
Permissible internal resistance of the battery and its connection circuit, Rimax, Ohm, not more than	1,0
Output voltage of the integrated PSU, V	10,5-15,5
Current consumption from the integrated PSU in all modes, Imin[1], mA, not less than	20
Long-term current consumption from the integrated PSU with the maximum loadings, Imax_a[2], not more than	2,3
Long-term load current of outputs "+ 24V" (for everyone), mA, not more than	400
Self-resetting fuse on outputs "+ 24V" (for everyone), mA.	500
Supply voltage through AI, V	20 – 25
Current consumption from AI (standby mode/ fault mode), mA, not more than	0,25/0,35
SCI	
Opening voltage, V, not more than	15,0
Restoring voltage SCI, V, not less than	4,2
Current through SCI in the closed state, mA, no more than	65
SCI opening current, mA, no more than	75
Leakage current through SCI (in the open state), mA, not more than	4,2
The transient resistance of the SCI in the closed state, Ohm, not more than	0,09
Parametric inputs IN1 – IN5	
Line resistance in the short circuit state, kOhm	<1,6
Line resistance in the activation state (low level), kOhm	1,6 – 8,5
Line resistance in the standby mode, kOm	8,6 – 12
Line resistance in the activation state (high level), kOhm	12,1 – 20
Line resistance in the open circuit state, kOhm	>20
Outputs OUT1 and OUT2	
Output supply voltage OUT, V	21,0 – 29,7
Switching current, mA, not more than	800
Line resistance in standby mode, kOhm	1 – 19
Line resistance in the short circuit state, kOhm	0 – 0,9
Line resistance in the open circuit state, kOhm	20 – ∞
REL1 and REL2 outputs of the M-OUT2R module	
Current consumption, mA, no more than	
Switching voltage (V) / current (A): - direct current - alternating current	 30/5 42/10

4 CONNECTIONS

Detailed information and examples of device connection diagrams are given in the device operation manual.

4.1 Safety requirements

Make all connections when the supply voltage of the device is switched off.

When installing and operating the device, service personnel should be guided by the "Rules of technical operation of electrical installations of consumers" and "Rules of safety in the operation of electrical installations of consumers."

Installation, removal and maintenance of the device should be carried out by personnel who have a qualification group in electrical safety not lower than III. Fire safety rules should be observed when carrying out work.

Warning. Installation of the device should be performed only by qualified personnel.

4.2 Connection of terminals

The location of the device terminals is shown in Fig.1.

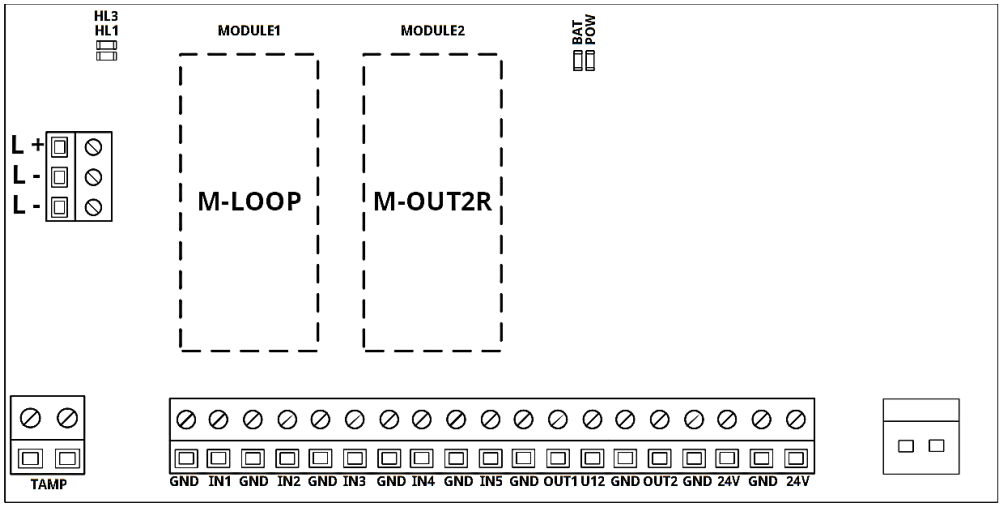


Figure 1 – Appearance of the device board and connection terminals

The list of terminals and their functions is given in table 2.

Table 2 - Description of connection terminals.

Terminal name	Functional characteristic
Address interface connection	
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.
Connect inputs and outputs of the device	
IN1 – IN5	Universal parametric inputs (controlled parameter - resistance of the connected line, see table 1).
GND	Common input with circuit ground potential.
OUT1- OUT2	Alert outputs (transistor outputs).
U12	Power input alert outputs.
24V	Power outputs of external devices 24V.
Tamp	Housing tamper connection input.
Sockets	
Module1	Optional module installation socket #1.
Module2	Optional module installation socket #2.

4.3 Connecting of IN inputs

The device has 5 universal parametric inputs IN (controlled parameter – resistance of the connected line, see table 1) for connection of activation devices. The activation device is shown as a relay for example (Fig. 2).

It is possible to use the button as the activation device, when the resistance of the line provided according to table 2 (Table 1).

IN inputs are not intended to connect non-addressable (conventional) detectors.

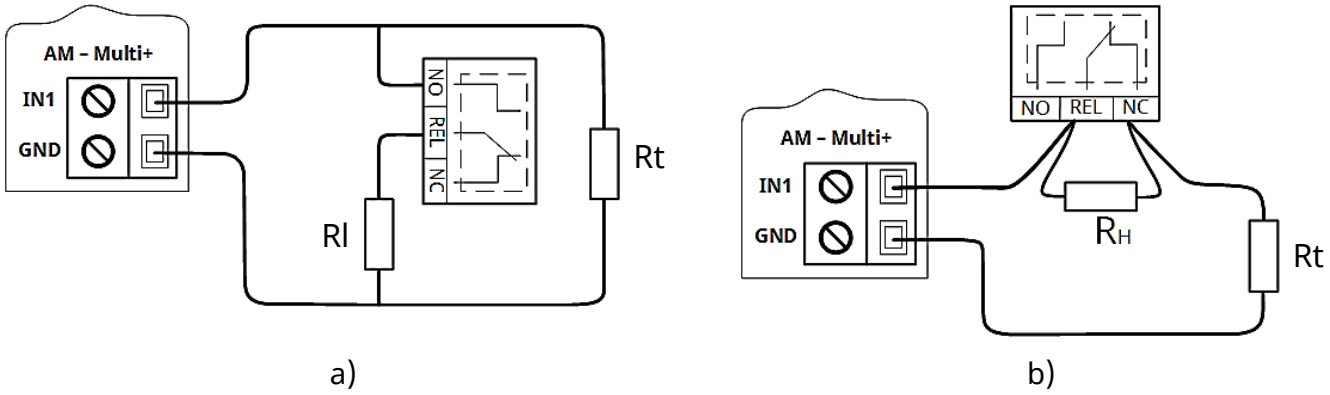


Figure 2 - Connecting of IN inputs:
a) Wiring diagram of the relay with NO contact in parallel with the terminal resistor Rt.
b) The connection diagram of the relay with NC contact in series with the terminal resistor Rt.

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 triggers, this value should not be equal to Rd - the resistance of the indeterminate state of the line.

2 Switching the device to the activation warning mode is possible only from the standby mode, in case of malfunction (short circuit or open circuit), restoring of the device is possible when returning to the standby mode.

4.4 Connecting an alert ("OUT1", "OUT2")

The device contains 2 alert connection outputs. Connection of sirens is shown in fig. 3. When powering the sirens from the device's output - it is necessary to install a jumper between the input U12 and output + 24V. If the current consumption of the sirens exceeds the load capacity of the output + 24V of the device, it is necessary to use a separate power supply. At the end of the alert line, a terminal resistor of 10 kOhm, 0.5 W is installed.

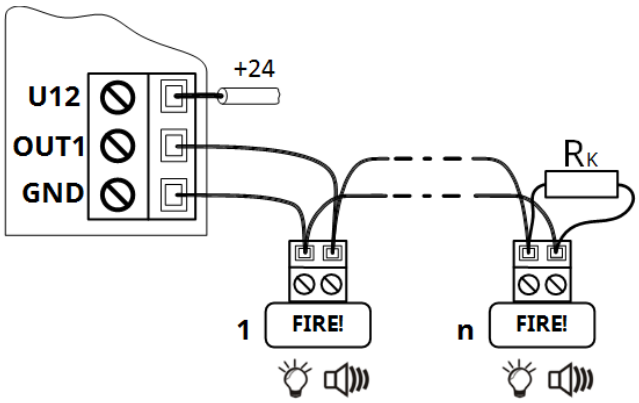


Figure 3 - Diagram of connecting of the alert outputs

5 INDICATION ON THE BOARD

LED indicators located on the board are used to indicate the operating modes and status of the device. Assignment of indicators:

1) HL1 (green):

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

2) HL3 (red):

- double flashing - indication of the fault status;

3) BAT (green):

- blinking 4 times in a row - battery capacity 80-100%;

- blinking 3 times in a row - battery capacity 60-80%;
- blinking 2 times in a row - battery capacity 40-60%;
- blinking 1 time - battery capacity 20-40%;
- lighting - battery life is depleted;
- not lighting - capacity measurement was not performed.

4) POW (green):
- lighting - at least one of the power sources is working.

Note. Alternate flashing indicators HL1, HL3 - the device is marked for visual search in the zone.

6 PACKAGING

After unpacking the device, you need to:
- inspect the case from the outside and make sure there is no mechanical damage;
- check the completeness according to table 3.

Table 3 - Completeness of the device

Name	***Designation***	***Quantity, pcs.***	***Notes***
The device AM-MULTI+	AAZCh.425532.015	1	
Passport	AAZCh.425532.015 PS	1	
Resistor 10 kOhm±1%		7	
Resistor 6,8 kOhm ±1%		5	Rt for IN1- IN5
False plate	AAZCh.713341.009	1	
Terminal block for cable 2EDGK-2.0-10-14		1	
Battery	7A·h, 12V **	1	by separate order

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 restricting of the use of certain hazardous substances in electrical and electronic equipment.
- Technical regulations of low-voltage electrical 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 operating 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

Producer:
Tiras-12 LTD
21021, Ukraine, Vinnytsia, 2nd Lane, Khmelnytske shosse, 8

In case you have any questions, please contact:

Sales department: market@tiras.ua

Technical support: support@tiras.ua

Warranty and post-warranty service: otk@tiras.ua

Telephones (multichannel):
+38 (067) 564-73-75
+38 (095) 282-76-90