

ZAO PO SPETSAVTOMATIKA



ОП014



Version V4



**INDEPENDENT AUTOMATIC  
ALARM-RELEASE DEVICE  
FOR FIRE FIGHTING SYSTEMS**

**USPAA-1**

**TECHNICAL DATA SHEET  
DAE 100.249.000-02 PS**

Biysk 2008

## 1 GENERAL INFORMATION ABOUT DEVICE

1.1 Independent automatic alarm-release device for fire fighting systems USPAA-1 (hereafter referred to as Device) is designed for protection of objects (offices, apartments, commercial structures, warehouses, garages and so on), where people may attend, against fires and for generating sound-and-light alarm and control signals for fire fighting systems control according to requirements of the Fire Code NPB 88-2001.

1.2 The Device monitors the temperature and low-frequency vibrational spectra of infrared radiation, that are characteristic for open flame, conducts recurrent comparison of obtained data with pre-set patterns, indicating normal state of the protected area and typical fire scenarios and classifies the fire stage depending on matched data: "Normal", "Fire", "Start", "Emergency".

1.3 The Device is designed for combined use with fire fighting modules like Tungus dry chemical fire fighting system.

1.4 The Device is manufactured as Climatic Version U3.1 according to GOST 15150-69, but for use at ambient temperature range of -40 to +50°C. The device is resistant to ambient temperatures of -50 to +75°C.

## 2 MAIN TECHNICAL DATA AND CHARACTERISTICS

2.1 Power supply: three built-in AA 1.5 V batteries. Stand-by time after installation with one (Energizer, GP or Duracell) battery set: not less than 2 years.

2.2 Consumed power: maximum consumed current in Stand-by mode: 200 uA; maximum consumed power: 1 mW. Maximum consumed current in "Control", "Attention", "Fire" modes (except for "Start" mode): 5 mA. Maximum consumed power: 25 mW.

2.3 The Device has selective sensitivity of Class A against test fire points TP1, TP4-TP6 according to GOST R 50898-96. Actuation time: not more than 20 seconds.

2.4 Maximum permissible background luminance (at no modulations of 0.5-20 Hz): 15,000 lux for diffuse solar radiation; 500 lux for incandescent lamps; 2,500 lux for luminescent lamps.

2.5 Maximum coverage angle: 120°. Detection range for 0,1m<sup>2</sup> test fire source TP1, TP4-TP6 according to GOST R50898-96: not less than 6 m.

2.6 Maximum coverage area of one device in confined room: according to Table 1.

Table 1

Installation Height, m	Protected Area, m <sup>2</sup>	Circle Area Radius, m
1	9,4	1,73
2	37,7	3,46
3	84,7	5,19
4	150,7	6,92
5	235,6	8,66
6	339,8	10,4

2.7 Frequency range of the signalling device is 0.8 - 5.0 KHz.

2.8 Noise pressure of the signalling device: not less than 60 dB within 1 meter.

2.9 The Device is designed for use with electrical ignitor with rated resistance 1.5 - 16 Ohm.

2.10 When generating the "Start" command the Device provides the following characteristics:

- maximum current of the start circuit at the load of 1.0-5.1 Ohm not less than 1 A;
- maximum current of the start circuit at the load of 1.5-5.1 Ohm not less than 0.5 A;
- maximum current of the start circuit at the load of 1.5-16 Ohm within 100 ms not less than 0.2 A;
- pulse energy at load not less than 50 mj within 10 ms.

2.11 Maximum current in electrical ignitor circuit in "Control" mode is not more than 0.5 mA, within not more than 0.5 ms.

2.12 The Device is resistant to sinusoidal vibrations with frequency of 10 - 150 Hz and acceleration of 0.5 g.

2.13 The Device corresponds to Class III according to GOST 12.2.007.0-75.

2.14 The Device is intended for multiple use and is suitable for recovery, repair and maintenance.

2.15 The Device is resistant to electromagnetic interference of not lower than 4th hardness degree according to GOST R 50009-2000.

2.16 Average service life of the Device: minimum 10 years.

2.17 Weight: not more than 0.2 kg.

### **3 DELIVERY SET**

3.1 Delivery set consists of the following:

- USPAA-1 Device, Version 4 (DAE 100.249.000-02) - 1 pc;
- DAE 100.249.000-02 PS Technical Data Sheet - 1 pc;

### **4 DESCRIPTION OF THE DEVICE AND PRINCIPLE OF OPERATION**

4.1 The Device consists of electronic control unit, top cover, base with mounting bracket. On the circuit board of the electronic control unit there are: "Control" button, "Normal/Alarm" LED indicator, sound radiator, heat sensor and optical sensor, start circuit connector, "ON/OFF" switch. Inside the base of the Device there is a battery compartment for three AA batteries.

4.2 After switching on the power of the Device it indicates the type of multiple unit start according to the section 4.5. The Device performs automatically self test in Stand-by mode in no fire situation with the interval of about 2 minutes. The single light-signal "Normal" is generated, if the Device functions properly. In case of the fault the "Emergency" sound-and-light signal is generated with short intervals. The check of the battery, temperature sensor and start circuit is performed by pressing the "Control" button. One of the following single tone signals is generated depending on their status:

- one signal - the Device functions properly ("Normal");
- two signals - Battery fault ("Emergency");
- three signals - Temperature sensor fault ("Emergency");
- four signals - circuit of the ignition cartridge is broken ("Emergency").

4.3 In case of temperature change detection within the protected area, that are characteristic for fire development, the device activates optical control channel, determines low-frequency spectra of infrared radiation and compares the obtained data with pre-saved patterns. The Device determines the fire hazard level depending on correlation level of the data ("Normal", "Fire", "Start"). In case of fire detection within the protected area (e.g. if the temperature within the protected area is above maximum normal level (50°C) and have reached 62°C or the fire with open flame has arisen in the room) the device generates the "Fire" signal (intermittent sound and intermittent light signal) and then the "Start" signal after 5 second delay (or after 30 second delay if mini-jumper is installed).

4.4 The "Start" command is generated to switch on the electrical ignitors by means of start current transfer to the output terminals.

**Warning!** If the start of fire-fighting modules shall be stopped, switch off the power by pressing the "ON/OFF" power switch or disconnect the start circuit from the fire-fighting modules.

4.5 For combined start of modules group the Device provides two modes of operation depending on type of the group start mode: global group start with simultaneous start of all modules and local group start with start of the selected modules, which Devices detected first signs of fire and are in "Warning" mode. The pre-set type of the mode is indicated by the Device by means of modulated sound-and-light signal:

- single signal - global start mode;
- double signal - local start mode.

To switch on the programmed type of global start switch off the power of the Device, then press the "Control" button and switch on the power by holding the "Control" button for 3-4 seconds until the sound-and-light signal of pre-set mode will be switched off. The type of the group start is selected by pressing of the "Control" button. The group modes are switched on alternately. The mode of the Device will be changed automatically after switching off the power after 1-2 minutes or immediately after switching off and switching on the power of the Device. To check the pre-set mode switch off and then switch on the power of the Device.

## 5 SAFETY MEASURES

5.1 The Device shall be installed only by the qualified personnel of specialized companies after careful reading of the present Technical Data Sheet.

5.2 Take safety measures against contact electricity before connection of start circuits.

## 6 MOUNTING AND INSTALLATION

6.1 The Device shall be installed according to Fire Code 88-2001 and RD 78.145-93.

6.2 The Device shall be installed according to sections 2.4-2.6 in such a manner that no infrared radiation in the range of 0.7-1.3 mm modulated by frequencies of 0.5-20 Hz with exposure time of more than 4 seconds could reach the optical channel (such as radiation from incandescent lamps, rotating or swinging parts of lighting equipment, sun glints or mirror flare spots and so on).

6.3 Perform the following steps to install the Device: set the power switch to "OFF" position; remove the top cover of the Device and install three AA batteries into the battery compartment with proper polarity orientation; connect the start circuit to X1.3 and X1.4 terminals; slide the top cover onto the heat sensor with care (in such a way, that the sensor could project from the housing) and secure it with a screw; secure ball hinged bracket on its mounting place on the MPP Tungus with screws; slide in the base grove onto the projecting rectangle part of the hinged bracket; orient the sensor field of view by means of changing the position of the housing and match to the maximum possible extent the monitored area with protected area of the MPP Tungus.

6.4 It is recommended to connect the Device to the starting circuits of the electrical ignitors with copper lead cable (the maximum size of the lead is up to 1.5 mm<sup>2</sup>) according to requirements of the operating manual of the fire fighting module.

6.5 Connect terminals XI.1 and XI.2 of all devices (up to 50 devices) by means of parallel control circuit. Select the group start mode according to the section 4.5.

6.6 After installation of the Device switch on the power. After 2 seconds perform the check of the batteries, heat sensor and start circuit continuity of the MPP Tungus by pressing the "Control" button.

## **7 FUNCTIONAL TEST**

7.1 Disconnect the start circuit from fire-fighting modules and the group control circuit.

7.2 Set the power switch of the Device to "ON" position.

7.3 Connect the 0.15-0.3 watt electrical ignitor (e.g. NZZ-41) or its equivalent such as 3-6 V miget lamp to the start circuit of the Device.

7.4 Press the "Control" button. Check the battery and start circuit function by means of the response sound-and-light signal of the Device.

7.5 Put the Device directed with its optical channel window to the 100-150 watt incandescent lamp at a distance of 5-10 cm and change the position of both devices by swinging the Device (or the lamp) with frequency of 2-10 Hz.

7.6 In no more than 20 seconds the Device shall switch to "Fire" mode (and intermittent sound-and-light signal shall be generated), then in 5 seconds (or 30 seconds, if the mini jumper XP1 is installed) the Device shall generate the "Start" command. Control the output function for start circuit connection by means of the pulse light of the equivalent.

## **8 TRANSPORTATION AND STORAGE**

Transportation and storage conditions of devices in transportation packing shall comply with storage conditions 5 according to GOST 15150-69.

8.2 The Devices in original packing are suitable for transportation by all kinds of enclosed transport (railway cars, enclosed trucks, containers, sealed plane cargo compartments, cargo holds and so on). If the goods are transported by means of open transport means, transportation boxes shall be covered with waterproofing materials (such as tent-cloth).

**9 MANUFACTURER WARRANTY**

9.1 Guaranteed service life of the Device is 30 months since the date of its commissioning, if the customer observes specified storage, transportation, installation and operation conditions. Warranty time doesn't include storage time of the Device in the warehouse, if it doesn't exceed 6 months since the date of its dispatch.

9.2 The manufacturer warranty doesn't cover the batteries.

**10 TYPICAL FAULTS AND RECTIFICATION METHODS**

10.1 Typical faults and rectification methods are shown in Table 2.

Table 2

<b>Fault</b>	<b>Possible Cause</b>	<b>Rectification Method</b>
No sound-and-light signal when the "Control" button is pressed	Batteries fault	Check batteries
The "Emergency" signal is generated, when the "Control" button is pressed	The electrical ignitor circuit is broken	Restore the circuit of the electrical ignitor

**11 MAINTENANCE**

11.1 Only qualified personnel is allowed to perform activities connected with maintenance of the Device after thorough study of the present Technical Data Sheet according to maintenance schedule stipulated in Appendix V of the RD 009-01-96 ("Standard maintenance schedule No. 3 for fire fighting systems").

11.2 Check the batteries according to the section 4.2 during maintenance procedures and replace them if necessary according to the section 6.3.

11.3 To replace the batteries switch off the power of the Device; remove the holding screw securing the top cover; remove the top cover with care by pushing it from the side of the holding screw; remove used batteries and install the new batteries with proper polarity; then assemble the Device in reverse order according to the section 6.3.

**12 WARRANTY CLAIMS**

In case of incorrect functioning or fault of the Detector during warranty period and need to return the product to the manufacturer the customer shall issue the Reclamation Report. All claims are registered and described in short in Table 3

Table 3

<b>Claim Date</b>	<b>Description</b>	<b>Measures</b>

**13 CERTIFICATE OF PACKING**

The USPAA-1 Device is packed according to requirements of technical specifications TU 4371-032-00226827-99.

Packed by \_\_\_\_\_  
Signature Name Day, Month, Year

**14 ACCEPTANCE CERTIFICATE**

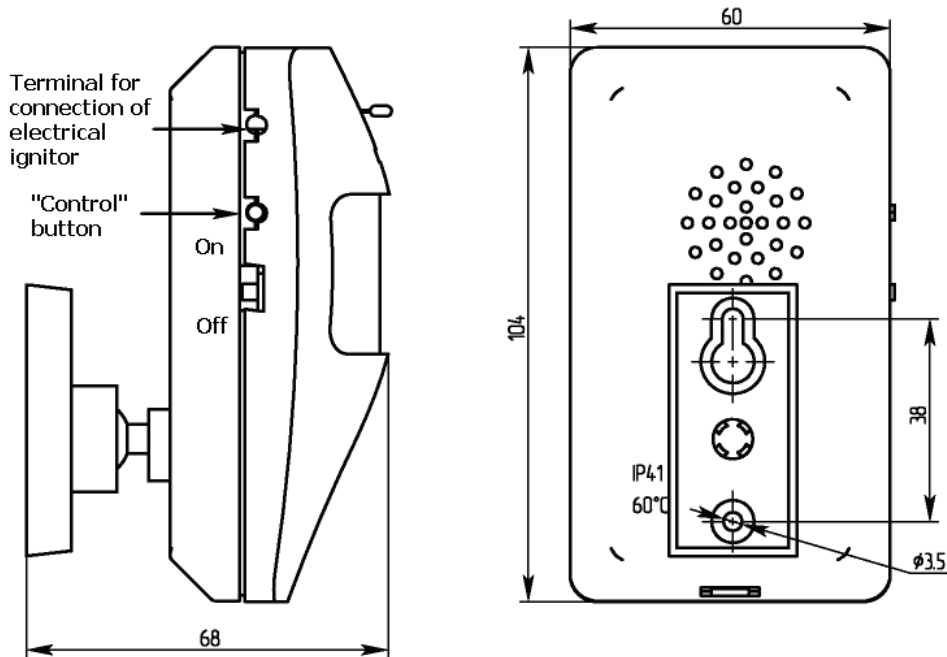
USPAA-1 device ID No V4 \_\_\_\_\_  
Version ID no.

conforms to the requirements of technical specifications TU 4371-032-00226827-99 and is found out as suitable for use.

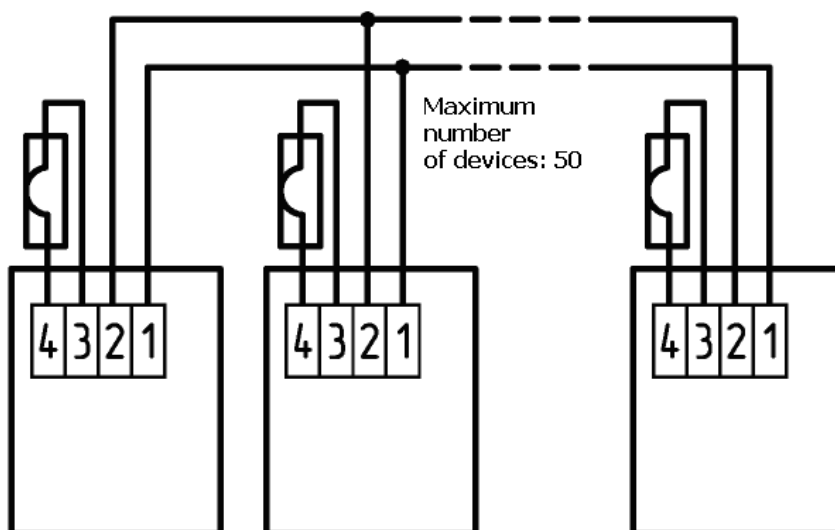
Quality Control Dept. \_\_\_\_\_  
Signature or Quality Control Dept. seal Day, Month, Year

**APPENDIX A**

Product Layout, Overall and Installation Dimensions



Group Mode Switching on Circuit Diagram



Independent automatic alarm-release device USPAA-1 for fire fighting systems conforms to the requirements of Technical Specifications TU 4371-032-00226827-99.

The product quality is certified by the following certificates:

Fire Safety Certificate No. SSPB.RU.OP 014.B.01471, valid until April 21st, 2012.

Certificate of Compliance No. ROSS RU.AYa04.N01396, valid until April 21st, 2012.

Quality Management System Certificate for compliance with requirements of GOST R ISO 9001-2001 (ISO 9001-2000).

**MANUFACTURER'S ADDRESS**

ZAO PO Spetsavtomatika

10, Lesnaya str., Biysk, Altayskiy Kray, 659316 Russia.

**CONTACT DETAILS:**

Sales Dpt.: +7 3854 449042;

Customer Support: +7 3854 449114;

**FAX:** +7 3854 449070.

**E-mail:** [info@sauto.biysk.ru](mailto:info@sauto.biysk.ru)

**http://www.sauto.biysk.ru** **Made in Russia**