"Kalancha" Ltd

ISO 9001:2015

Powder Fire Extinguishing Module

"BiZone"

MPP(N)-8-KD-1-BSG-U2

Technical Data Sheet
PC 4854-007-18215408-2003

Certificate of conformity № C-RU.ПБ04.В02191
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Sergiev Posad

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1. Introduction

1.1. This technical data sheet applies to **"BiZone"** powder fire extinguishing module and establishes the rules for its use, installation and operation.
The technical data sheet contains the description of the module and its technical specifications, which are guaranteed by the manufacturer.
1.2. The maintenance and operation of the module should also be guided by "Regulations on the industrial safety of hazardous production facilities that use excessively pressurized equipment".

2. The Application

2.1. The **"BiZone"** powder fire extinguishing module (hereinafter referred to as the module) is targeted at total flooding extinguishing of fire **classes: A** (combustion of solids), **B** (combustion of liquids**), C** (combustion of gaseous substances) and energized electrical equipment**.**
The module provides total flooding extinguishing of fire classes A, B, C and energized electrical equipment in the enclosures of the volume of:

$V = 60\ M^3$ for Class B fires,
$V = 90\ M^3$ for Class A fires.

The module provides extinguishing of classes A and B fires and fire area of maximum range 34B on the area of up to 17 m^2 with the nozzle is 0.7-1 m from the floor level of the protected enclosure not longer than 6 m.
The powder supply from the module can be carried out by piping of not more than 12m length with the maximum possible number of
90-^{degree} turns equal to 3.
The piping must be made of the steel water pipes 20 × 2.8 gost 3262-75 and comply with the requirements of **СП 5.13130.2009**
(Claims 9.2.10, 9.2.11).
2.2. TThe module is not designed to extinguish the burning substances that can be incinerated without air access and to extinguish metals, alloys and organometallic compounds.
2.3. The module is the primary element for the construction of automatic powder fire extinguishing systems.

3. Technical Specifications

3.1. The main technical specifications of the module are shown in table 1
.

Table 1.

Parameter name	Parameter value	Note
1. Protected volume, m^3 class B class A Protected area, m^2 classes A and B	 60 90 17	
2. The maximum rank of fire area class B	34B	
3. Capacity of the shell, L	8±0.2	

Table 2 continuation

Parameter name	Parameter value	Note
4. Amount of powder "Phoenix ABC-70" Specs (TU) 2149-005-18215408-00, kg	7.6±0.2	
5. Total weight of the module, kg, not over	36.5	
6. Mass of used working gas: Carbon dioxide Gost 8050-85 not over, kg	3.47	Mixture of carbon dioxide and drained air (nitrogen)
7. Range of operating temperatures, ^{0}C	From-50 ^{0}C to + 50 ^{0}C	
8. Working pressure in tanks with powder, MPa	1.6	
9. Duration of powder discharge, s, not over	15	
10. Response time, s, not over	1	
11. Mass of powder residue after actuation of the module,%, not over	15	
12. Parameters of the constant electrical current required to trigger the module (cartridge actuated device): electric current, A electrical resistance, Ω	7PP683 UP-3M: 2 / 0.1-0.26; 0.5 / 1.5-4.5	Cartridge actuated device 7PP683, installed by order only
Safe current circuit control, A	0.05 0.005	within 5 minutes no time limit
14. Dimensions, mm: width height length	205±2 750±5 305±2	
15. Coefficient of non-uniformity of spraying extinguishing agent C_1	1.0	
16. Storage coefficient taking into account the shading of the fire source C_2	1.0	

Note. The extinguishing capacity is experimentally defined in a conditionally sealed enclosure with a floor sizes 5.32 m × 3.47 m, at the height of the ceiling of 3.25 m.
The fire source 34V is installed on the floor in the center of the enclosure.
The extinguishing capacity of the area is experimentally defined in a cell with a floor 5.32 × 3.85 m at the height of the 3.25 m ceiling when the door is open (opening area 2.0 m^2).

4. Delivery package

4.1. The module's delivery package is shown in table 2.

Table 2.

Symbol	Name	Quan-tity	Note
MPP(N)-8-KD-1-BSG-U2	Module (with special cabinet for use)	1	
	Packing	1	

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Note. The deliverysupply of pipes for the supply of extinguishing powder, the SPTA kit, is done separately in agreement with the consumer.

5. Construction and principle of operation

5.1. The module (Figure 2) consists of Cabinet 1, which includes: tank with extinguishing powder 2, gas cylinder 3, connected by piping 4. The tank with extinguishing powder is equipped with nozzle spray 5 and the gas cylinder is equipped with a closure-trigger system 10.

A closure-trigger system is activated by a cartridge actuated device or an electrical outlet that is connected to the electric circuit launch unit. The tank with the powder is fitted with a membrane node and a safety valve 8.

5.2. When a fire occurs, the signal from the serial control device is received by the cartridge actuated device or the electric actuated device located on the closure-trigger system of gas cylinder. After the cartridge actuated device is fired, the membrane is reopened and the working gas from the cylinder enters the tank with powder.

When pressure is increased in powdered tanks, the membrane is cracked and the gaz-powder mixture enters the protected volume.

5.3. The tank with powder is fitted with a safety valve to ensure safety when the pressure in the tank increases above the working value (fig. 4).

5.4. The main mode of operation of the module is automatic when the electrical signal is fired from the fire extinguisher system installed on the object.

5.5. Self-contained fire-extinguishing installation can be created on the basis of the module if signal starting autonomous automatic device USPAA-1 (TU 4372-033-00226827-99) is used for temperature control, issuing warning light beeps and filing starting current on electrocontact unit (connection diagram, fig. 3).

Attention!

The module can only be run from the CB-3d appliance.

6. Safety measures

6.1. During operation, the tank with powder and the mixture of gases shall be contained in accordance with the requirements of **the Rostechnadzor of Russia**.

6.2. Persons over 18 years of age are allowed to operate the module if they have examined a technical data sheet and "Rules for the industrial safety of hazardous production facilities that use excessively pressurized equipment".

"Rules for construction and safe operation of vessels under pressure."

6.3. It is possible to install a module only in places that exclude the possibility of mechanical damage and the fall of direct sunlight and **at least 1.5 m** from the heating appliances.

6.4. When maintenance is carried out, the module must be disconnected from the startup system.

6.5. PROHIBITED:

1. TO DISASSEMBLE **CARTRIDGE ACTUATED DEVICE 7PP683** OR **ELECTRIC STARTING DEVICE UP-3M**
2. TO DISASSEMBLE A SAFETY VALVE.
3. TO DISASSEMBLE A MEMBRANE NODE.

7. Preparation for work. MODE OF OPERATION

7.1. General provisions.

7.1.1. The location and maintenance of the module on the facility should be carried out in accordance with the requirements of **GOST 12.4.009-83 SSVT "Fire protection equipment. Basic views, accommodations, and maintenance."**

7.1.2. The module shall be installed in accordance with the project of the fire protection system of the facility developed by the specialized organization.

7.1.3. The refilling of the gas cylinders, as well as the reinspection of the pressure receptacles, are permitted only to be made by specialized organizations.

7.2. Installation of the module.

7.2.1. Extract the module from the package. Remove the seal and open the cabinet. Check the integrity of the seals on the tanks with the powder and the safety valve on the electrical launch circuit connectors.

7.2.2. ATTENTION! CHECK FOR SAFETY CHECKS ON THE CLOSURE-TRIGGER SYSTEM.

7.2.3. Install the module on the wall of the protected enclosure.

7.2.4. By weakening nut 7 (Figure 2) on the nozzle 5 pipe, set (rotate) the nozzle in the arrow-indicated direction and fix the nut 7.

7.2.5. Remove the seal from the electrical start circuit and attach the electrical start system to them. Check the cable circuits.

ATTENTION!
THE TEST IS TO PRODUCE A DEVICE THAT PROVIDES A CHAIN OF NO MORE THAN 0.05 A, FOR A MAXIMUM OF 5 MIN.
RESISTANCE OF SQUIB 7PP683 IS 0.1-0.26 OHM. THE RESISTANCE OF THE ELECTRIC START DEVICE UP-3M IS 1.5-4.5 OM.

7.2.6. Remove the Safety check (9 of Figure 2). Close the closet and seal.

7.3. Mode of operation.

7.3.1. The main mode of operation of the module is as part of an automatic fire protection system.

ATTENTION!
WHEN THE MODULE IS RUNNING, THE JET LENGTH OF THE POWDER MIXTURE IS UP TO 5-6 M.

8. Maintenance of the module

8.1. General instructions.

8.1.1. The following maintenance services are provided for maintenance of the module in operation **(TO):**

TO-1 - once a week - check for seals in the module's closet;

TO-2 - once every two years - determination of the quantity of gas in the cylinder by weighing the module and compare its mass with the mass indicated on the label. It is permissible to weigh the module itself and to compare the mass with the mass indicated in the data sheet (Section 12).

TO-3 - once every two years - inspection of the quality of the electrical launch system

TO-4 - the inspection of the carbon dioxide cylinder according to the requirements of the **Rostechnadzor**.

The frequency of the quality check of the powder – once every 10 years.

TO-2, TO-3, TO-4 must be carried out by a specialized organization.

8.2. Check for seals in the closet visually.
8.3. The quantity of gas is defined as the difference between the mass of the refilled cylinder and the mass of the empty cylinder, which is beaten on one of the trap faces or on the specified cylinder label.
The entire module is allowed to be weighted, the full mass of the module is specified in data sheet p. 12. Weighting on weights (type WT-60) with weighing limit to 60 kg.
8.4. To check the operation of the safety valve, check the valve out of the tank body with powder and check it and calibration (if necessary) according to section 11 of this passport.

9. Disposal

9.1. See appendix 1 for information about the contents of nonferrous metals and alloys in the module.
9.2. **Cartridge actuated device 7PP683 or electric starting device UP-3M** after activation should be disposed of in accordance with the requirements of the consumer.
9.3. Cartridge actuated device 7PP683 or electric starting device UP-3M, which is damaged or faileded, shall be returned to the manufacturer.
9.4. Waste disposal of extinguishing powder is carried out according to claims 4.6.1, 4.6.5, 4.6.6 SP 9.13130.2009 and instructions on **"Reclamation and regeneration of extinguishing" VNIIPO, Moscow, 1988, p. 25.**

10. REFILLING OF THE MODULE

ATTENTION!

THE MAINTENANCE OF THE MODULES, THE REFILLING OF THE GAS CYLINDER AND THE POWDERED TANK, THE ASSEMBLY AND THE DISASSEMBLY OF THE MODULE SHALL BE CARRIED OUT ONLY BY ORGANIZATIONS HAVING PERMISSION FROM THE MANUFACTURER OF THE MODULE AND A LICENSE OF EMERCOM OF RUSSIA TO THIS ACTIVITY, APPROPRIATE EQUIPMENT AND TRAINED PERSONNEL, USING THE PARTS AND EXTINGUISHING POWDER RECOMMENDED BY THE MODULE MANUFACTURER.

The addresses of the service centers of OOO "Kalancha" are listed below.

Service Centers

OOO "Vector-Service" phone/Fax + 7 (3823) 54-65-25
636018 4, 1/1, Trudovaja st., Seversk, Tomskaja oblast

TF OOO "Pozhpromkomplekt" phone/Fax + 7 (4872) 355-222
300012 4, Smidovich st., Tula

OOO PKP "Rubezh SV" phone/Fax + 7 (4872) 24-50-03
300013 47, Boldina st., Tula

OOO "Svjaz'strojkomplekt" phone/Fax + 7 (4912) 24-51-71
390000 59, Radischeva st., Ryazan
Voronezh Oblast Office "BDPO" phone/Fax + 7 (4732) 41-22-43, 41-22-39
394026 228, 45th Strelkovoj Divizii st., Voronezh

OOO "Kamchatflotservis" phone/Fax + 7 (4152) 413-009, 413-007
683000 11, Ozernovskaja st., Petropavlovsk-Kamchatskij

OOO 'Firma Rosavtomatik" phone/Fax +7(863) 277-81-78, 277-82-80
44064 68/2, Vavilova st., Rostov-on-Don

TOO "Batys-Energon" phone/Fax +7(7112) 210-661
090003 103, Abulkhairkhana prospekt, Uralsk, Republic of Kazakhstan

OOO "Prom Torg" phone/Fax +7 (8172) 21-69-59
160000 47, Mayakovskogo st., Vologda

OOO "SEVERAVTOMATIKA" phone/Fax + 7 (3462) 72-32-73
628408 12, Inzhenernaya st., Surgut, Khanty-Mansiysk Autonomous Okrug

OOO "Baltijskaya Pozharnaya Kompaniya" phone/Fax +7(812)327-97-65
+7(821)331-20-26
196084 "MEGA-Park" business center, 7, Zastavskaya st., St. Petersburg
304 Office

Tatarstan Republican VDPO Office phone +7(843)278-74-36
278-74-66
420054, 12, 2-ya Tikhoretskaya st., Kazan

OOO "Bezopasnost Zhiznedejatelnosti" phone +7(83177)6-25-43
607060, 88, Zhilkooperatsii st., Vyksa, Nizhegorodskaya oblast

Information about service centers can also be found on the site: **www.kalancha.ru**

11. Operating Instructions
Safety valve

11.1. Safety valve assign

The safety valve is designed to relieve the pressure from the tank with powder when it is elevated above the working pressure.

The safety valve is set on the cover of the tank with powder.

11.2. Construction and principle of operation

11.2.1. The safety valve design is shown in Figure 4.

11.2.2. When over working pressure in the tank with powder is reached, the rod 2 rises up, overcoming the force of spring 3, and the gas through the holes in the screw 4 goes into the atmosphere.

11.2.3. The valve calibrated to the permissible pressure in the hull must be locked by safety nut 6.

11.3. Test and calibration of valve.

11.3.1. Install the cover with the valve on the test-bench.

Bring pressure to the valve from the cavity side A.

Adjust the valve according to the stand pressure-gauge from the pressure conditions from 2.2 MPa to 2.24 MPa (from 22 kg/cm^2 to
22.4 kg/cm^2), spinning or unscrewing adjusting screw 5.

11.3.2. When the valve is adjusted correctly, depressurize the test-bench.

11.3.3. Remove the cover with the valve from the test-bench.

11.4. Safety measures.

11.4.1. The test and calibration valve shall be carried out by persons who have received special safety instruction on test-bench maintenance and valve calibration.

11.4.2. It is not permitted to turn the valve from the stand when there is pressure in it.

12. Module Charge Certificate

Powder Fire Extinguishing Module "BiZone" (MPP(N)-8-KD-1-BSG-U2)

Factory number _____ Lot No. _____
Charged with fire-extinguishing powder
"Phoenix ABC-70" Specs (TU) 2149-005-18215408-00 with changes 2 in accordance to the requirements of the technical conditions.
Startup device type
7PP683, UP-3M
(underline as necessary)
The total mass of the module _____kg.
Charge date _____

Stamp here _____
Signatures of persons responsible for filling

13. Certificate of Acceptance and Packaging

Powder Fire Extinguishing Module "BiZone" (MPP(N)-8-KD-1-BSG-U2)

Factory number _____ Lot No. _____

Meets the technical conditions TU 4854-007-18215408-2003 with the changes 3 and packed according to TU requirements.

Release date _____ representative of QCD_____

Stamp here

14. MODULE REFILLING INFORMATION

Factory number _____

Sl. No.	Date of filling	Mass gas	Mass extinguishing powder and its mark	Signature of persons Responsible for filling	Seal of refilling organization

Guarantee

The manufacturer ensures that the module meets the requirements of the technical conditions while complying with the conditions of storage, transportation,
Installation and operation.
The warranty retention period for module ισ **2 years** from the date of module's adoption by the QCD of the manufacturer.
The service life of the module is **10 years**.
The maximum number of refillings for a module is 10 times.

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Annex 1.

INFORMATION ABOUT NONFERROUS METALS AND ALLOYS CONTAINED IN THE MODULE.

Mark and/or gauge nonferrous metal or Alloy	**Mass, kg**	**Location of Parts of a module that contain nonferrous metals**
Aluminium and aluminium alloys		
AK-9 GOST1583-93	0.112	A nut on the cover of a tank with powder.
Copper and copper basis alloys		
Sheet M3 GOST 1173-2006	0.006	Siphon (washer)
Pipe L63 GOST 494-90	0.433	Siphon (tube)
Bar L63 GOST 2060-2006	0.017	Safety valve (rod)
Bar LS 59-1 GOST 2060-2006	0.027	Siphon (nut)
Ribbon Br OF-6.5-0.15 GOST 1761-2016	0.006	Siphon (membrane)

Annex 2.

Cylinder label

1. Mass of empty cylinder _____kg
2. Working pressure, kgf/cm^2 - 200
3. Test hydraulic pressure, kgf/cm^2 - 300
4. Minimum mass of filled cylinder _____kg
5. Date (month and year) of manufacturing _____kg
6. Date (year) of the next survey _____
7. Manufacturer of the cylinder _____

Annex 3

The calculation of the number of modules for extinguishing the protected volume is based on the methodology for calculating the number of modules for the powder extinguishing units in the **SP5.13130.2009**, **annex I.**

The module is installed on the wall ofprotected enclosure so that the distance from the ceiling to the nozzle is not more than 100 mm.

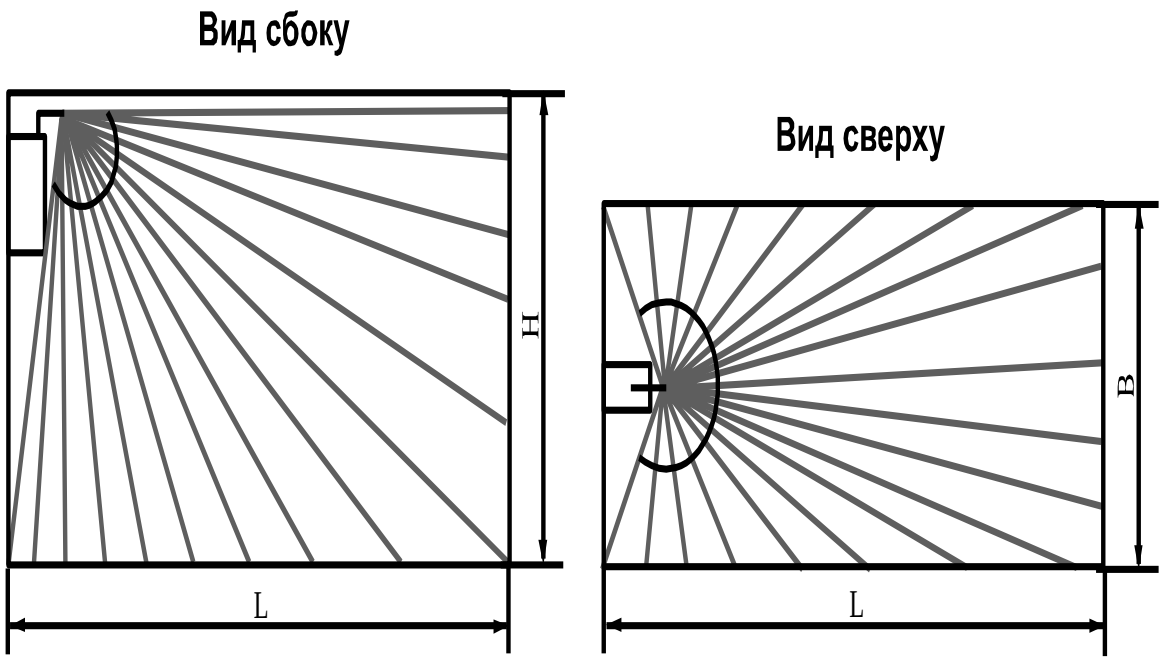
It should be kept in mind that the height of the space to be protected is higher than the maximum height of the nozzle (module), and the modules can be placed in tiers based on the spray chart.

Spray geometry

	Class A V_{max}=90m^3	Class B V_{max}=60m^3
Base geometry, m	H = 3.5; L = 7.3; B = 3.5	H = 3.5; L = 6; B = 2.8
Maximum values, m	H_{max} = 4.0; B_{max} = 5.0 In volume 90m^3	H_{max} = 4.0; B_{max} = 5.0 In volume 60m^3

Extinguishing agent spraying scheme

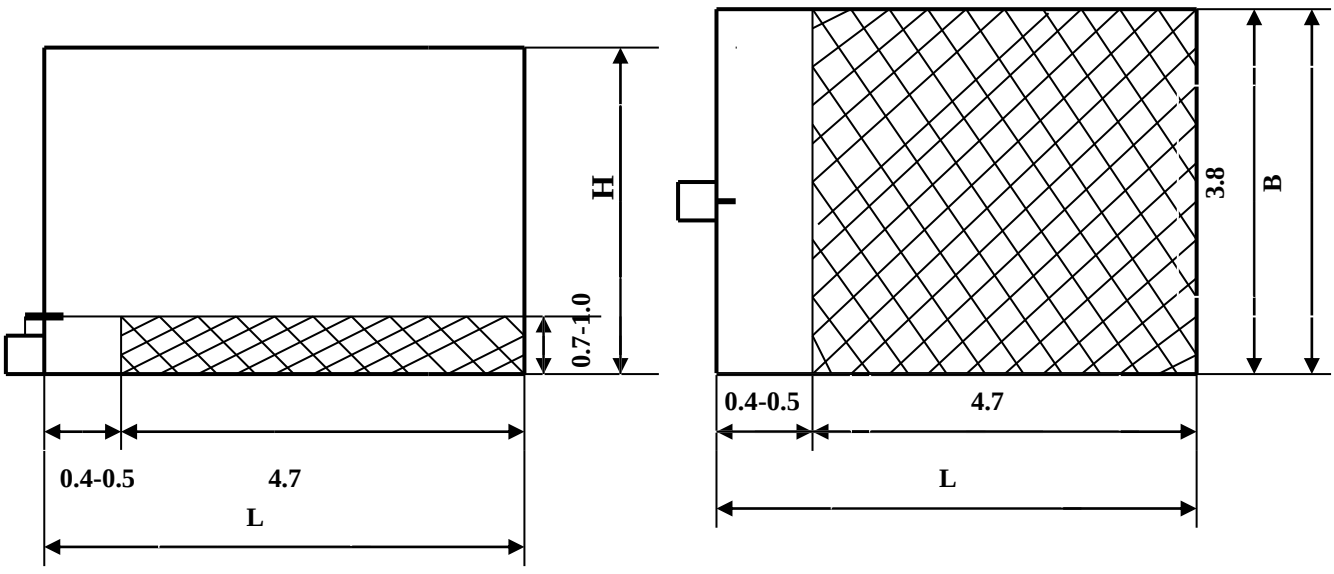
1. In case of total flooding extinguishing



In case of total flooding extinguishing, the extinguishing agent is sprayed in the front hemisphere.

$$V = B * L * H,\ 1.5\ m < H < 4,\ B: L = \text{from } 1:1 \text{ to } 1:2.2;\ L < 6m$$

2. In case of extinguishing on area



The distance from the nozzle to the perimeter of the protected area shall be 0.4-0.5 m for extinguishing on area.

Figure 1

Powder Extinguishing module structure
"BiZone"

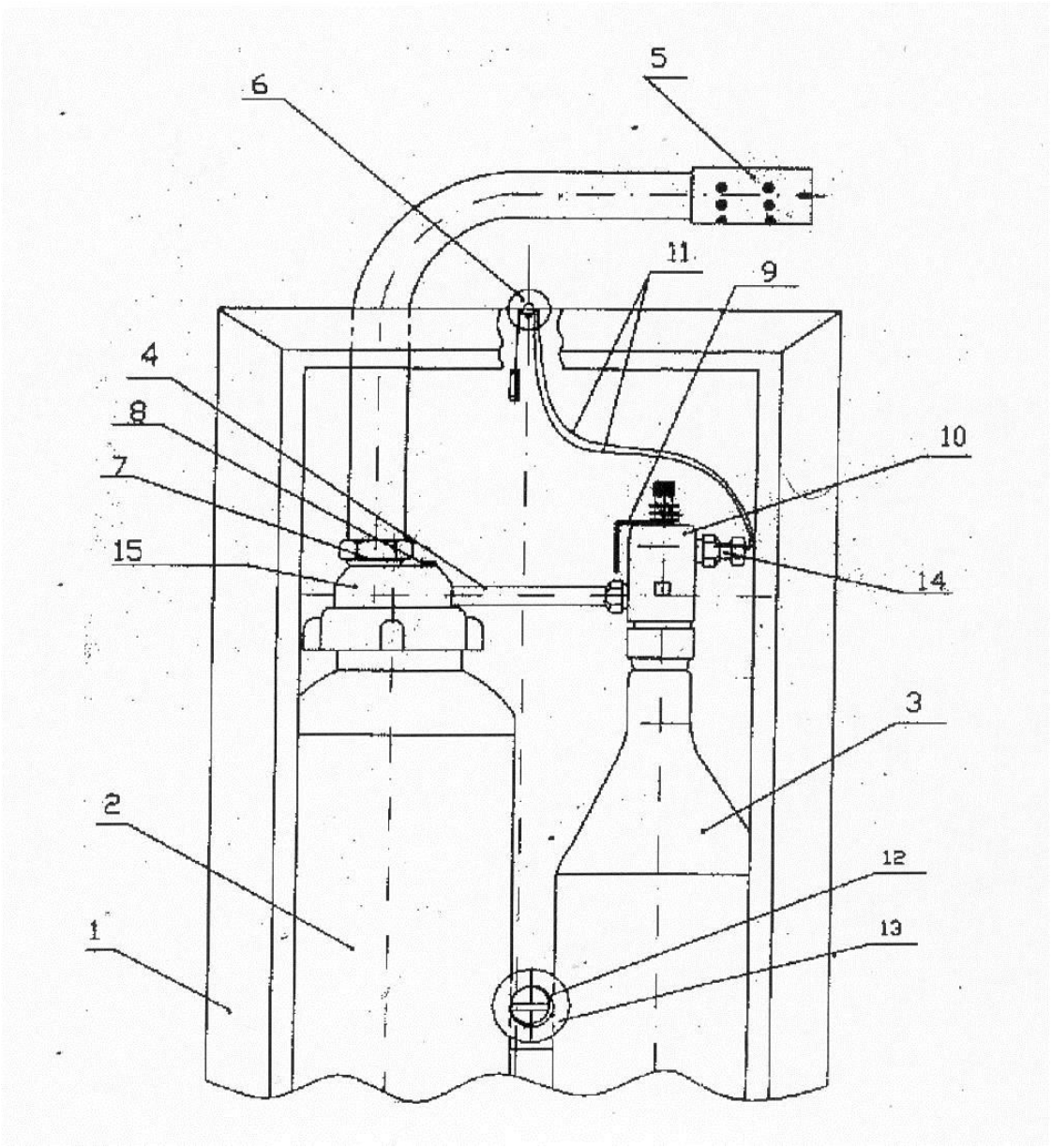


Figure 2.
1-Cabinet, 2-tank with powder, 3-gas cylinder, 4-piping, 5-nozzle, 6 wire fasteners, 7-Nut, 8-Safety valve,
9-Safety Check, 10-closure-trigger system, 11-wire Contact node, 12-pin, 13-porn washer, 14-electric-contact node, 15-powder tank cover.

Схема запуска модуля устройством сигнально-пусковым УСПАА-1

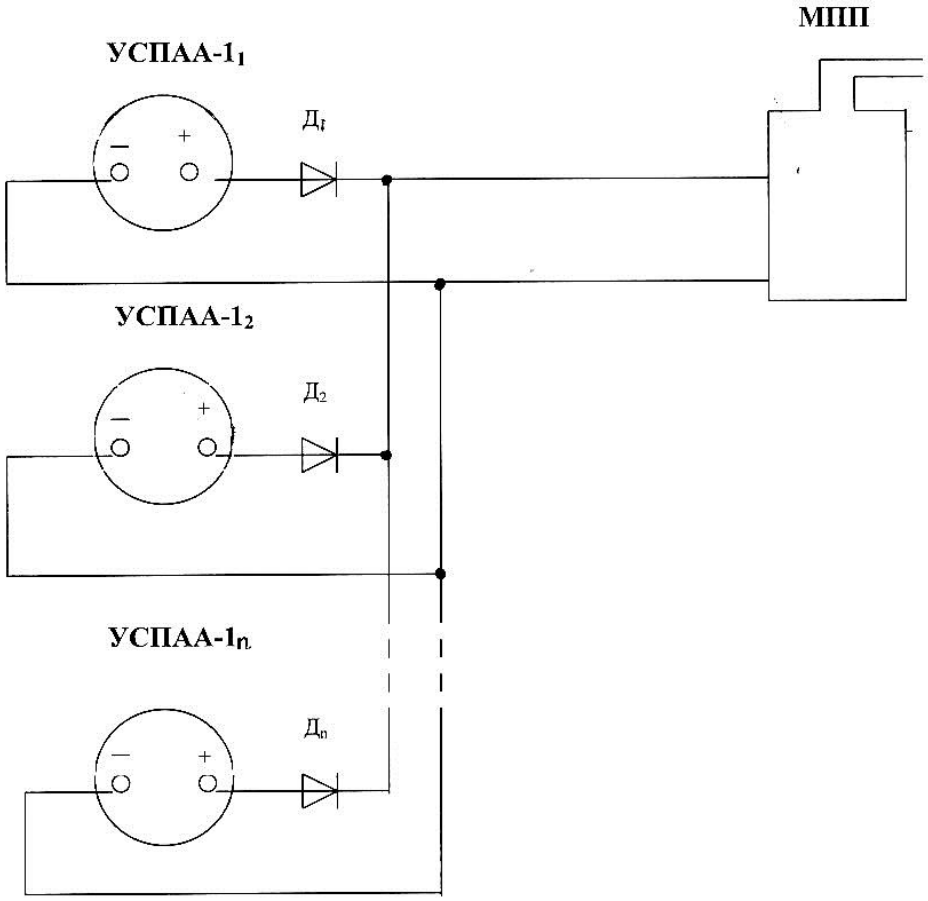


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Figure 3.
Diagram of launching the module with a signal launch device.

Safety valve

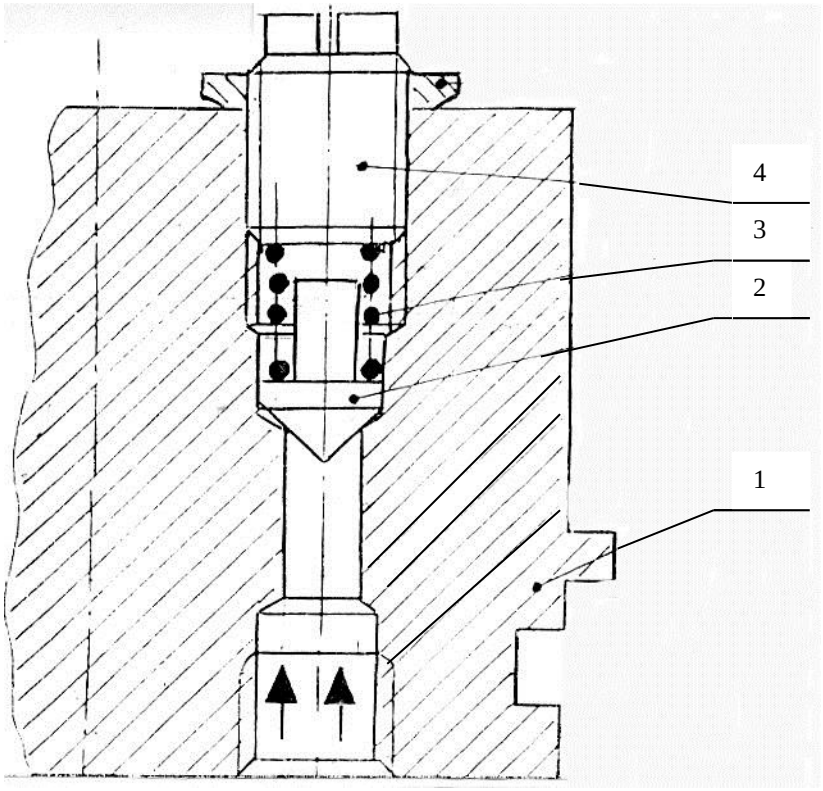

Figure 4.
1-Powder tank cover, 2-Rod, 3-Spring, 4-Adjusting screw.