

ICO 9001



**STANDALONE PHOTOELECTRIC SMOKE ALARM
IP 212-34A VT DIP-34SA**

User's Manual



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This user's manual explains the principles of operating IP 212-34AVT DIP-34SA Standalone Photoelectric Smoke Alarm (hereinafter referred to as the alarm).

Only the personnel who have studied this manual are allowed to operation activities. All activities on mounting, start-up, programming, and testing shall be performed in compliance with the requirements of the regulatory documentation in force at the place of operation.

1 Description and Operation

1.1 Purpose

IP 212-34AVT DIP-34SA Standalone Photoelectric Smoke Alarm (hereinafter referred to as the alarm) is to be used in fire detection and fire alarm systems.

The alarm is designed to detect inflammations in closed areas of various buildings by registering the light scattered by smoke particles and automatic generation of fire signals as light and sound alarms.

Fire having been detected, the alarm issues a sound signal.

The alarm is powered by a replaceable battery installed within it.

If necessary, the alarms can be combined together into groups of up to 38 units each. In such case a response of a single smoke alarm causes other alarms from the group to sound too.

The alarm is intended for round-the-clock operation.

The alarm is classified as a restorable and periodically maintained item.

1.2 Specifications

Table 1.2.1

Parameter	Value
Input Power	6F22 9v Battery
Battery Voltage, V dc	9.3 through 7.5
Operation in quiescent mode from the battery supplied, years	3 through 5
Consumed current, uA, max	15
Start-up Time, s	60
Sensitivity, dB/m	0.05 through 0.2
Enclosure protection degree as per GOST 14254-2015	IP41
Resistance to mechanical exposure as per OST 25 1099-83	Arrangement Category III
Vibration exposure: - Frequency range, Hz; - Max acceleration, g	1-35; 0.5
Operating temperatures, °C	Minus 10 through plus 50
Weight, kg, max	0.1
Overall dimensions, mm	35×Ø102
Non-stop operation	24/7
MTBF in the quiescent mode, hours, at least	80,000
Survival probability after 1,000 hours	0.98758
Expected lifetime, years	10

As to immunity to man-made radio disturbance, the alarm meets the requirements for Test Severity Level III as per the relevant standards listed in Annex 'B' to GOST R 53325-2012.

The alarm passes the industrial interference standards prescribed for Class 'B' equipment as per GOST R 30805.22.

1.3 Scope of Delivery

Table 1.3.1 represents the content of DIP-34SA standard delivery.

Table 1.3.1

Item	Quantity
IP 212-34AVT DIP-34SA Standalone Photoelectric Smoke Alarm	1 pc.
Accessory Kit:	
- ECT UY Connector	2 pcs.
- Woodscrew	2 pcs.
- Wall Plug	2 pcs.
- 6F22 9v Battery	1 pc.
- Protection Wire Cage (supplied separately)	—
Documentation:	
IP 212-34AVT DIP-34SA Operations Manual	1 pcs.

1.4 Arrangement and Operation

1.4.1 The alarm comprises a PC board, a dismountable housing, and a mount plate.

There are a microcontroller, a smoke chamber, a tact switch, a LED, and a sounder on the PC board.

The housing features a compartment for the battery.

There is a springy area around the LED on the alarm cover (TEST); pushing this area transmits force to the button.

The design of the alarm does not allow it to be installed in the mount plate without a battery.

The mount plate features two locking pins built-in that can be knocked out of the plate and used to prevent removing the alarm from the mounting plate.

By means of the sensing chamber the microcontroller registers the optical emission reflected from smoke particles. As a result of processing the data received from the sensing chamber, the microcontroller issues alarms as their values increase and the threshold is exceeded.

The alarm firmware provides correction for slow rise of the background signal in the smoke sensing chamber as a result of dust accumulation on its inside surfaces.

The corrected value of the background signal reaching some threshold defined for the alarm, the alarm indicates *Low Sensitivity*.

Low Sensitivity is also indicated when the alarm sensitivity decreases from the initial values as a result of degradation of the optical elements or contamination.

The microcontroller uses the LED and the sounder to indicate alarm's conditions.

The button is to be pushed in some manipulations with the alarm, given in Section '2 Intended Use'.

1.4.2 The alarm meets the requirements of the code of practice 'CPI5.13130.2009', Annex 'P'.

1.4.3 The alarm can be in one of the following operation modes:

- *Norm*: The smoke content value is within normal range;
- *Fire Alarm*: The smoke level has exceeded the preset fire threshold;
- *Fire in Group*: One alarm in the group has entered the Fire Alarm mode;
- *Test*: The TEST button has been pushed;
- *Test in Group*: The TEST button of one of the alarms in a group has been pushed;

- *Low Sensitivity*: The smoke sensing chamber has been contaminated or optical part of the alarm has failed;
- *Low Battery*: The battery has discharged.

1.5 Measuring Instruments, Tools, and Accessories

While mounting, commissioning, and maintaining the alarm, one should use the instruments, tools, and accessories shown in Table 1.5.1.

Table 1.5.1

Instrument	Specifications
Digital multimeter	AC/DC voltage up to 500V, current up to 5A, resistance up to 2M Ohm
Flat head screwdriver	3.0×50 mm
Cross slot screwdriver	2×100 mm
Side-cutting pliers	160 mm
Pliers	160 mm

1.6 Marking and Sealing

Every alarm has a marking applied to the back of its enclosure.

The marking contains the name of the alarm, its factory number, the year and quarter of production, and conformity marks.

1.7 Packaging

The alarm along with accessory kits and the operations manual is packaged into a cardboard box.

2 Intended Use

2.1 Operating Restrictions

The design of the alarm doesn't provide its operation in aggressive and / or dusty environments as well as in explosion hazardous and flammable premises.

Correct performance of the alarm cannot be guaranteed if electromagnetic environment does not meet the requirements defined in Section 1.2 of this manual.

2.2 Preparing for Use

2.2.1 Safety Precautions

- The design of the alarm meets the requirements of electric and fire safety including emergency operation in accordance with Russian standards GOST 12.2.007.0-75 and GOST 12.1.004-91;
- The alarm has no circuits under a hazardous voltage;
- Mounting the alarm and maintaining it shall be carried out by persons with the second or higher electric safety qualification level.

2.2.2 Design

Figure 1 shows the alarm appearance while Figure 2 represents mounting dimensions of this one.

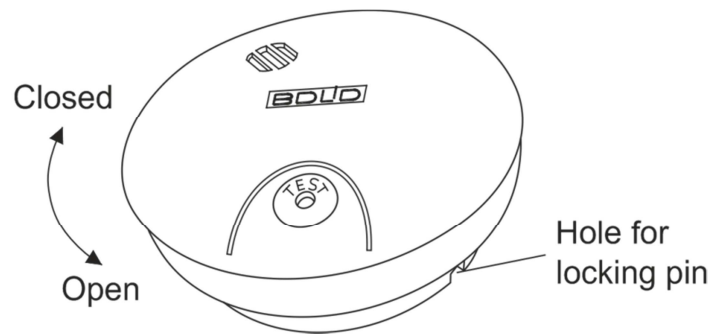


Figure 1

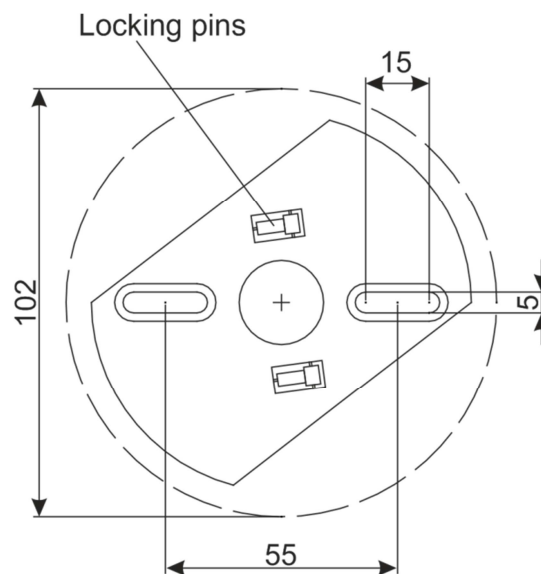


Figure 2

2.2.3 Mounting

2.2.3.1 While installing the alarms, please be guided by actual national codes and mounting rules for fire detectors - for example, by the code of practice 'CII 484.1311500.2020', in particular by the requirements shown in Table 2 of this document.

Supervised Room Height, m	Detection Area Radius, m
Up to and including 3.5	6.40
Above 3.5 through 6.0	6.05
Above 6.0 through 10.0	5.70
Above 10.0 through 12.0	5.35

If it is not possible to install alarms on the flat slab, these ones can be suspended by steel ropes (strings) or installed on walls, columns and other bearing building structures as per Clause 6.6.9 of the code of practice 'CII 484.1311500.2020'.

2.2.3.2 The alarm is to be mounted on the surface of bearing structures via its mounting plate, which is to be secured to the surface in accordance with the mounting template given in Figure 2.

2.2.3.3 Prior to twisting the alarm into the mounting plate one should install the battery.

2.2.3.4 The alarm design provides protecting against unauthorized removing from the mount plate. For doing so, one should knock one locking pin out of the mount plate (see Figure 2) and insert it into the hole specified in Figure 1.

2.2.3.5 Mechanical protection for the alarm can be provided by using Protection Wire Cage, which can be supplied in a separate order.

2.2.4 Interconnecting Alarms

Alarms can interconnect via a two-wire line in groups of up to 38 units each (see Figure 3). One alarm having triggered, all the other alarms sound too. The alarms are to be joined by splicing of connecting wires located within them. Be careful to match colors while connecting the wires. The wires are joined to the connecting line by crimping in splicing connectors provided.

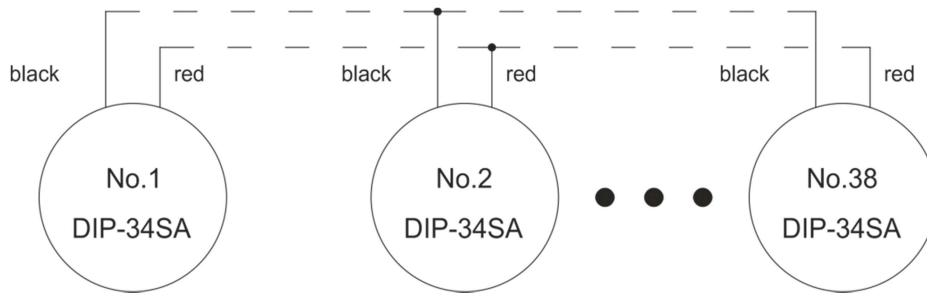


Figure 3

2.2.5 Settings

It is no need to configure the alarm.

2.2.6 Usage

To be admitted to work with the alarm, the personnel are obliged to have studied this manual and to have a certificate of verification of knowledge of safety regulations.

2.2.7 Indication

Table 2.2.7.1 describes light and signal issued by the alarm depending on the relevant operation modes.

DIP-34SA LIGHT AND SOUND INDICATION

Table 2.2.7.1

Unit Conditions	Indicator	Indicator Performance
NORM	LED	Flashes once per 32 seconds
	Sound	No
FIRE	LED	Flashes twice per second
	Sound	Three beeps spaced by 0.5 s via 1.5 s pause
FIRE detected by one of the alarms in a group	LED	Does not flash
	Sound	Three beeps spaced by 0.5 s via 1.5 s pause
TEST	LED	Flashes twice per second
	Sound	Three beeps spaced by 0.5 s via 1.5 s pause
TEST of one of the alarms in a group	LED	Does not flash
	Sound	Three beeps spaced by 0.5 s via 1.5 s pause
LOW BATTERY	LED	Flashes once per 32 seconds
	Sound	Quick beeps (0.5 s) at once with LED flashes
LOW SENSITIVITY	LED	Flashes once per 32 seconds
	Sound	A beep in 16 s after flashes
TEST button is pushed	LED	Flashes twice per second
	Sound	Three beeps spaced by 0.5 s via 1.5 s pause

2.2.8 Testing Operability

Perform functional testing as described in Section 3.4 of this manual.

2.2.9 Extreme Situation Actions



Warning!

If sparks, fire, smoke, or smell of burning is found at the installation site of the alarm, the equipment must be de-energized and sent for repair

2.2.10 Troubleshooting

Table 2.2.10.1

Fault	Possible Cause	Solution
No LED indication	The battery has been discharged	Install a new battery
The alarm fails to be installed into the mount plate	The alarm is protected against being installed without a battery	Install the battery
The alarm fails to be twisted off from the mount plate	The alarm is installed with protection against twisting off	Remove the locking pin

3 Maintenance

3.1 General

Maintenance works are to be carried out subject to the following schedule:

Table 3.1.1

Task Description	Frequency
Visual checking	Six-monthly
Check for operability	Annually

3.2 Safety Precautions

The alarm shall be maintained by personnel qualified for Electrical Safety of Level II or higher.

3.3 Maintenance Procedures

3.3.1 Visual checking of the alarm includes checks for no mechanical damages, fastening reliability, and proper condition of connecting wires and contact joints.

3.3.2 Operability of the alarm is to be verified in line with Section 3.4 of this manual.



Warning!

Removing the alarm's PC board from its housing automatically voids the manufacturer's warranty.

3.4 Performance Testing

3.4.1 After the alarm is connected to the battery ensure this one is in the Norm condition.

3.4.2 Hold a can of aerosol simulating smoke to the alarm and release a burst of smoke agent. The alarm shall enter the Fire Alarm mode.

3.4.3 A more simplified functional test can be conducted by pushing the TEST button. The button having been pressed, the alarm proceeds to the *Test* operation mode.

3.4.4 If the alarms interconnect in a group all these ones shall enter the condition as per Table 2.2.7.1.

3.4.5 When testing is completed, make sure that the alarm is ready for normal operation.

3.5 Technical Examination

Technical examination is not applicable for the alarm.

3.6 Preservation (Depreservation, Represervation)

Preservation is not applicable for the alarm.

4 Repair

Repair of a defective alarm is to be performed by the manufacturer or in authorized repair centers. The alarm should be sent for repair in compliance with Company Standard QMS 8.5.3-2015, which can be found online at our website <https://bolid.ru/support/remont/>.



Warning!

The equipment shall be submitted for repair being assembled and clean and along with all the parts listed in the documentation.

Claims are accepted only if a reclamation report describing the failure is applied to the submitted equipment.

An alarm failure resulted from consumer's not observing rules of mounting and operation is not a reason for claims and warranty repair.

Claims shall be submitted to the following address:

NVP BOLID, #4 Pionerskaya Str., Korolyov, Moscow Region, 141070, Russia

Phone: +7 (495) 775-71-55, E-mail: info@bolid.ru.

In case of any issue related to use of the product, please contact the technical support: +7 (495) 775-71-55 or e-mail: support@bolid.ru.

5 Storage

Storage in a transport container is permitted at ambient temperatures minus 40°C through plus 50°C and relative humidity up to 95% at plus 35°C.

Storage in the consumer package is permitted only in heated premises at temperatures plus 5°C through plus 40°C and relative humidity up to 80% at plus 20°C.

6 Transporting

The alarms can be transported in a transport container at ambient temperatures minus 40 through plus 50°C and relative humidity up to 95 % at plus 35°C.

7 Disposal

The alarm is to be disposed of considering that there are no toxic components in it.

The battery is classed as hazardous waste of Class II, so used up batteries shall be disposed of by a specialized company that is licensed for this activity.

The content of precious materials: doesn't require accountability for storage, retirement, and disposal (Clause 1.2 of GOST 2.608-78).

The content of non-ferrous metals: does not require accountability for retirement and further disposal.

8 Manufacturer Warranty

The manufacturer guaranties the product meets with technical requirements stated in the manuals if the user follows the instructions for transportation, storage, installation, and usage.

The warranty period is 18 months since putting the product into operation but no more than 24 months from the manufacturer's date of production.

9 Certification Information

The alarm meets the requirements of the Technical Regulations of the Eurasian Economic Union 'On Requirements for Fire Safety and Fire Extinguishing Equipment' (TR EAEU 043/2017) and is covered by Certificate No. RU C-RU.ПБ68.B.01396/22.

The alarm meets the requirements of Technical Regulations EAEU TR 037/2016 'On the restriction of the use of certain hazardous substances in electrical and electronic equipment' and is covered by the conformity declaration EAЭC No. RU Д-U.PA01.B.67324/20.

The alarm meets the requirements of Technical Regulations of Custom Union 'Electromagnetic Compatibility of Technical Equipment' (CU TR 020/2011) and is covered by the conformity declaration EAЭC No. RU Д-RU.HP15.B.06593/20.

The production of DIP-34SA is awarded with the conformity certificate GOST R ISO 9001. The certificate can be found online at the website <https://bolid.ru> in the section ABOUT COMPANY.