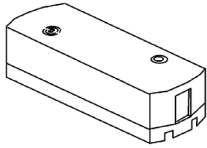




Flammable Gas Detector



«UDAR-STG»



Installation Guide

1 General information

1.1 Flammable gas detector «Udar-STG» (hereinafter, the detector) is designed for the detection of dangerous concentration of flammable gases (methane, propane, etc.), generation of the alarm signal and activates the explosion-counteracting system.

The detector is intended for operation outside of hazardous areas. The main appliance of the detector is security protection of ATMs, self-service machines, safes, etc from gas-explosion attacks by means of introducing flammable gas-air mixture of common gases and its subsequent ignition.

1.2 The detector status is displayed by the two-color LED indicator.

1.3 The detector generates five types of messages:

- «Warm-up time» is provided by opening «FAULT» contacts, repeated by LED indicator blinking green for 0.5 s with 1 s repetition cycle;
- «Normal» is provided by closing «C NC» and «FAULT» contacts;
- «Alarm» is provided by «C NC» contacts opening and voltage generation at «+OUT-» contacts, repeated by the LED indicator lighting red;
- Case tampering is provided by «FAULT» contacts opening;
- «Fault» is provided by opening «FAULT» contacts, repeated by LED indicator alternate blinking red for 0.5 s and green for 0.5 s with 1 s repetition cycle under the following conditions:

- a voltage drop below 9 V;
- sensing element malfunction;
- «BLOCK» contacts opening.

1.4 The detector positive stability ensures the alarm message absence under the following conditions:

- a) electrical fast transient/burst in the circuit under the voltage rate up to 1000 V;
- b) electrostatic discharge with the voltage rate up to 4000 V;
- c) electromagnetic fields with 10 V/m strength;
- d) voltage supply change within the range 9... 17 V;
- e) appearance of ethylic alcohol vapors.

1.5 The detector ensures safe operation under the influence of sinusoidal vibration with acceleration up to 0.981 m/s² (0.1 g) within 10 – 55 Hz frequency range.

1.6 The Detector is designed for continuous and uninterrupted operation.

1.7 The detector is insensitive to spirit vapors in an atmosphere

1.8 Industrial interferences, created by the detector, do not exceed the limits for the facilities used in housing, commercial zones or production areas with low power consumption.

2 Specifications

Table 1

Parameter	Value
Detected flammable gas concentration (methane, propane, hydrogen, etc.) in accordance with «SENS» switch position	10 % LEL * or 20 % LEL
Supply voltage	9 – 17 V
The detector current consumption in Standby and Alarm modes, at least	60 mA
Maximal commutated current under the rated voltage 36 V, for the contacts «FAULT», «C NC»	at least 100 mA
Maximal load current for «+OUT-» contacts	at least 3 A
Ambient class	Boreal Climate (background temperature 15 - 35 °C, relative humidity 25 – 75 %, air-pressure 86-106 kPa)
Voltage at the contacts «+OUT-», at least	Power supply minus 1 V
IP rating	IP30
Operating temperature	0 ... +50 °C
Relative humidity under the temperature +25 °C	up to 95 %
Dimensions, at least	112 x 41 x 32 mm
Weight, at least	0,1 kg
Average service life, not less than	5 years

* LEL – lower explosive limit

3 Scope of Delivery

Each detector unit package contains the items listed in the Table 2.

Table 2

Name	Qty
Flammable gas detector «Udar-STG»	1 pc.
Flammable gas detector «Udar-STG». Installation Guide	1 copy

4 Design

The design of the detector is shown in Fig 1.

The detector consists of the case and the printed circuit board (PCB). The PCB front side (1) encloses «SENS» contacts (2), tamper (3), LED indicator (4), connecting blocks (5), and gas sensor (7). The latch (6) fixes PCB inside the case.

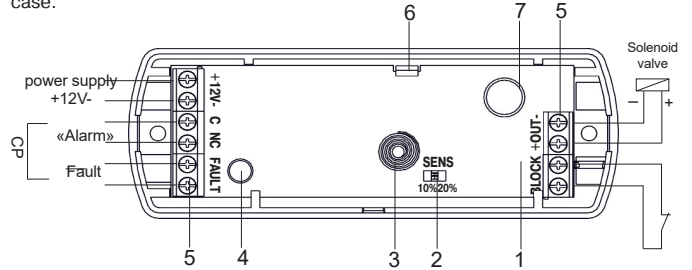


Figure 1 – The Base with the PCB

5 Indication

Table 3

Message	LED Indication		Contacts		
	Color	Mode	«C NC»	«FAULT»	«+OUT-»
Norm	-	-	Closed	Closed	OFF
Warm-up time	Green	Blinking 0.5 s with 1s repetition cycle	Closed	Opened	OFF
Alarm («BLOCK» contacts are closed)	Red	Continuous lighting	Opened	Closed	ON
Alarm («BLOCK» contacts are opened)	Red	Continuous lighting	Opened	Opened	OFF
Fault	Red/ Green	Alternate blinking (0.5 s with 1s repetition cycle)	Closed	Opened	OFF

6 The Detector Sensitivity

Table 4

Jumper «SENS»	Sensitivity
Applied	10 % LEL
Removed	20 % LEL

7 Connecting Blocks Correct Use

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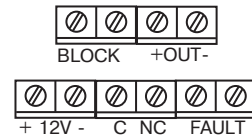


Figure 2

7.1 The contacts «+12V-» are used for hooking up the power supply unit with the 12 V rated voltage.

7.2 The contacts «C NC» and «FAULT» are assigned for connection to CP loops. «Alarm» is generated by «C NC» contacts opening, «TAMPER» is generated by «TAMPER» contacts opening.

7.3 Contacts «+OUT-» are designed for hooking up of phlegmatizing unit (which introduces phlegmatizing substance from its tank to prevent ATM criminal explosion).

Output signal parameters:

- output voltage is equal to supply voltage minus 1 V;
- output current is not more than 3 A.

7.4 Contacts «BLOCK» are assigned for blocking of the phlegmatizing unit signal. Opened contacts prevent control signals generation. In the typical circuit of the secured ATM, magnetic contact can be hooked up to the «BLOCK» contacts.

8 The Detector Functioning Test

Energize the detector and wait for 2 minutes. Cut out the phlegmatizing unit from «+OUT-» contacts. Put off the Detector cover and introduce the gas mixture to the sensing element (household gas lighter can be applied). In 10 s period, the detector should generate the «Alarm» message. At the same time the Detector gives a command to the phlegmatizing unit to introduce the phlegmatizing substance from its tank (Led indicator continuous lighting red). Wait for the Detector state recovery (Led indicator blinking green for a short time) and close the Detector cover.

ATTENTION! The Detector should be checked at least once in half-year period in order to test its availability.

9 Installation

It is recommended to choose the place of installation at the ATM bottom. The distance from the corners should not be less than 50 mm.

9.1 Prepare the openings for the detector base fastening. Mark out its fastenings using the installation Detector base (Figure 3) with the PCB removed.

9.2 Fasten the base to the installation surface by the screws. Install the PCB. Hook up the wires to connecting blocks. Put on the cover.

It is allowable to fix the detector on the surface by means of a double-sided tape or a superglue.

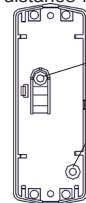


Figure 3 – The Detector Base

10 Storage and Transportation

10.1 During transportation the factory-packed Detector is resistant to:

- transport jolting with the acceleration up to 30 m/s² at impact frequency range from 10 to 120 per minute or 15 000 strikes with the same acceleration;
- ambient temperature range from minus 50 to 50 °C;
- relative air humidity (95 ± 3) % at a temperature +35 °C.

10.2 The Detector in original package may be transported by any means of transportation in closed vehicles over any distances in compliance with the existing shipping rules concerning the respective means of transportation.

10.3 After transportation under the conditions different to exploitation conditions the detector shall be ready to operate after a maximum of six hours.

10.4 The storage package shall be free from silica gel.

Attention! The operation conditions shall exclude harmful substances, which degress catalytic reactivity of the sensing elements. Presence of aggressive agents: acid, silicon, phosphorus vapors, halogens, as well as silicon lubricants, lacquers, hermetics in the controlled environment is unacceptable.

11 Manufacturer's Guarantees

11.1 The Manufacturer guarantees conformity of the Detector to the requirements of specification if conditions of transportation, storage, assembling and operation are observed. The guaranteed shelf life is 39 months since the date of the detector manufacturing.

11.2 The guaranteed period of operation is 36 months since the date of commissioning within the storage period guaranteed.

11.3 If non-conformity of the detector to technical requirements is detected during the guaranteed period if rules of operation are observed, it shall be repaired by the Manufacturer.

12 Packing Certificate

Flammable gas detector «Udar-STG» manufactured in accordance with current technical documentation is classified as fit for operation and is packed by «RIELTA» JSC.

Packing date _____
month, year