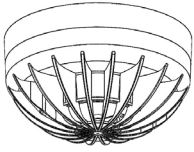




SMOKE DETECTOR
«IPD-Ex»



Installation Guide

1 Product overview

Smoke detector «IPD-Ex» (hereinafter, IPD-Ex) refers to intrinsically safe electric equipment with «ia» level «intrinsically safe electric circuit» explosion protection. The detector is designed for detecting ignitions accompanied by smoke with subsequent transmission of an alarm message to BRSS-Ex zone extension module (hereinafter, BRSS-Ex).

2 Features and Specifications

- 2.1 IPD-Ex has 0ExiallCT6 X explosion proof labeling.
- 2.2 Intrinsically safe electric circuits of IPD-Ex have the following valid parameters:
 - maximum input voltage (U_i) – 16 V;
 - maximum input current (I_i) – 65 mA;
 - maximum internal capacitance (C_i) – 1000 pF;
 - maximum internal inductivity (L_i) – 0.01 mH.
- 2.3 Nominal voltage supply (U_{nom}) – 12 V.
- 2.4 IPD-Ex consumed current in standby mode does not exceed 100 μ A.
- 2.5 IPD-Ex generates fire alarm messages by jump-in reducing of internal resistance in normal polarity. Message is followed by built-in LEDs lighting.
- 2.6 IPD-Ex continues generating response signal until it's exposure to combustion products finishes. Fire alarm message reset is fulfilled by deenergizing the IPD-Ex for the time 2 sec or more.
- 2.7 The sensitivity of IPD-Ex corresponds to ambient smoke content with optical density value from 0.14 dB/m.
- 2.8 The sensitivity value of IPD-Ex does not change from item to item and does not depend on the following:
 - the number of detector responses (repetance);
 - the influence of air flows;
 - orientation in respect of air flows direction;
 - supply voltage.
- 2.9 IPD-Ex response delay – maximum 5 sec.
- 2.10 IPD-Ex current consumption in standby mode – maximum 100 μ A.
- 2.11 IPD-Ex compensates optical chamber dustiness. After reaching the limit of dustiness inside the protected area, IPD-Ex generates malfunction message followed by built-in LED indicators blinking with 1.25 sec interval.
- 2.12 Ambient class – Boreal climate (background temperature 15 – 35 °C, relative humidity 25 – 75 %, air-pressure 86 – 106 kPa).
- 2.13 IPD-Ex IP rating is IP30.
- 2.14 IPD-Ex ensures safe operation when exposed to:
 - power supply voltage variation within 8 ... 14 V range;
 - background natural and/or artificial illumination of 12 000 lx or more;
 - ambient temperature from minus 30 up to +55 °C;
 - relative air humidity 93 % at temperature +40 °C;
 - impact of sinusoidal vibration with acceleration of 0.5 g within the frequency range 10 ... 150 Hz;
 - impact of the straight mechanical blow delivered with the energy 1.9 J.
- 2.15 IPD-Ex is resistant to electromagnetic interference.
- 2.16 IPD-Ex is designed for continuous operation around the clock.
- 2.17 Maximum dimensions of IPD-Ex are \varnothing 125 x 70 mm.
- 2.18 Maximum weight of IPD-Ex is 0.2 kg.
- 2.19 IPD-Ex mean time to failure (MTTF) – at least 60 000 h.
- 2.20 IPD-Ex average service life (SL): at least 10 years.

3 Scope of Delivery

Each IPD-Ex unit package contains items listed in Table 1.

Table 1

Name	QNT
Smoke detector «IPD-Ex»	1 pc.
Screw 3-3x30.016	2 pcs.
Wall plug NAT 5x25 «SORMAT»	2 pcs.
Smoke detector «IPD-Ex». Installation Guide	1 copy

4 Installation

4.1 Choosing a place for installation of the IPD-Ex.

4.1.1 The installation place of IPD-Ex must be in agreement with relevant requirements.

4.1.2 The places for installation of the detectors must satisfy the following conditions:

- exclude the possibility of moistening the detector with water and water ingress from the mounting surface side;
- minimum vibration of structural units;
- minimum lighting;
- maximum distance from sources of electromagnetic interference and infrared radiation (space heaters);
- ease of IPD-Ex installation, checking and removal convenience.

4.2 IPD-Ex installation and functional check.

4.2.1 The detector is connected to an alarm loop with the help of a base into which it is fitted. The base is installed in the IPD-Ex installation place.

4.2.2 Install the IPD-Ex base horizontally at a chosen place and fasten it with screws.

4.2.3 Connect input wires to the IPD-Ex base in accordance with the diagram (Figure 1). Maximum electrical conductor cross-section area is 0.75 mm².

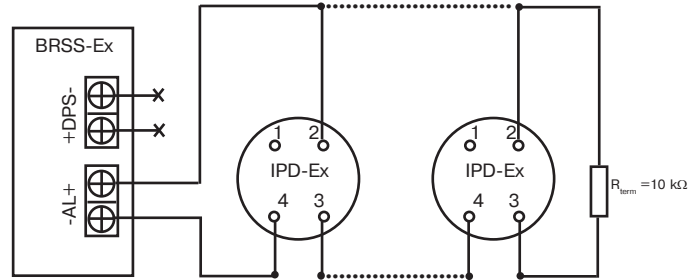


Figure 1 – Recommended pattern of IPD-Ex connection to BRSS-Ex (the number of IPD-Ex connected to a single BRSS-Ex loop should not exceed 10)

4.2.4 IPD-Ex maximum current value in the «Fire» alarm state is 3.5 mA; therefore, the detector may be connected to a fire alarm loop without a current-limiting resistor. When it is necessary to reduce operating current, a current-limiting resistor must be connected to the detector in series.

4.2.5 Install the detector into the base and reliably fasten it to the base by it's turning as far as it will go.

4.2.6 Energize the BRSS-Ex. Make sure that it's built-in indicators display a standby mode.

4.2.7 Insert a reflector into the IPD-Ex through a hole in the center of the optical chamber (any metal wire having about 1 mm in diameter (a needle or a paper clip) may be used as a reflector). The detector must transmit a «Fire» alarm signal to the BRSS-Ex with maximum delay of 5 sec; it's operation must be followed by the built-in LED indicators lighting. After the reflector is removed from the optical chamber, the «Fire» alarm signal should continue.

Note – In case the detector does not blink in standby mode and does not operate after inserting a reflector, check the base and the IPD-Ex contacts reliability.

4.2.8 Reset the «Fire» signal by deenergizing the detector for 2 sec or more.

4.2.9 Reenergize the loop to which the detector is connected. The built-in indicator should display a standby mode. IPD-Ex is ready for operation.

Attention! The detector must be cleaned with a vacuum cleaner or blown with air at 0.5 – 2 kg/cm² pressure regularly (at least half-yearly). After blowing, check the IPD-Ex operation as per Cls. 4.1.2.6 – 4.1.2.9.

4.2.10 The «3» and «4» contacts are closed to each other inside the IPD-Ex, permitting the BRSS-Ex to diagnose the «Open loop» state in case at least one IPD-Ex is removed from the fire alarm loop.

5 Protective Measures

5.1 Exploitation of the IPD-Ex should be fulfilled in accordance with rules of technical exploitation and protective measures for electricity-generating equipment.

5.2 Fulfill the IPD-Ex installation with the external power switched off.

6 Manufacturer's Guarantees

6.1 The manufacturer guarantees conformity of the IPD-Ex to the specifications provided the transportation, storage, installation and operation conditions are observed.

6.2 The guaranteed shelf life of an IPD-Ex is 42 months since the date of manufacture. The guaranteed useful life is 36 months since the date of putting into operation within the guaranteed shelf life.

6.3 An IPD-Ex that is found non-conforming to the requirements of specifications should be repaired by the manufacturer.

7 Transportation and Storage

7.1 An IPD-Ex in original transportation package may be transported by any means of transportation in closed vehicles (railway wagons, closed motor vehicles, sealed and heated airplane compartments, vessel holds, etc.) over all distances.

When transporting IPD-Ex, the rules and regulations applicable to various means of transportation must be adhered.

7.2 Storage premises must not contain any current-conducting dust, acid and alkali fumes, as well as corrosive gases or those destroying insulation.

7.3 Maximum shelf life of IPD-Ex in transportation package is three years; whereupon the transportation package must be dry and clean.

8 Packing Certificate

Smoke detector «IPD-Ex» has been manufactured in compliance with the active technical documentation and classified as fit for operation and packed by «RIELTA» JSC.

Packing date _____
month, year

9 Claims

In case an IPD-Ex is found non-complying to the specifications, or in case of a breakdown during the guarantee period, the IPD-Ex must be returned to the manufacturer with the Installation Guide attached.

Made in Russia

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