



# PPW-40REX MULTI-BAND FLAME DETECTOR

## Overview

PPW-40REx detector provides high flame detection efficiency of fuels containing hydrocarbons, while maintaining a high immunity to false alarms due a set of three infrared sensors operating in different bands.

It is intended for use in potentially explosive mixtures of gases and vapors of flammable liquids with air (ATEX subgroups IIA, IIB, IIC) and in explosive air mixtures of combustible dust (ATEX subgroups IIIA, IIIB, IIIC). The detector is designed to be connected to such control panels that can receive an alarm signal from potential-free relay contacts, as well as cooperation with other systems using the 4 - 20 mA current loop. Detector is designed for indoor and outdoor application.

## Description of operation

PPW-40REx detector detects electromagnetic radiation within the infrared range. Three detectors detects mentioned radiation. Signals are amplified, processed and interpreted by the microcontroller system. The microcontroller controls the operation of the detector, checks the correctness of its basic circuits and, if irregularities are detected, transmit the information to the control panel. The detector has a built-in heater that keeps the detector's optics elements transparency at the appropriate level.

## Design

An indicator of the detector's operation mode is a tri-color LED located on the front surface of detector. Indicates the quiescent, alarm or fault condition. The indicator allows fast location of the activated detector and is helpful in periodic maintenance of the detector.

### Automatic optics' test.

The self-test is performed on the detector every 1 minute. This eliminates the need of testing the detector by the technician with open flame or other source causing detector's activation. If the test shows a decrease in detector's range by 50% of the maximum, the detector will change its status to „optics fault” It changes the fault relay contacts, indicator LED lights in yellow and if the current loop is connected the current value is 2 mA.

### Manual optics' test.

Test self-test can be run manually. Manually made test works like automatic one with the difference that the successful test causes the activation of fire relay „ALARM”. Manual test should be carried out just to eliminate the need for testing the detector with open flame or other source causing its activation.

### Communication

The detector is equipped with the RS-485 interface, which cooperates with the service software. This software allows to:

- Providing information about the detector's mode of operation to a PC,
- Selection of the relay's operating mode („latch”, „without latch”),
- Execution of optics test,
- Download of „EVENT LOG”.

RS-485 interface with an external cable enables the transmission to the maximum distance up to 1200 m with the cable capacity  $\leq 56$  nF/km.

### Event LOG

The detector records and stores events in non-volatile memory. Each event is stored with the following information: current date, time, temperature in the detector and value of supply voltage.

## Technical specification

Power supply 24 V DC	min. 18 V DC, max. 36 V DC
Power consumption	
- without heater	1 W, 24 V DC - operation mode 1, 3 W, 24 V DC - alarm mode 1, 2 W, 36 V DC - operation mode 1, 6 W, 36 V DC - alarm mode
- heater	max. 7 W
- power	max. 9 W, 36 V DC in an alarm mode and with a heater ON
Fire detection sensitivity	class 1 complies to PN-EN 54-10 standard
Direction angle	horizontal 80 ° vertical 75 °
Alarm relay output	5 A, 30 V DC, NO, NC contacts
Fault relay output	5 A, 30 V DC, NO contacts
Current output	4 ÷ 20 mA (max. loop resistance - 400 Ω)
Alarm resistor	1 kΩ, 2 W (for Polon-Alfa control panels)
End-of-Line (EOL) resistor	5.6 kΩ, 0.25 W (for Polon-Alfa control panels)
Operation temperature range	from -40°C to +75°C
International Protection Rating	IP66
Relative humidity	up to 95% at 40°C
Mass	2.6 kg