



## DOT-3000

### Universal heat and smoke detector

#### Purpose

The DOT-3000 universal smoke and heat detector is designed to detect the initial stage of fire in which smoke appears and/or increase in temperature occurs.

It is characterized by significant resistance to the influence of air movement and pressure changes. Application of a double smoke detection system (IR and UV range) and a double heat detection system ensures increased immunity to false alarms caused by e.g. water vapor and dust, while maintaining small dimensions and high aesthetics of the detector.

DOT-3000 universal addressable smoke and heat detectors are designed to work in addressable detection lines of fire alarm control panels of the POLON 3000 system.

#### Principles of operation

The basis of operation of the DOT-3000 smoke detector is:

Tyndal's principle - scattering of a light ray on smoke particles. Penetrating into the measuring chamber smoke particles reflect the light emitted by the emitting diode. The scattered light reaches the photodiode, generating a photocurrent. The heat entering the detector causes changes in the resistance of the thermistors. Fire factor information's from four detectors are subjected to advanced signal analysis by a microprocessor that evaluates the degree of a fire hazard.

Communication between the POLON 3000 system control panel and DOT-3000 type detectors is performed via an addressable, two-wire detection line. A unique, fully digital communication protocol allows the transfer of any information from the control panel to the detector and from the detector to the control panel, e.g.: assessment of the environment condition (smoke, temperature), the tendency of its change and the current value of temperature and smoke density.

The microprocessor that controls the detector's operation verifies operation correctness of its basic systems and - if any irregularities are detected - provides information to the control panel.

The DOT-3000 detector is an analog detector with a digital self-regulation mechanism, i.e. it maintains constant sensitivity as the measuring chamber becomes increasingly dirty. After exceeding the set threshold, the detector sends a signal to the

control panel about partial contamination of the measuring chamber, in order to inform the service about appropriate action required. The detector is equipped with an internal short-circuit isolator that cuts off the functional part of the detection line from adjacent damaged part which enables continued uninterrupted operation of the detector. The detector's alarm status is signalled by the pulsating red light of two diodes located opposite on top of detectors frame. The indicator allows to quickly locate the alarming detector and helps with periodic detector operation monitoring. If the detector is poorly visible or installed in a hard-to-reach place, an additional optical WZ-31 alarm indicator can be attached to it. Fault, technical alarm and short-circuit isolator activation states are indicated by yellow flashes of the LED.

In order to enable the user to optimally adjust the detector to work in a specific environment, it can be programmed in many ways, e.g.:

- interdependent operation of sensors (two IR and UV smoke sensors, two heat),
- independent operation of individual sensors,
- sum of any sensors,
- sensors in coincidence (AND function),
- sensors in coincidence or a heat detector with a redundant temperature threshold, etc.

Additionally the temperature class in which heat sensors should work can be defined .

#### Technical specifications

Addressable detector operating voltage	16.5 ÷ 24.6 V
Detector power consumption from addressable line	< 150 µA
Operating classes of heat sensors	A1R, A2R, BR, A2S, BS
Number of basic operating modes	6
Detected test fires	TF1 to TF 9
Address programming	from the panel
Operating temperature range:	
-for modes with a heat sensor in class A	-25 °C to +50 °C
- for other modes	-25 °C to +55 °C
Dimensions (with the base)	ø 115 x 54 mm
Mass	0.18 kg

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