DOR-4043
ADDRESSABLE MULTI-STATE OPTICAL SMOKE DETECTOR

Overview

The DOR-4043 processor based optical smoke detector is designed for detection of a visible smoke, at a start of a fire's flameless stage when material starts to smoulder, and therefore generally, a long time prior to the appearance of an open flame and a noticeable rise in temperature.
The DOR-4043 is an analogue detector with automatic sensitivity self-compensation that is it maintains constant sensitivity during progressing dirt build-up in the measuring chamber and during changes in air pressure and vapour condensation.
The DOR-4043 optical smoke detector can operate only in lines/loops of the POLON 4100 and POLON 4200 addressable fire alarm systems.

Principles of operation

The DOR-4043 is a Tyndall effect optical smoke detector. Its operation is based on measuring infrared (IR) radiation scattered by smoke particles. The main element of the detector is an optical module, consisting of an electroluminescence diode emitting infrared (IR) radiation and a photodiode acting as the receiver of the radiation. The optical module is protected by a labyrinth, damping both external light and direct light from the emitting diode. When smoke particles enter the optical module area, infrared radiation scatters on smoke particles. Part of this scattered radiation reaches the photodiode that generates an alarm signal. The DOR-4043 detector contains self-compensation circuits that maintain constant sensitivity during progressing dirt build-up inside the measuring chamber. After exceeding a pre-set threshold of dirt built-up, the detector emits a fault signal denoting the necessity for servicing and cleaning works. The detector has a replaceable optical chamber, which can be cleaned or replaced with a new one.
A failure to perform the servicing works before self-regulation is completely exhausted (e.g. for a few weeks) can cause an initiation of false alarms sending to the control panel.
The applied built-in microprocessor device and the proper detector software guarantee that the entire phenomenon accompanying a fire in the vicinity of the detector will be quickly analysed and false alarms will be eliminated.

Beside its own address, code type, alarm and operation modes, the detector also transmits (into the detection loop) information about the servicing mode, a fault of internal devices, and actuation of a short circuit isolator. The alarm mode is indicated by a flashing red light of a two-colour LED diode. The fault status of the detector, service alarm, and the activation of the short circuit isolator are indicated by the same (two-colour) LED diode flashing a yellow light.

The DOR-4043 detectors can be programmed to the appropriate sensitivity in three modes: normal, increased, and decreased level. This makes it possible to adapt the detectors to specific conditions during operation in the protected area.
Coding of the detector address can be done automatically from the control panel level – the address code is saved in its non-volatile memory.
The detectors are equipped with internal short circuit isolators.
They are installed in the G-40 non-addressable bases.
An additional optical alarm signal for a detector or group of detectors can be obtained by connecting the WZ-31 alarm indicator.

The DOR-4043 detectors meet the requirements of the PN-EN 54-7 European standard.

Technical specifications

Operation voltage	16.5 ÷ 24 V
Max. quiescent current	≤ 150 µA
Number of programmable sensitivity levels	3
Detectable test fires	T F2 to TF5
Programming of detector address	from the control panel level
Operation temperature range	from -25 °C up to +55 °C
Dimensions (with base)	Ø 115 x 54 mm
Mass	0.2 kg