DUR-4043 ADDRESSABLE UNIVERSAL OPTICAL SMOKE DETECTOR

Overview

The DUR-4043 microprocessor based universal optical smoke detector is designed for detection of a visible smoke at the 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 DUR-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 temperature.
Due to detection of test fires from TF1 to TF5 and TF8, this detector is very useful in fire protection.
The optical smoke detector DUR-4043 can operate only in lines/loops of the POLON 4100 and POLON 4200 addressable fire alarm systems.

Principles of operation

The DUR-4043 is a Tyndall effect optical detector. Its operation is based on measuring the infrared (IR) radiation scattered on smoke particles. The main element of the detector is an optical module, consisting of an electroluminescence diode emitting infrared (IR) radiation and a photodiode being the receiver of the radiation. The optical module is protected by a labyrinth, damping both an external light and direct light of the emitting diode. When smoke particles enter the area of the optical module, infrared (IR) radiation is scattered on them. Part of this scattered radiation reaches the photodiode that generates an alarm signal.
The DUR-4043 detector contains self-compensation circuits that maintain constant sensitivity during progressing dirt build-up inside the measuring chamber. After exceeding a preset threshold of dirt build-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 DUR-4043 detectors can be programmed to 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 of a detector or a group of detectors can be obtained by connection the WZ-31 alarm indicator.

The DUR-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	from TF1 to TF5 and TF8
Programming of detector address	from the control panel level
Operating temperature range	from -25 °C up to +55 °C
Dimensions (with base)	Ø 115 x 54 mm
Mass	0.2 kg