



DUR-4046 ADDRESSABLE MULTI-STATE OPTICAL SMOKE DETECTOR

Overview

The DUR-4046 processor based optical smoke detector is designed for detection of a visible smoke accompanying an early stage of an open fire ignition. It enables detection of a fire at its beginning stage when material starts to smoulder, therefore a long time prior to the appearance of an open flame and a noticeable rise in temperature.

The DUR-4046 is an analogue detector with automatic sensitivity self-compensation that maintains constant sensitivity during progressing dirt build-up in the measuring chamber and also during changes of air pressure and vapour condensation. Due to the ability of detecting test fires from TF1 to TF5 and TF8, this detector is very useful in fire protection.

The DUR-4046 optical smoke detector can operate only in lines/loops of the addressable POLON 4000 system fire alarm panel.

Principles of operation

The DUR-4046 is a Tyndall effect optical smoke detector. Its operation is based on the measuring of 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 evoking an alarm signal that is sent to the supervising control panel.

The DUR-4046 detector contains self-compensation circuits, which maintain constant sensitivity during progressing dirt build-up inside the optical chamber. After exceeding a pre-set 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 transmitting false alarms to the control panel.

The applied built-in microprocessor element and the proper detector software guarantee that the entire phenomenon accompanying a fire within the vicinity of the detector will be analysed quickly and false alarms will be eliminated. After se-

lecting a suitable alarm variant (from the control panel level), the detectors can operate in an interactive mode, one detector can communicate with others in the same zone. They can also provide the fire factor current analogue value measurements.

Besides 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 operation of a short circuit isolator. The alarm mode is indicated by a flashing red LED diode. The fault status of the detector, service alarm, and operation of the short circuit isolator are indicated by the same (double colour) LED diode flashing a yellow light.

The DUR-4046 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 at 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 mounted on the non-addressable G-40 bases.

Additional optical alarm signal of a detector or a group of detectors can be obtained by connecting the WZ-31 alarm indicator.

The DUR-4046 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 fire	from TF1 to TF5 and TF8
Programming of detector address	from the control panel level
Operation temperature range	from -25 °C up to +55 °C
Dimensions (with base)	∅ 115 x 54 mm
Mass	0.2 kg