



DOP-6001R BEAM SMOKE DETECTOR (for various systems)

Overview

The DOP-40R beam smoke detector is designed for smoke detection at the onset of a fire combustion stage. It is especially suited for protection of indoor spaces, in which the appearance of smoke is likely during ignition of a fire and where, due to a large space area, installation of a greater number of point smoke detectors would be necessary.

The DOP-40R beam smoke detectors are equipped with fire alarm and fault relay outputs, which enable them to operate in detection lines of any fire alarm system control panels as well as in burglar alarm systems.

Principles of operation

The DOP-40R detector consists of an infrared (IR) light transmitter and a receiver located in a single housing and an inter-operating E39-R8 prism reflector or a 4xE39-R8 reflector panel. The operation of the beam smoke detector is based on an analysis of air optical transparency in the space between the detector and the prism reflector or the prism reflector panel. If certain, defined contents of aerosol (smoke) is found in the air decreasing the visibility transparency, then the detector, according to a pre-set sensitivity threshold will initiate an alarm.

Complete interruption of the radiation beam is signalized as a fault mode because even the largest smoke concentration in the air does not cause complete interruption of the detector optical beam path. If the air is clear, the detector is in a quiescent mode.

The DOP-40R beam smoke detector has built-in automatic compensation systems for monitoring of dirt build-up on its optical system and compensation for environ impact conditions ensuring that the detector maintains constant sensitivity and fire detection ability for a long time. At a certain level of dirt contamination, the detector signals a fault mode denoting the necessity to undertake servicing and cleaning works. During a fire alarm, the detector turns on (usually opened) the breaking circuit of the alarm relay output. In a fault (full break of the radiation beam) and servicing mode (dirt contamination on optical devices), the DOP-40R detector opens (usually closed) the breaking circuit of the fault relay output. The detector can operate in a support mode or without it.

Installation

The DOP-40R beam smoke detector and the prism reflector or prism reflector panel are installed on opposite walls of a room. The walls must be stable and vibration-free. Special adjusting screws of the detector unit and the reflector panel are used for precise alignment of the detector and the reflector/s on the optical path. A special laser target viewfinder is activated at the moment when the optical beam path is aligned. The prism reflector and the panel of prism reflectors are not included in the detector order package and should be ordered separately.

Technical specifications

Operating voltage	9.6 ÷ 28 V
Quiescent current (9.6 - 28 V)	8 to 30 mA
Alarm current (9.6 - 28 V)	20 - 100 mA
Current at which radiation beam is interrupted	< 1 mA
Servicing signal current	< 1 mA
Operating distance range for E93-R8 prism reflector	5 to 50 m
Operating distance range for 4xE39-R8 prism reflector panel	50 to 100 m
Sensitivity thresholds (optional)	18 %, 30 %, 50 %
Power supply of laser target viewfinder (during positioning)	9 V 6F22 battery
Load capacity of relay contacts (fault mode and fire alarm)	1 A/30 V
Detectable test fires	from TF1 up to TF5
Operating temperature range	from -25 °C up to +55 °C
Relative humidity	up to 95 % at 40 °C
Dimensions	128 x 79 x 84 mm
Mass	0.35 kg

NOTE

1. For detector testing, the FT-40 test foil should be used; for aligning the detector optical beam path with the reflector panel – the LS-40 service mirror is used.
2. The highest detector sensitivity can be obtained by setting its threshold at 18%.