TECHNICAL INFORMATION

APPLICATIONS

- **museums**
- **churches**
- **art galleries**
- **libraries**
- **hotels**

- **shops**
- **cinemas**
- **computer rooms**
- **control rooms**
- **storehouses, etc.**

The RK90R it's a reflection Beam Smoke Detector. Its operation is based on the relation between the smoke present in an environment, generated by the starting of a fire, and the infrared beam emitted by the device and reflected by a special optical reflector. It is also able to detect the presence of vapour and fog. A fundamental feature of this detector is the ability to detect the presence of both white smoke and black smoke even if they are little dense.

This detector has been designed for applications where the aesthetics, the small dimensions, the possibility of remote visualization of the signal and the simplicity of use have primary importance.

So RK90R is particularly suitable to be installed in artistic environments like museums, churches, art galleries and in offices, hotels etc.

CERTIFIED EN54-12 VDS CPD

TECHNICAL FEATURES

- a single detector can cover an area up to 750 mq.
- installation is easy and quick
- the internal electronics are controlled by a microprocessor
- a special function automatically compensates the signal drift caused by the opacity on the optical parts, generated by dust and dirt, minimizing the maintenance needs
- the detector RK90R has 2 separated circuits for smoke detection: **Oscuration** and **Turbulence**
- the detector RK90RS has only the circuits for smoke detection: **Oscuration**
- RK90R - 3 relay outputs: Alarm, Turbulence, Fault
- RK90RS - 2 relay outputs: Alarm, Fault
- analog output that allows to remotely visualize the detector's signal level using an optional led bar module
- maintenance is easy and not frequent
- very low operational costs - cost effective
- simplified allignment with signal level led indication
- EN54-12 CPD and VDS certified
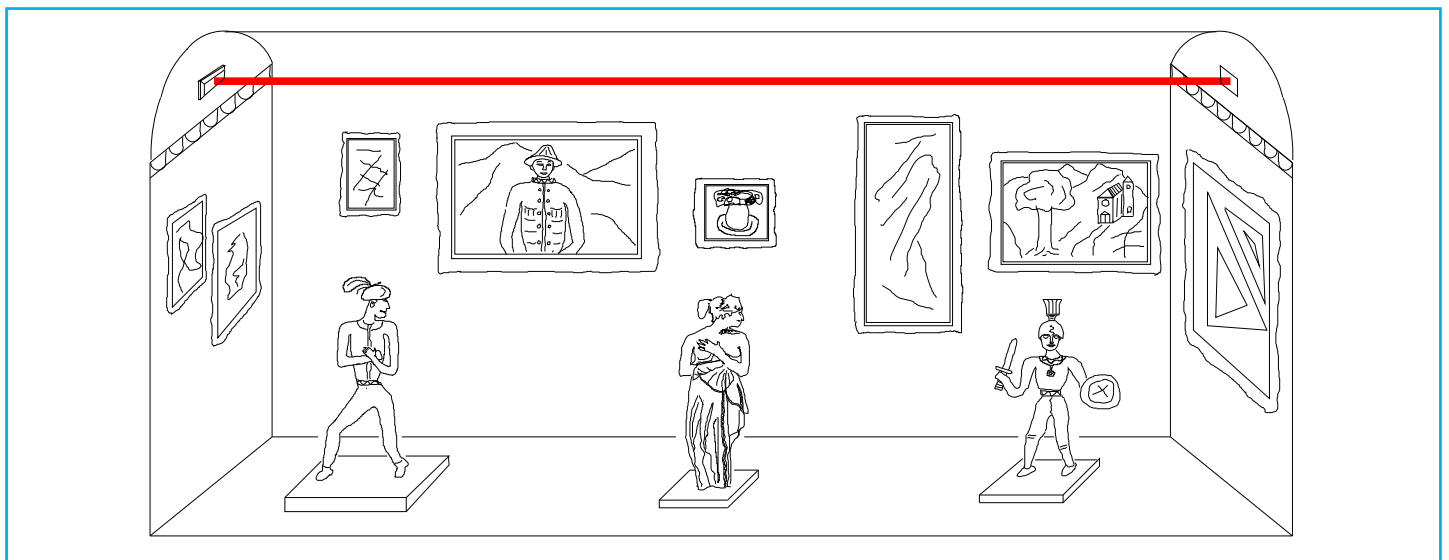
OPERATION

The RK90R it's an Optical Beam Smoke Detector suited with 2 separated detection circuits based on the **principles of Obscuration and Turbulence (RK90R)**

Oscuration

The device has to be installed at one end of the area to be protected just under the level of the ceiling and the special reflector (FX) must be installed at the other end. When a fire begins, it produces smoke that rises up and intercepts the infrared beam of the detector. This causes an attenuation of the received signal that, if the threshold level is reached, will activate its alarm relay that can drive suitable alarm signalling devices.

Turbulence

Normally, during the starting phase of a fire, smoke clouds are generated and the thermal energy of the fire (heat) produces bubbles of hot air that rise up. When these clouds and bubbles intercept the beam emitted by the detector, they cause a perturbation in it because they modify the optical-physical caratheristics of the transmission medium of the beam. These variations are obviously time related. A suitable circuit has been designed to detect these variations and when they reach the preset amplitude and time duration levels, an alarm signal is generated. The advantage of using the turbulence detection circuit it's a quicker detection of the fire, because it is revealed in it's beginning. So RK90R, with this circuit, reveals dinamically both the smoke clouds by the starting of the fire and, in case the fire generates flames and so thermal energy, the perturbation phenomena produced by the combustion process.

Optical Reflectors

Different types of optical reflectors can be used. The choice of the reflector must be made according to the optical range (distance between detector and reflector), size and aesthetics. The FX07 it's particularly suitable to be installed in artistic places (museums, art galleries, etc).

Options

ZC-01 - It is a optional base that facilitates the installation in the case in which the cable within pipe guide is outside of the wall. The ZC-01 is equiped of breakable holes on the sides.

ZC-01
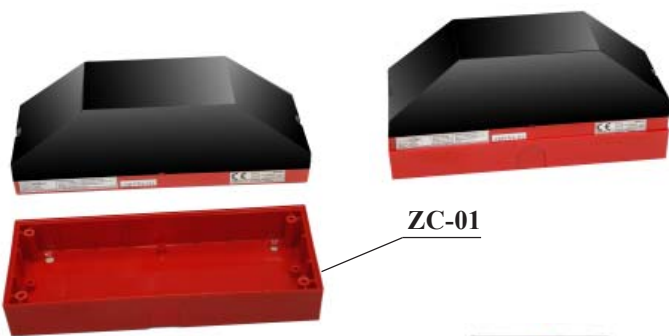
SUP90 - It is a adjustable support that allows the orientation of the optical beam in various directions. It is useful in the case of installation of the detector of the detector in an angle of the room.

BLP-90 - Laser Pointer - eliminates the need to use a lamp for optical alignment detector-reflector - the pointer is installed and collimated in the laboratory - the time of installation of the detector is drastically reduced - just point the laser beam on the reflector to have optics aligned.

TECHNICAL DATA

- Models: RK90R RK90RS (without Turbulence)
- Type: Reflection Optical Beam Smoke Detector
- Manufacturer: EDS srl - V. Cà Nova Zampieri 6 - 37057 S.G. Lupatoto - Verona - ITALY
- Power Supply: 12/24 Vdc
- Power Supply Range: 11- 30 Vdc
- Optical range: 50m - the minimum and maximum optical range depends on the type of reflector used. Different reflectors are available that differ in aesthetics, size and optical reach
- Max covered area: 750 mq
- Protection against the inversion of polarity
- Digitally codified infrared beam
- Power Consumption:
    18,6 mA in normal operation
    34 mA with the alarm relay activated
    34 mA with the turbulence relay activated
    50 mA with both alarm and fault relay activated
- Maximum angular missallignment of the detector: +/- 0,2°
- Maximum angular missallignment of the reflector: +/- 0,2°
- Selection of the obscuration alarm threshold level with a 4 positions switch:
  position 1 - 70%
  position 2 - 60%
  position 3 - 50%
  position 4 - 40%
- Selection of the turbulence alarm threshold level with a 4 positions switch
- Alarm Relay activation delay: 10 s
- Fault Relay activation delay: 5 s
- Detector's recovery time with alarm memory dectivated: about 5 s
- Detector's recovery time with alarm memory activated: about 5 s (power supply off)
- Working temperature: -10 + 55°C
- Red LED indication: alarm status
- Blue LED indication: compensation limit, interrupted beam, fault
- Alarm Relay: 1A/24 V dc
- Turbulence Relay: 1A/24 V dc - (RK90R)
- Fault/Maintenance Relay: 1A/24 V dc
- 0-5 V Analog Output for signal level measuring/visualization
- Dimensions: 162 x 62 x 62 mm.
- Housing: autoextinguishing policarbonate box
- Relevant Standard: EN 54-12
- Certifications: EN54-12/CPD (0786-CPD-20803), VDS2504-VDS2344 (G209131)
- Protection Index: IP 50 (IEC 529-144)
- Weight: 200 gr.