INTELLIA FIRE DETECTORS

Intellia- Intelligent Fire Detectors for FX NET Fire Detection System

Intellia is a range of high-specification, intelligent fire detectors developed to meet the requirements of sophisticated systems. Intellia gives you total reassurance in installations where adaptability to changing conditions and protection against unwanted alarms are paramount. Intellia uses a digital communications protocol.

The Intellia series of products are all compatible with the ALC-board of an FX-panel.

Multisensor Detector EDI-30

Features

Response setting
Each detector in the Intellia range can operate in one of five response modes, any of which can be selected from the FX control panel. Each mode corresponds to a unique response behaviour, which can be broadly related to sensitivity to fire.

For ionisation and optical smoke detectors, the modes relate to different combinations of smoke response threshold and response time. For the heat detector, the mode relates to the fixed temperature setting and the sensitivity to rate-of-rise of temperature. For the multisensor, the mode relates to the levels of smoke and heat sensitivity and to the way in which the responses of the two sensors are combined.

The response characteristics of the detectors have been carefully set so that detectors will comply with the requirements of the relevant part of EN54 in all response modes. The mathematical algorithms embedded in the detectors are used to carry out changes in characteristics between modes.

Rejection of transient signals
All Intellia detector algorithms are designed to give low sensitivity to very rapid changes in the sensor output, since these are unlikely to be caused by real fire conditions. This is achieved by digital low-pass filtering of the sensor values which optimises the rejection of false alarm sources while maintaining the response to fire.
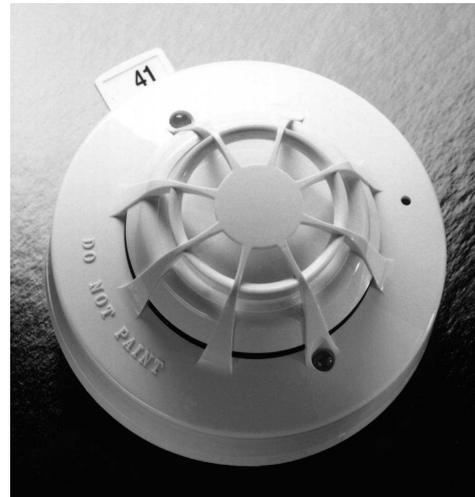
Drift compensation
All Intellia smoke detectors include compensation for sensor drift as part of the internal signal-processing algorithm. The algorithm will compensate for changes in sensor output caused, for example, by dust in the chamber, and will therefore hold the sensitivity at a constant level even with severe chamber contamination. This increased stability is achieved without significantly affecting the detector's sensitivity to fire.

Multisensor Detector EDI-30
The Intellia multisensor detector EDI-30 comprises optical smoke and thermistor temperature sensors whose outputs are combined to give the final analogue value. As a result, the multisensor is useful over a wide range of applications and is highly immune to false alarms.

The way in which the signals from the two sensors are combined depends on the response mode selected. The five modes provide response behaviour which incorporates pure heat detection, pure smoke detection and a combination of both. The multisensor is therefore useful over the widest range of applications.

Mode 5 has no smoke sensitivity at all, but gives a pure heat detector response. If the multisensor is used in mode 5, heat detector spacing and coverage should be applied.

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The signals from the optical smoke sensing element and the temperature sensor are independent, and represent the smoke level and the air temperature respectively in the vicinity of the detector.

Optical Smoke Detector EDI-20

The Intellia optical smoke detector EDI-20 is suitable for slow burning or smouldering fires and should be positioned where these are most likely to occur. They can be set to a sensitivity mode best suited for the application.

An infra-red light emitting scatters light from the diode within its collimator is arranged at an obtuse angle to the photo-diode. The photo-diode has an integral daylight-blocking filter.

The photo-diode signal is processed to provide an analogue value for transmission when the detector is interrogated.

Ionisation Smoke Detector EDI-10

The Intellia ionisation detector EDI-10 uses a low activity radioactive foil to detect fires by irradiating the air in the smoke chambers and causing a current

flow. If smoke enters the chamber, the current flow is reduced leading to an alarm. It is a good general purpose detector that responds well to fast burning, flaming fires.

The ionisation chamber consists of a reference chamber contained inside a smoke chamber. The outer smoke chamber has inlet apertures fitted with insect resistant mesh.

The radioactive source holder and the smoke chamber form positive and negative electrodes respectively. An Americium 241 radioactive source mounted within the reference chamber irradiates the air in both chambers, producing positive and negative ions.

The analogue voltage at the sensor electrode is converted to a digital format which is processed to provide an analogue value for transmission to the FX control panel when the device is polled.

Heat Detector EDI-50
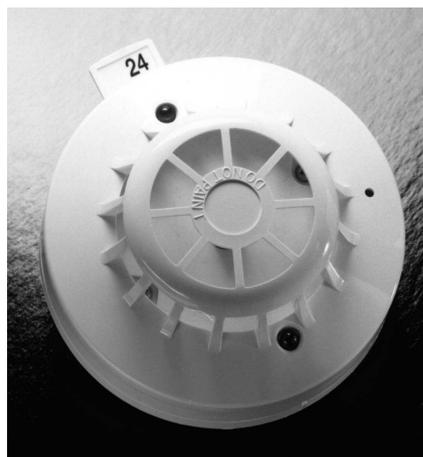
The Intellia heat detector EDI-50, distinguishable by the low airflow resistant case, uses a single thermistor to sense the air temperature around the detector. This type of detector is particularly useful where the environment is dirty or smoky under normal conditions. For more information on the application of these detectors, please see the chart below.

The Intellia heat detector uses a single thermistor to sense the air temperature at the detector position.

The design of the resistor detector, together with the processing algorithm in the microcontroller, gives an approximately linear characteristic from 10°C to 80°C. This linearised signal is further processed, depending on the response mode selected.

The five modes correspond to five "classes" as defined in EN54–5:2000.

Technical data

	Multisensor detector EDI-30	Optical detector EDI-20	Ionisation detector EDI-10	Heat detector EDI-50
Detector principle	*Smoke:* Photoelectric detection of light scattered by smoke particles *Heat:* Temperature sensitive resistance.	Photo-electric detection of light scattered in a forward direction by smoke particles	Ionisation chamber *Radioactive isotope:* Americium 241 Activity: 33.3 kBq, 0.9µCi	Temperature sensitive resistance.
Operating voltage	17 … 28V DC			
Quiescent current	500 µA average	400 µA average	500 µA average	500 µA average
Remote output	Max. 5 mA			
Alarm indicator	2 colourless Light Emitting Diodes (LEDs); illuminated red in alarm; optional remote LED	2 colourless Light Emitting Diodes (LEDs); illuminated red in alarm; optional remote LED	2 red Light Emitting Diodes (LEDs); optional remote LED	2 red Light Emitting Diodes (LEDs); optional remote LED
Humidity	0 to 95 % relative humidity (no condensation or icing)			
IP Rating	IP43			
Temperature range (non condensation/icing)	-20 ... +60 ºC			
Storage Temperature	-30 ºC to +80 ºC			
Max. relative humidity (no condensation)	0 to 95 %			
Dimensions	100 mm diameter 50 mm height 58 mm (height in base)	100mm diameter 42 mm height 50 mm (height in base)	100mm diameter 42 mm height 50 mm (height in base)	100mm diameter 42 mm height 50 mm (height in base)
Weight	105 g			
Materials Housing Terminals	White polycarbonate V-0 rated to UL94 Nickel plated stainless steel			
Tested	EN54-7, EN54-5:2000	EN54-7:2000	EN54-7:2000	EN54-5:2000
Product codes	0672 0230	0672 0220	0672 0210	0672 0250
Bases	EBI-10 Standard Mounting Base, product code 0672 0010 EBI-11 Short Circuit Isolating base, product code 0672 0011 EBI-20 Relay Base, product code 0672 0020			