Series 65E Ionisation Smoke Detector with Flashing LED

Product code: 55000-217IMC IMC-217-DS-1

Brand Information

Series 65E incorporates well-proven sensing technologies. The Series 65E range has a wide operating voltage of 9–33V and consists of ionisation, integrating ionisation and optical smoke detectors, four grades of heat detector and a range of bases.

Brand Features

Wide-operating voltage of 9–33 V DC, Wide-operating and storage temperature of -20°C to +60°C, Can be used on security systems, Electrically and mechanically compatible with Series 60, Proven detection performance.

Operation

The detector has a moulded self-extinguishing white polycarbonate case with wind resistant smoke inlets. Nickel plated stainless steel wiper contacts connect the detector to the base. Inside the detector case a printed circuit board has the ionisation chamber mounted on one side and the signal processing electronics on the other. 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 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. A voltage across the electrodes produces an electric field. Ions are attracted to the electrode of the opposite sign to their own charge. Many recombine but a small electric current flows between the electrodes. At the junction between reference and smoke chambers the sensing electrode converts variations in chamber current into voltage changes. When smoke particles enter the ionisation chamber ions become attached to them with the result that the current flowing through the chambers decreases. This effect is greater

in the smoke chamber than in the reference chamber, and the imbalance causes the sensing electrode to become more positive. The voltage at the sensing electrode is fed to a comparator where it is compared with a factory-set clean air reference voltage. If the monitored voltage exceeds the reference voltage, the comparator switches the alarm latch on, increasing the current drawn from the supply from about 40µA to a maximum of 75mA. This fall in the impedance of the detector is recognised by the control panel as an alarm signal. The alarm latch current also illuminates the detector integral LED. A remote indicator connected between the L1 IN terminal and the –R terminal will have a voltage equal to the supply voltage less 1 volt across it and so will illuminate. See page 17 for details of the remote indicator. To ensure correct operation of the detector the control panel must be arranged to supply a maximum of 33 volts DC and a minimum of 9 volts DC in normal operation. The supply may fall to 6 volts DC in alarm conditions if a supply current of at least 10mA is available at this voltage. To ensure effective illumination of the integral LED and any remote indicator, the supply to the detector should exceed 12 volts. To restore the detector to quiescent condition, it is necessary to expel any smoke and interrupt the electrical supply to the detector for a minimum of one second.

Options

(Apply to standard and integrating versions) 1. Flashing LED: The alarm-indicating LED flashes when the detector is in a quiescent state. 2. Magnetic test switch and Flashing LED: A magnetic test switch in the circuit of the detector can be magnetically activated from outside the case to initiate an alarm condition for test and commissioning purposes. A flashing LED, as outlined above, is also included.

Safety Note

In the United Kingdom, ionisation smoke detectors are subject to the requirements of the Radioactive Substances Act 1993 and to the Ionising Radiations Regulations 1999 made under the provisions of the Health and Safety at Work Act 1974. The detectors, independently tested by the National Radiological Protection Board (NRPB), conform to all the requirements specified in the ‘Recommendations for ionisation smoke detectors in implementation of radiation standards’ published by the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD) 1977. There is no limit to the number of ionisation smoke detectors which may be installed in any fire protection system within the United Kingdom. See Certificate of Approval no. TA1 issued by the Health & Safety Executive for further details. Storage regulations depend on local standards and legislation, but, in the UK, the number of ionisation smoke detectors in any building or

premises shall be less than 500. See Certificate of Approval no. TA3 of 1999 issued by the Health & Safety Executive for further details. At the end of their recommended working life of ten years, ionisation smoke detectors should be returned to the manufacturer for safe disposal or disposed of in an otherwise locally approved and environmentally safe manner. Please see "A guide to the care, maintenance and servicing of the detector products", PP2055.

Environmental Characteristics

Series 65E ionisation smoke detectors operate over a temperature range of –20°C to +60°C. Ionisation detectors have some sensitivity to air movement (wind). The extent to which the sensor output will change depends on the wind speed and on the orientation of the detector relative to the wind direction. Relatively small changes in wind direction can cause significant changes in sensor output. For wind speeds up to 1m/s (200ft/min) sensitivity will change by less than 20%. Continuous operation in wind speeds greater than 2m/s (400ft/min) is not recommended. However, wind speeds up to 10m/s (2000ft/min) can be tolerated for short periods and will not under any conditions increase the probability of false alarms. Series 65E ionisation smoke detectors are supplied in individual packing with a red lid serving as a dust cover which can be left in place after fitting to prevent ingress of foreign material until commissioning of the system takes place. At this point the covers must be removed.

Product Information

The Series 65E Ionisation Smoke Detector uses a low activity radioactive foil to detect fires by irradiating the air in the smoke chamber and causing a current flow. If smoke enters the chamber, the current flow is reduced leading to an alarm.

Key Features

Responds well to fast burning, flaming fires, Designed to operate in a variety of environments, Flashing LED and magnet operated test switch option.

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General	
Fire Type	Fast burning, flaming fires
Warranty	10 year
Performance	
Chamber Type	Chevron
Electrical	
Polarity	L1 & L2 ----------
Radioactive Isotope Activity	33.3kBq
Holding Voltage (Min)	6V
Minimum Voltage To Light Alarm LED	12V
Alarm Reset Time	1s
Alarm Load	420Ω in series with 2V drop
Environmental	
Humidity (Min)	0% RH
Humidity (Max)	95% RH
Humidity Note	no condensation or icing
Humidity	0% to 95% (no condensation or icing)
Operating Temperature (Min)	-20°C
Operating Temperature (Max)	60°C
Operating Temperature	-20 to 60°C
Storage Temperature (Min)	-30°C
Storage Temperature (Max)	80°C
Storage Temperature	-30 to 80°C
Conformance	
Standards	EN 54-7
Approvals	EN 54-7
Mechanical	
Weight	102g
Colour	White
Materials Housing	Polycarbonate
Materials Terminals	Nickel plated stainless steel
Product Length	42mm
Product Diameter	100mm
Detection Principle	Ionisation chamber.

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