Schneider Electric

High Sensitivity Smoke Detector
72051El

Instruction Sheet

R10096GB0

Contents

1 High Sensitivity Smoke Detector 72051EI

1.1 Description

The 72051EI high sensitivity, high gain amplifier based intelligent smoke sensor is a unique offering from System Sensor that provides extremely high sensitivity to fire conditions, by detecting the earliest particles of combustion. This is achieved by combining a patented optical chamber with advanced high power output IR LED diode and precision optics technology, which is matched with a unique superior high gain IR receiver amplifier, enhancing the sensitivity of the device. The chamber is supported by sophisticated processing circuitry and microprocessors that feature smoothing-filter algorithms to help eliminate transient environmental noise conditions and reduce nuisance alarms.

The result is a very sensitive but stable sensor that can achieve 0.06 to 6.41% / m obscuration sensitivity, providing up to 100 times more sensitivity than a standard photoelectric smoke sensor.

With its quick response and pinpoint accuracy, this unique sensor is ideally suited to environmental applications where there is substantial cost for downtime or a significant investment in installed equipment has been made (e.g. Electronics Manufacturer Clean Rooms, Telecommunication Rooms, Computer Rooms etc.).

Historically, photoelectric smoke sensors have shown a quick response to slow smoldering fires, whilst ionization smoke sensors have provided a better response to fast flaming fires. However, the 72051EI sensor provides good responses to both types of fires by improving its signal-to-noise ratio. The high gain amplifier implemented into 72051EI improves the sensor's signal and increases the ability to detect small particles (usually associated with fast flaming fires), which are not as easily detected by a standard photoelectric smoke sensor. Meanwhile, the sensor's smoothing and filtering algorithms reduce noise and the possibility of false alarms.

The sensor's performance is improved even further by the inclusion of special drift compensation algorithms, which compensate for the buildup of any contamination in the sensing chamber. There are three stages of drift compensation, 'low-level alert', 'high-level alert' and 'maintenance urgent'. The 'low and high-level alert' signals are used to identify that the 72051EI sensor has accumulated significant amounts of airborne particles and requires maintenance, whilst the 'maintenance urgent' signal indicates that the sensor has reached the end of its compensation range.

1.2 Configuration and limitation

As the the 72051EI detector uses CLIP protocol the SLC loop card of Esmi Sense FDP or FX 3NET Fire Alarm System needs to be configured as LC. The product itself must be configured as 7251 detector.

AP200 devices works with CLIP protocol because of backward compatibility. However CLIP devices aren't able to add the loop with AP200 devices.

The limitation in CLIP protocol is 99 devices per loop.

1.3 Features

- Extremely high sensitivity, high power output IR LED and high gain IR receiver amplifier based smoke sensor

- Superior early warning performance

- Effective response to both fast flaming liquid fires and slow smoldering fires

- New mechanical platform with patented chamber to maximize smoke entrance and false alarm immunity

- Improved resilience to false alarms through dust

- Removed risk of false alarms through insects

- Includes Series 200 Advanced Protocol

- Includes single pole short circuit isolation with status control through the Series 200 Advanced Protocol

- Twin LED indicators providing 360˚ visibility, offering tri-color flashing option (red, green, amber colors)

- Rotary decade address switches

- Pure white color to compliment modern buildings

1.4 Architect/Engineer Specification
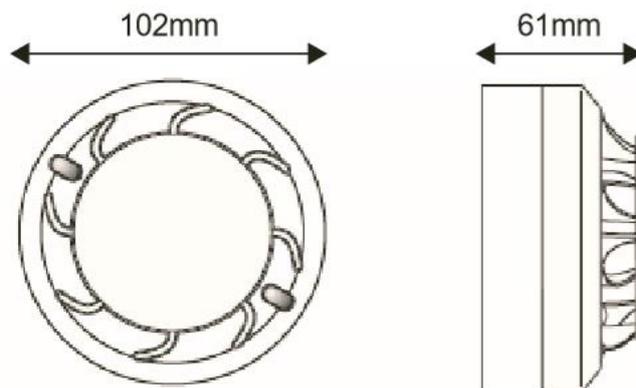
1.5 72051EI sensitivity settings

Alarm level no.1	0.06% /m smoke obs. (0.02% /ft.)
Alarm level no.2	0.10% /m smoke obs. (0.03% /ft.)
Alarm level no.3	0.16% /m smoke obs. (0.05% /ft.)
Alarm level no.4	0.33% /m smoke obs. (0.10% /ft.)
Alarm level no.5	0.66% /m smoke obs. (0.20% /ft.)
Alarm level no.6	1.65% /m smoke obs. (0.50% /ft.)
Alarm level no.7	3.24% /m smoke obs. (1.00% /ft.)
Alarm level no.8	4.85% /m smoke obs. (1.50% /ft.)
Alarm level no.9	6.41% /m smoke obs. (2.00% /ft.)

1.6 Product Codes

High Sensitivity Smoke Detector 72051EI	FFS06711100
Compatibility bases	
B501AP detector base	FFS06710600
B524HTR detector base	FFS06710631