

# SS421 Smoke Sensor

The Sperosens range of smoke sensors is used in mine haulages and shafts to measure smoke in the environment. It is an indispensable aid to the ventilation engineer, providing accurate measurements of smoke and early fire warning in underground mining operations.

The Sperosens sensor range seamlessly integrates with our industry leading SL2010 Fire Detection and Monitoring system as well as any third-party system capable of interpreting 4-20mA signals.

## KEY FEATURES

- Measures Smoke in 0-100% range.
- 24VDC Input Power, 4-20mA Analog Output
- Ruggedized Design

## APPLICATIONS

- Intake air ways
- Return air ways
- Cable ducts
- Conveyor belt drive houses

## PRODUCT MODEL

**Type:** SS421  
**Part Number:** 331013



# SS421 SMOKE SENSOR

## FUNCTIONALITY

- The SS421 is a smoke concentration sensor that uses radioactive ionisation to detect the presence of smoke particles in the atmosphere.
- The burning (combustion) of a fuel (timber, coal, petro-chemicals) that contains carbon and heavy metals in its chemical structure, gives off microscopic airborne particles of un-combusted materials. The faster and hotter a fire is burning, the more of these particles are emitted.
- The SS421 has a 3 wire 4-20 mA industry standard electrical interface, making it compatible with most industry standard controllers, including the SL2010 IOC devices.
- The SS421 has an industry telemetry standard 4-20 mA output signal interface.
- The SS421 is available in only one concentration range.
- The SS421 electronic enclosure is ingress protected to IP 65 against dust and water.
- The SS421 is fitted with a magnet operating baseline adjustment function.
- The SS421 is fitted with two voltage test pads where the output signal can be checked with a Digital Multi-Meter (DMM) measuring DC Voltage.

## CERTIFICATION

### Ex Protection:

Ex ia Group I (Note: When used on a IS system loop approval must be obtained)

## MECHANICAL SPECIFICATIONS

**Physical Dimensions:** 127mm x 123mm x 260mm  
**Weight:** ± 3 kg

## SPECIFICATIONS

<b>Measuring Range:</b>	0 – “100%” Smoke
<b>Network:</b>	Not Applicable
<b>Analog Output Signal:</b>	4- 20 mA
<b>Maximum Load Resistance:</b>	500 Ω . @ 24VDC
<b>Test Signal:</b>	40 mV;Zero 200 mV; Full Scale
<b>Radio Active Content of Sensor:</b>	Krypton 85 Gas 2.0 Milli-Curie
<b>Leakage Radiation of Sensor:</b>	≤ 5 μSv / H against Instrument
<b>Electrical Protection:</b>	Test output is short circuit protected
<b>Warm Up Time:</b>	< 30 sec

## ELECTRICAL SPECIFICATIONS

<b>Supply:</b>	15 - 30VDC (3 wire system)
<b>Analog Output Signal:</b>	4mA - 0% 20mA - 100%
<b>Interfaces:</b>	24VDC – ( 4-20mA capable IO device)

### Electrical protection:

Input power supply is reverse polarity protected.  
Analogue output is short circuit protected. Tests output is short circuit protected

## ENVIRONMENTAL SPECIFICATIONS

<b>Water and Dust:</b>	IP 65
<b>Temperature:</b>	10 °C to 45 °C