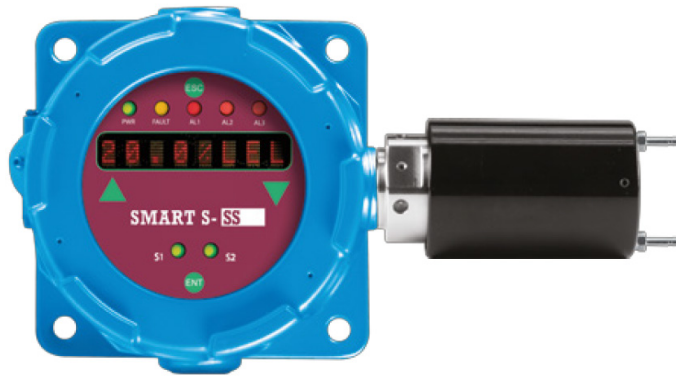# SMART S-SS
## with POP-IR sensor



Designed to meet the toughest industrial standards, the SMART S-SS series gas detectors are used in classified areas (zone 1).

The Point Open Path infrared sensor, POP-IR, is used for the detection of flammable substances. The POP-IR (like the traditional infrared sensor) is not susceptible to poisoning and has a high selectivity. It was developed specifically to keep measurements immune from changes in ambient humidity and has a T90 below 10 seconds, which significantly improves performance compared to traditional infrared sensors. The sensor is housed in the stainless steel head, with a diameter of 47.5 mm.

The detector has a 12-24 Vdc power supply, a 4-20 mA signal output and an RS485 signal.

The SMART S-SS is equipped with a display (LCD or LED) to monitor the concentration in real time and Hall effect sensors for non-intrusive calibration in the field.

To adapt to the customer's needs, the SMART S-MS detector has the following customization possibilities:
•     Choice of the sensor head based on the gas to be detected
•     Choice of transmitter (type of display, 3-relay board, HART modem)
•     Choice of enclosure (aluminium / steel)

The detector can be ATEX marked in the following ways:

CE 0722 ⟨Ex⟩ II 2G Ex db op is IIC T6 Gb

The detector is also certified according to the international IECEx scheme and marked:

Ex db op is IIC T6 Gb

SMART S-SS is SIL2 hardware and SIL3 software; with a redundant system also the hardware is SIL3.

### Sensor

| | |
|---|---|
| Application | Industrial areas, ATEX Zone 1 |
| Sensor | Infrared Point Open Path (POP-IR) |
| Estimated sensor life | > 5 years |
| Gas detected | Flammable gases |
| Full scale range | 0 - 100% LFL |

### Electrical parameters

| | |
|---|---|
| Power supply | 12-24 Vdc |
| Output | Analogue 4-20 mA output; RS485 serial output; 3 relay board (optional); HART modem (optional) |
| Maximum dissipated power | 4.9 W |
| Relays contact ratings | 1.0 A a 24 Vdc |
| Visual indications | LED or LCD display |
| Acoustic indications | - |
| Hall effect sensor | Three sensors for calibration by magnet |

### Environmental conditions

| | |
|---|---|
| Storage temperature | -40 / +85°C |
| Operating temperature | -40 / +60°C |
| Operating humidity | 0-95% RH non-condensing |
| Operating pressure | 800-1200 mbar |
| Response time | $t_{90}$ < 10 s ; $t_{50}$ < 4 s (without hydrophobic / dust filter)<br>$t_{90}$ < 60 s ; $t_{50}$ < 10 s (with hydrophobic / dust filter) |

### External case

| | |
|---|---|
| Material | Enclosure: die-cast aluminium with colour and chemically resistant epoxy paint or electropolished SS316 stainless steel<br>Sensor head: SS316 stainless steel |
| Protection mode | Ex d: Explosion proof enclosure<br>Ex op is: Intrinsically safe optical radiation protection mode |
| Dimensions | 138 x 270 x 120 mm (4A enclosure)<br>155 x 280 x 109 mm (2S enclosure) |
| Weight | 3300 g (4A enclosure)<br>4700 g (2S enclosure) |
| Cable entries | 3 x 3/4" NPT |
| IP grade | IP65 |

### Compliance

| | |
|---|---|
| EMC | EN 61000-6-3:2007 + A1:2011; EN 50270:2015 |
| ATEX | ATEX directive 2014/34/EU<br>EN IEC 60079-0:2018<br>EN 60079-1:2014<br>EN 60079-28:2015 |
| IECEx | IEC 60079-0:2011<br>IEC 60079-1:2014<br>IEC 60079-28:2006 |
| SIL | EN 61508:2010 Parts 1, 2, 3, 4, 5, 6, 7<br>EN 50402:2017 |

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*To order a SMART S-SS detector, the transmitter must be paired with the container and sensor head of the gas of interest.*

*The product code is composed as follows:*

| SSS | Enclosure code | Transmitter code | - | Sensor head code |
|-----|----------------|------------------|---|------------------|

*Example: the code SSS4A18-S6002ME is a SMART S-MS detector with the 4A enclosure, the electronics with LED display, 3 relay board and HART modem. The sensor head code S6002ME is for methane 0-100% LFL.*



4A

2S

### Enclosure code

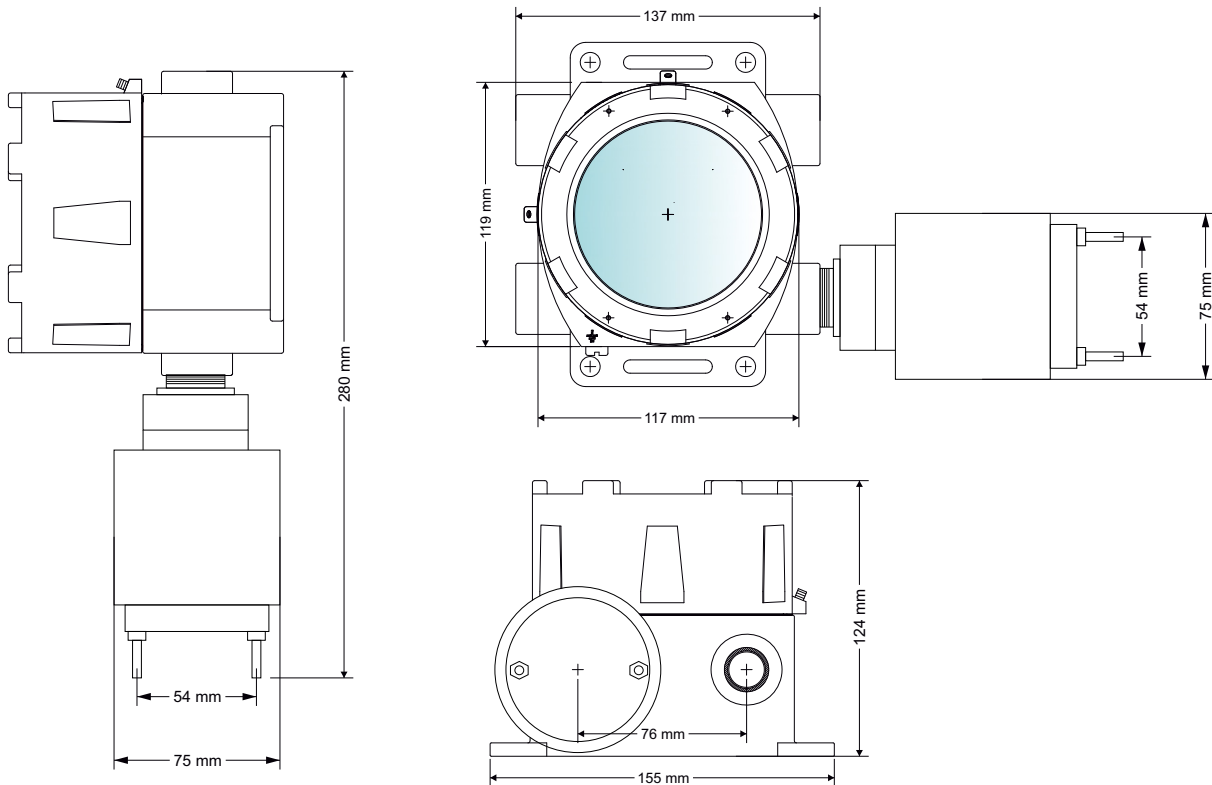| | | ATEX code |
|----|-----------------------------------------------------|---------------------|
| 4A | Aluminium enclosure with four 3/4" NPT conduits | ST / 7W / ES / C6 |
| 2S | Stainless steel enclosure with four 3/4" NPT conduits | ST / 8K / ES / C6 |

### Transmitter code

| | |
|----|------------------------------------------------------------------------------------|
| 11 | Electronics with 1 RS485 + 4-20 mA output, LCD display |
| 12 | Electronics with 1 RS485 + 4-20 mA output, LED display |
| 13 | Electronics with 1 RS485 + 4-20 mA output, 3 relays card, LCD display |
| 14 | Electronics with 1 RS485 + 4-20 mA output, 3 relays card, LED display |
| 17 | Electronics with 1 RS485 + 4-20 mA output, 3 relays card, Hart modem, LCD display |
| 18 | Electronics with 1 RS485 + 4-20 mA output, 3 relays card, Hart modem, LED display |

### Sensor head code

| | |
|----------|---------------------------------------------|
| S6002ME | METHANE sensor head, 0-100% LFL |
| S6002PR | PROPANE sensor head, 0-100% LFL |
| S6002BU | BUTANE sensor head, 0-100% LFL |
| S6002AT | ACETONE sensor head, 0-100% LFL |
| S6002EN | ETHANE sensor head, 0-100% LFL |
| S6002ET | ETHYL ALCOHOL sensor head, 0-100% LFL |
| S6002EP | HEPTANE sensor head, 0-100% LFL |
| S6002ES | HEXANE sensor head, 0-100% LFL |
| S6002IB | ISO BUTANE sensor head, 0-100% LFL |
| S6002PE | PENTANE sensor head, 0-100% LFL |
| S6002PP | PROPYLENE sensor head, 0-100% LFL |

### Mechanical drawings SMART S-SS POP-IR with 2S enclosure

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*Mechanical drawings SMART S-SS POP-IR with 4A enclosure*

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