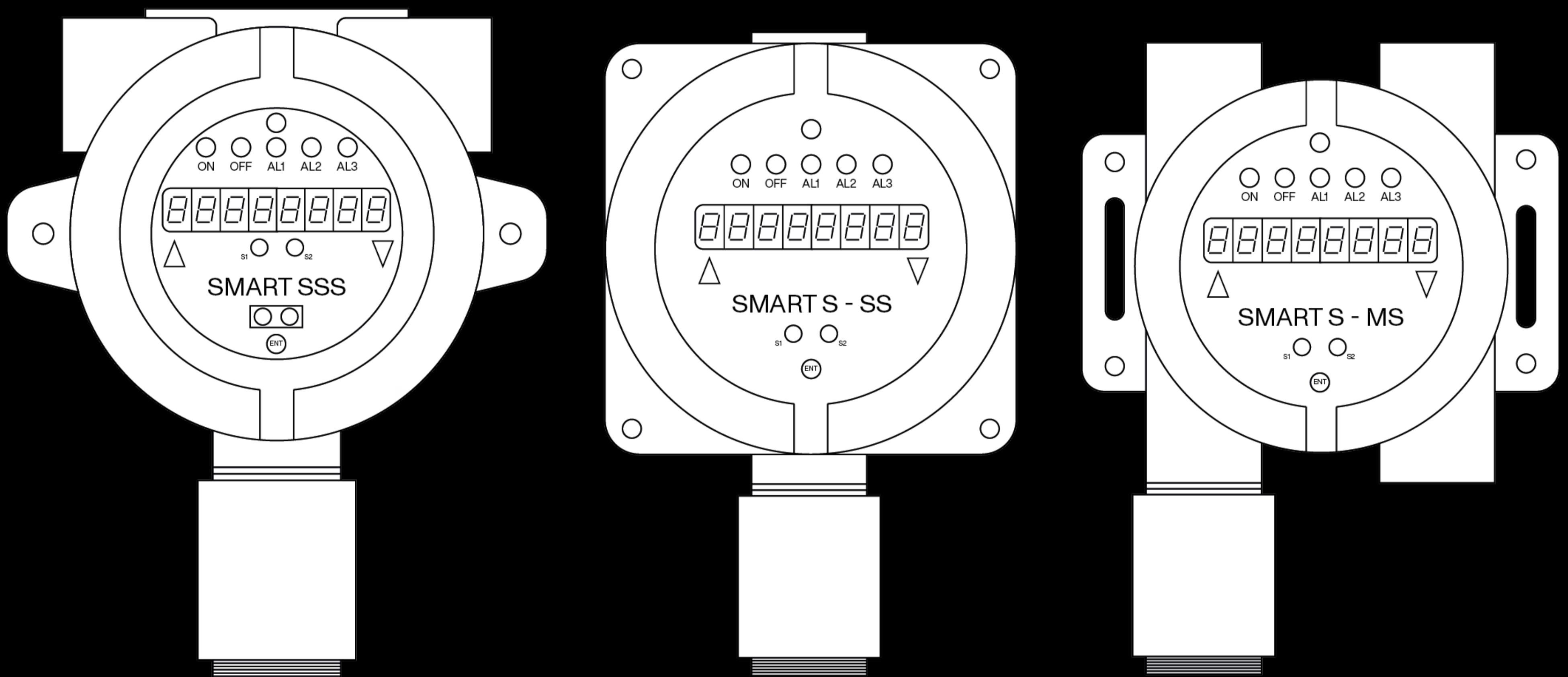


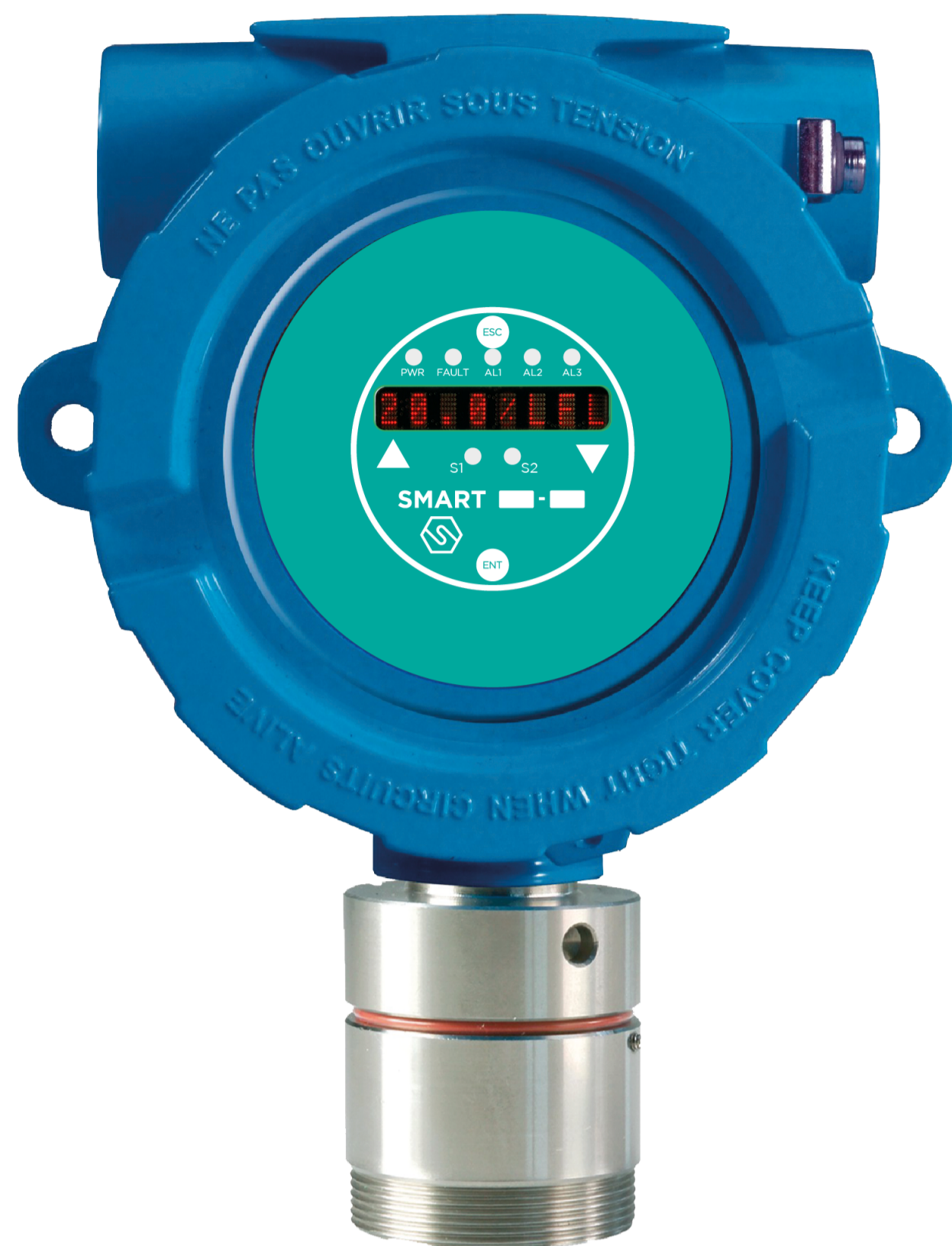
# SMART S-SS

with electrochemical cell



## Datasheet





Designed to meet the toughest industrial standards, the SMART S-SS series gas detectors are used to detect, in classified areas (zone 1 and, if equipped with the dust adapter, zone 21), the presence of toxic substances (ppm).

For the reading of toxic gases the premium electrochemical cell is used as a sensing element, which is well suited for the detection of substances at low concentrations. The sensor is housed in a 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-SS detector has the following customization possibilities:

- I Choice of the sensor head based on the gas to be detected
- II Choice of transmitter (3-relay board, HART modem)
- III Choice of enclosure (aluminium / steel, number of entrances)

The detector can be ATEX marked in the following ways:

CE 0722 Ex II 2G Ex db IIC T5 Gb

Or, if equipped with a dust adapter:

CE 0722 Ex II 2GD Ex db IIC T5 Gb  
Ex tb IIIC T100°C Db  
IP65



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

Ex db IIC T5 Gb

Or, if equipped with a dust adapter:

Ex db IIC T5 Gb  
Ex tb IIIC T100°C Db  
IP65



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 and Zone 21 (if equipped with optional dust adapter)

**Sensor** Electrochemical cell

**Estimated sensor life** 2 / 3 years

**Gas detected and range** O<sub>2</sub> [0-25% Vol], CO [0-100/500/1000 ppm], NH<sub>3</sub> [0-100/200/1000 ppm], H<sub>2</sub>S [0-20/50/100 ppm], NO [0 - 100 ppm]; H<sub>2</sub> [0 - 1000/2000/3000 ppm]

**Full scale** 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** 5.4 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** 0 / +20°C for a maximum of 6 months

**Operating temperature** -20 / +55°C (LCD)  
-30 / +55°C (LED)

**Operating humidity** 15 / 90% RH non-condensing

## External case

**Material** Enclosure: die-cast aluminium with colour and chemically resistant epoxy paint or electropolished SS316 stainless steel  
Sensor head: SS316 stainless steel

**Protection mode** Ex d : Explosion proof enclosure  
Ex t : Equipment dust ignition protection by enclosure (when equipped with optional dust adapter)

**Dimensions** 145 x 187 x 110 mm (3A enclosure)  
138 x 200 x 120 mm (4A enclosure)  
155 x 210 x 124 mm (2S enclosure)

**Weight** 1700 g (3A enclosure)  
2800 g (4A enclosure)  
4200 g (2S enclosure)

**Cable entries** 2 or 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 EN IEC 60079-0:2018 EN 60079-1:2014 EN 60079-31:2014
IECEX	IEC 60079-0:2011 IEC 60079-1:2014 IEC 60079-31:2013
SIL	EN 61508:2010 Parts 1, 2, 3, 4, 5, 6, 7 EN 50402:2017

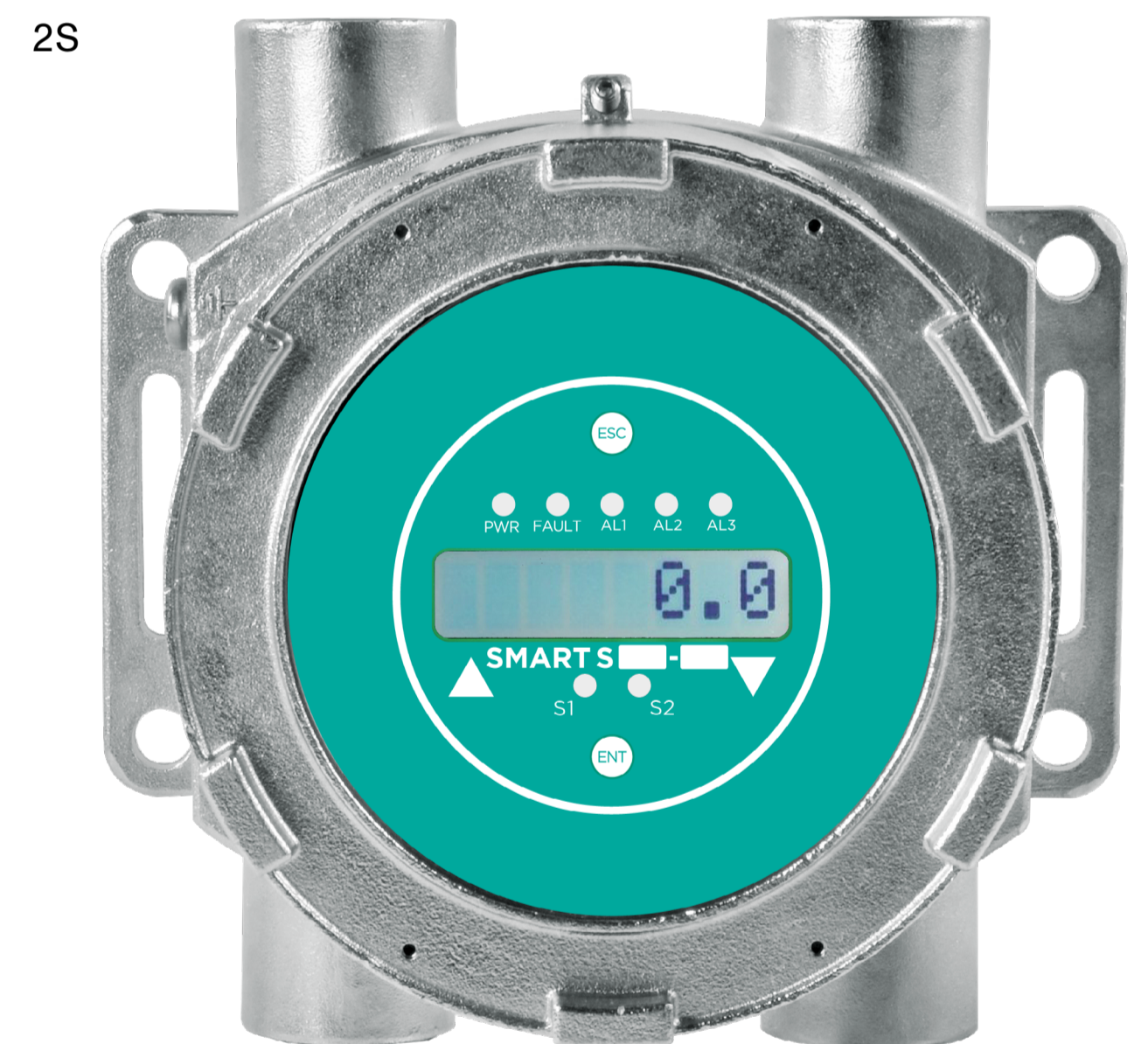
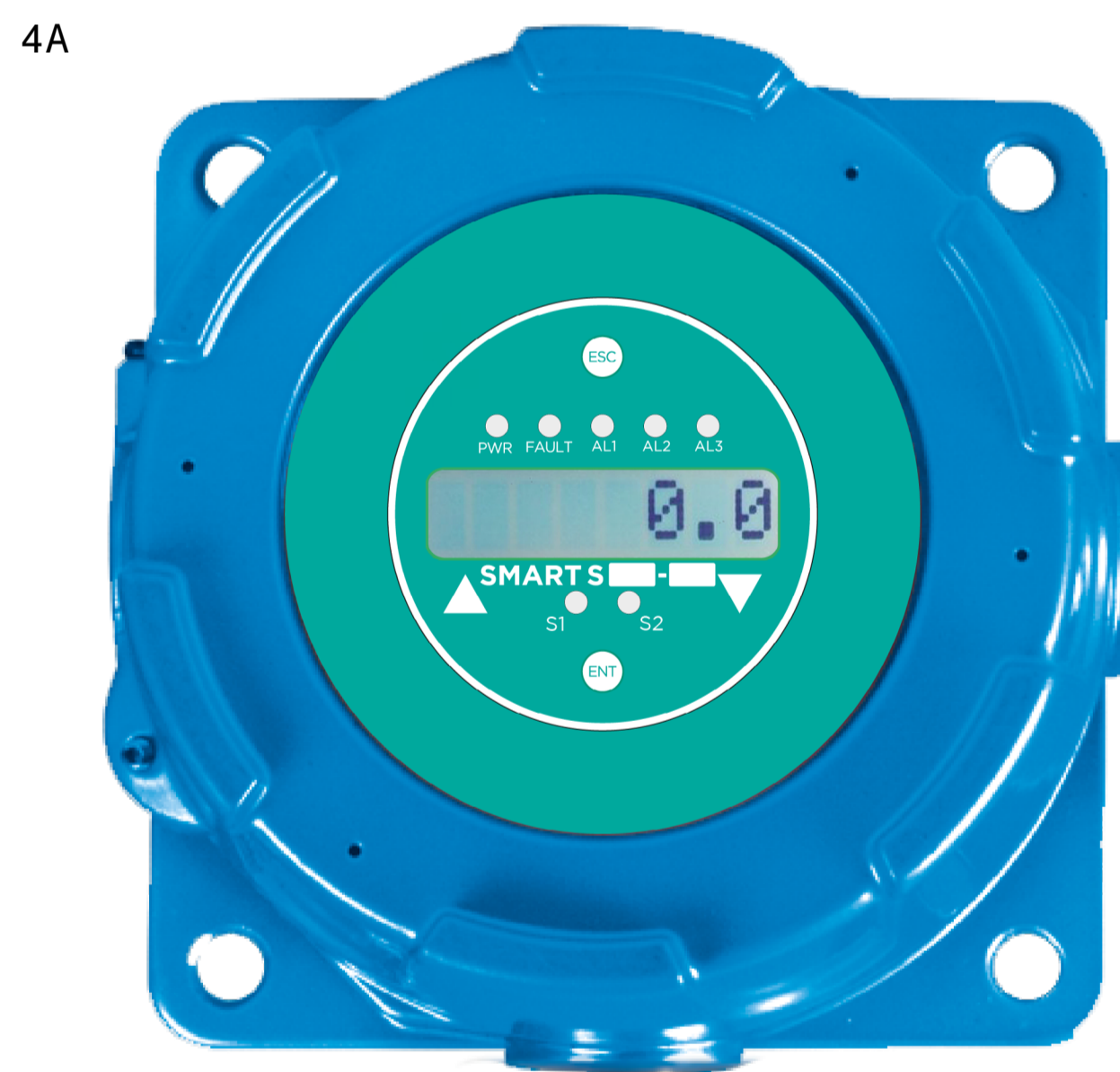
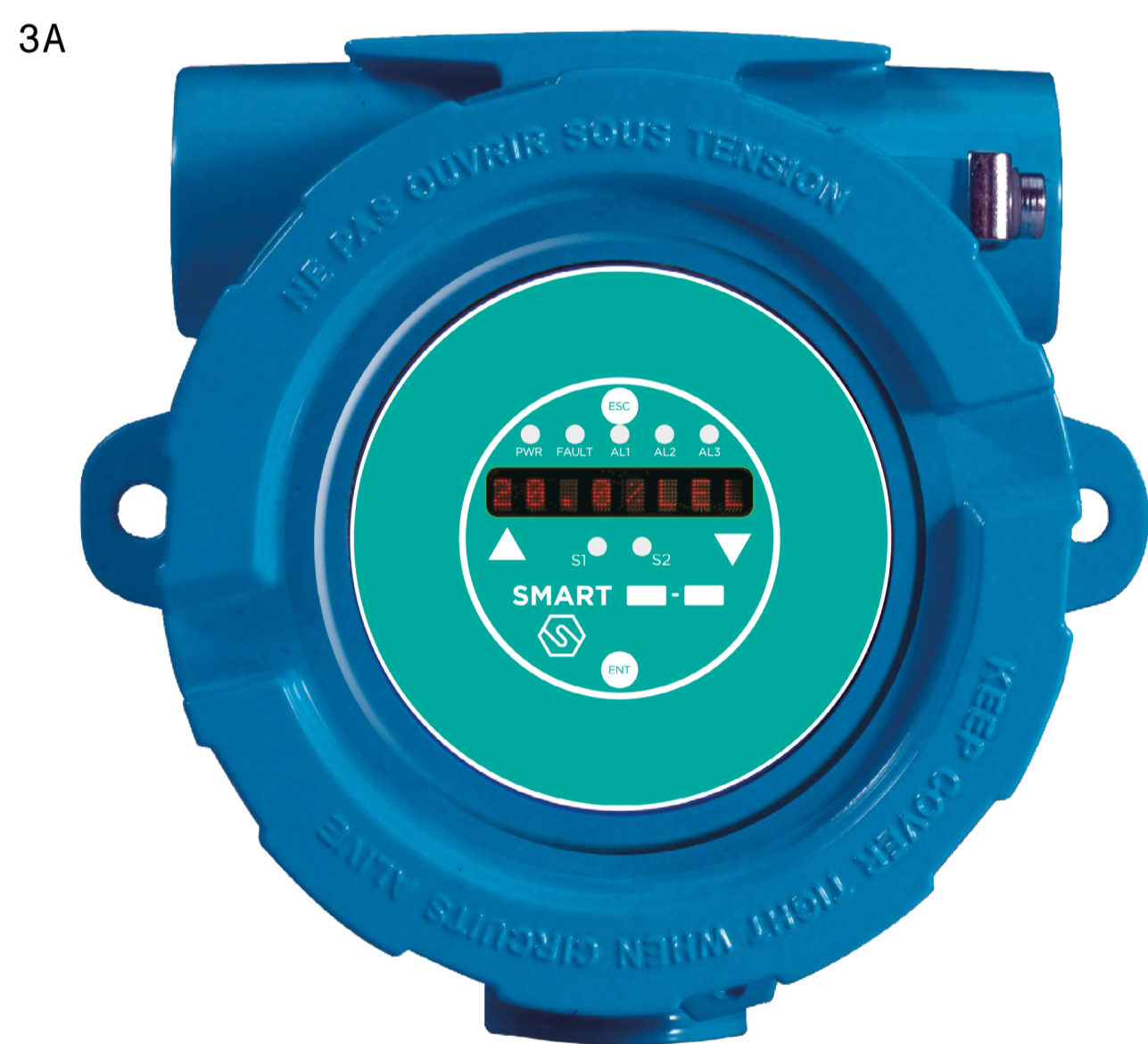
To order a SMART S-SS detector, the transmitter must be paired with the container and sensor head of the gas of interest.

The product code is composed as follows:

SSS | enclosure code | transmitter code - sensor head code

Example:

the code SSS3A18-S4005O2 is a SMART S-SS detector with the 3A enclosure, the electronics with LED display, 3 relay board and HART modem. The sensor head code S4005O2 is for oxygen 0-25% Vol.



## Enclosure code

3A | Aluminium enclosure with three 3/4" NPT conduits

4A | Aluminium enclosure with four 3/4" NPT conduits

2S | Stainless steel enclosure with four 3/4" NPT conduits

## ATEX code

ST / LW / ES / S3

ST / 7W / ES / S3

ST / 8K / ES / S3

## 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

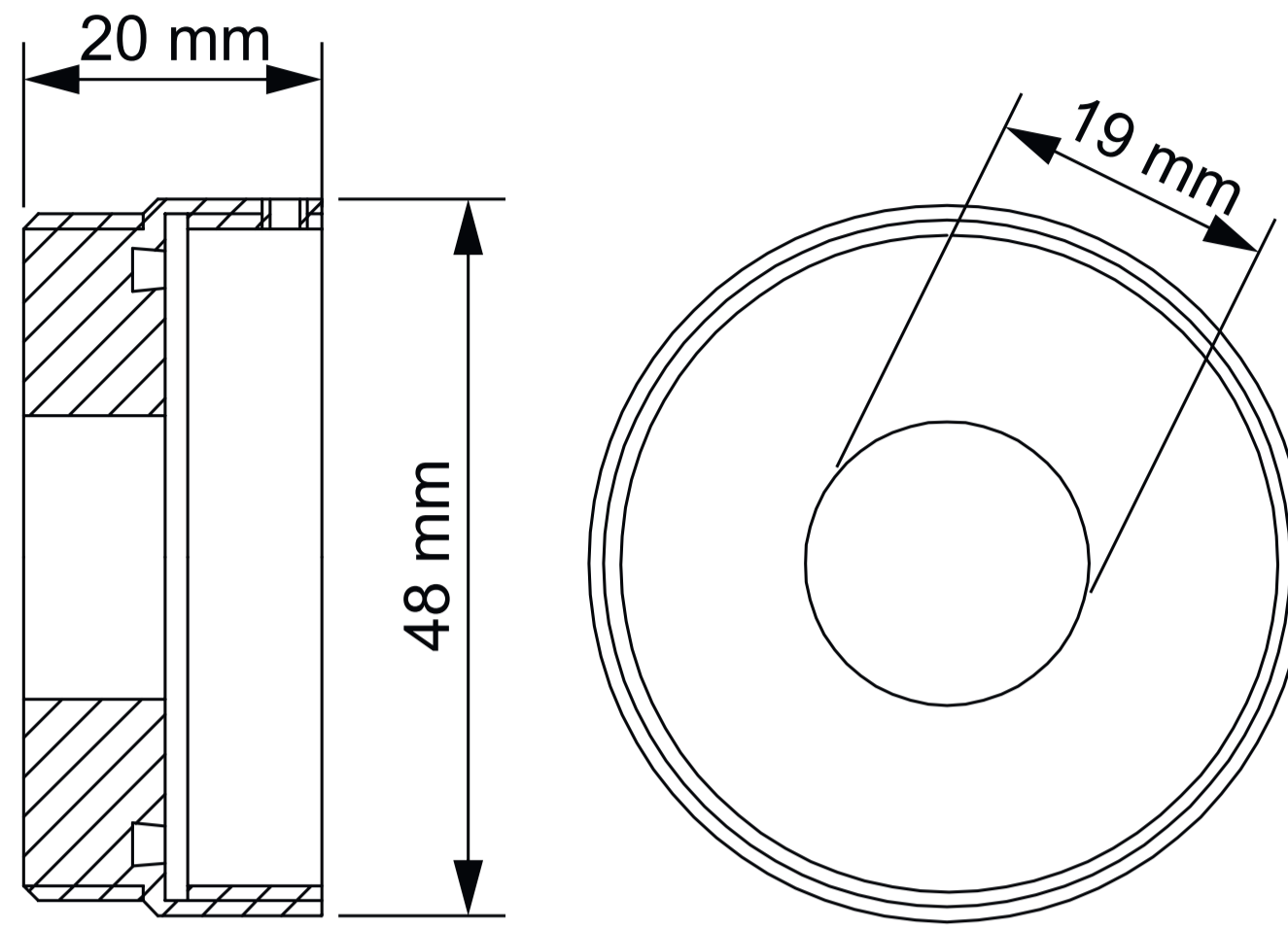


## Sensor head code

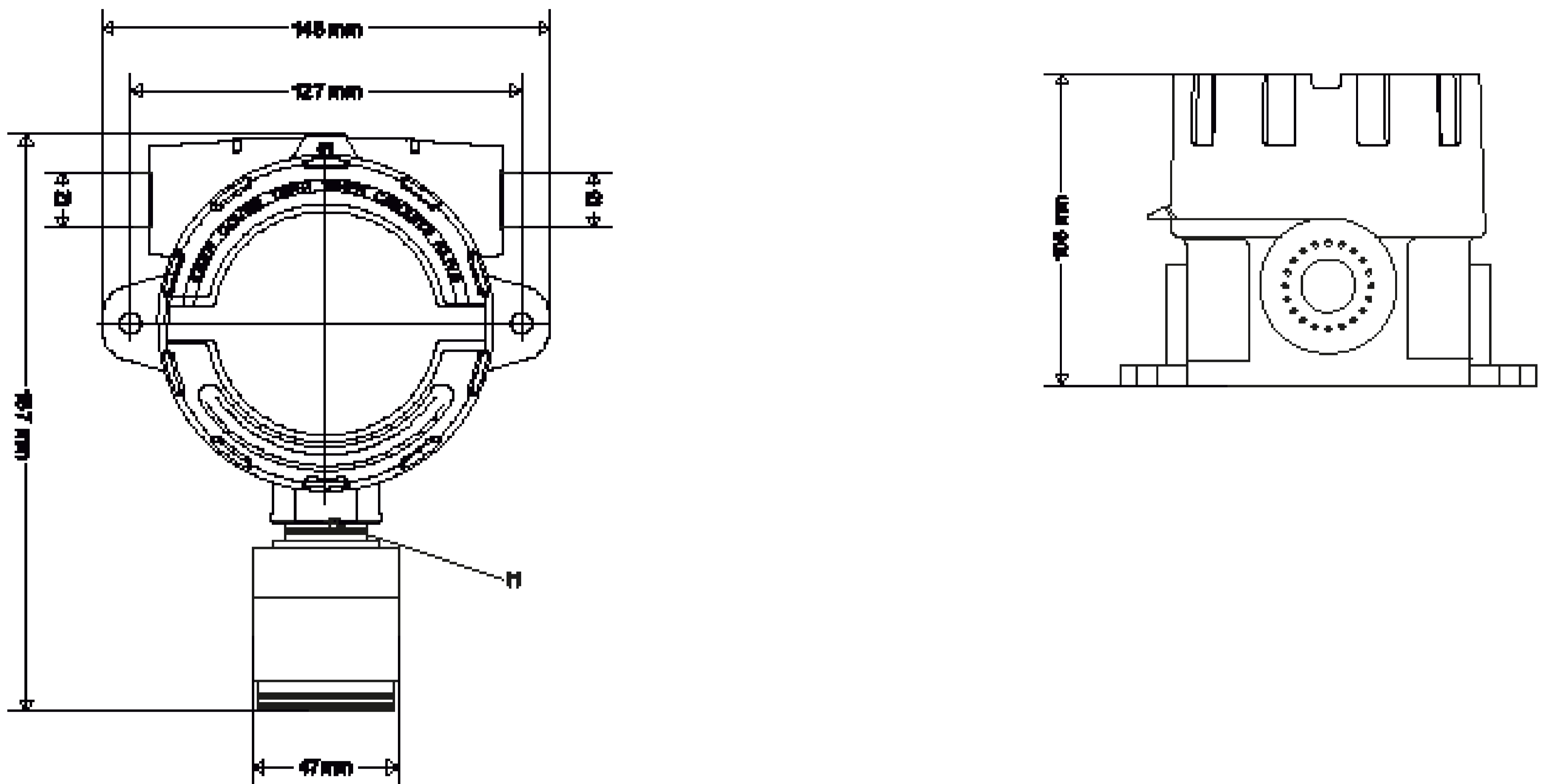
S4005O2	OXYGEN (O <sub>2</sub> ) sensor head, 0-25% Vol.
S4166CO	CARBON MONOXIDE (CO) sensor head, 0-100 ppm
S4006CO	CARBON MONOXIDE (CO) sensor head, 0-500 ppm
S4021CO	CARBON MONOXIDE (CO) sensor head, 0-1000 ppm
S4022AM	AMMONIA (NH <sub>3</sub> ) sensor head, 0-100 ppm
S4007AM	AMMONIA (NH <sub>3</sub> ) sensor head, 0-200 ppm
S4008AM	AMMONIA (NH <sub>3</sub> ) sensor head, 0-1000 ppm
S4009HS	HYDROGEN SULPHIDE (H <sub>2</sub> S) sensor head, 0-50 ppm
S4028HS	HYDROGEN SULPHIDE (H <sub>2</sub> S) sensor head, 0-20 ppm
S4029HS	HYDROGEN SULPHIDE (H <sub>2</sub> S) sensor head, 0-100 ppm
S4010NO	NITRIC OXIDE (NO) sensor head, 0-100 ppm
S4089H2	HYDROGEN (H <sub>2</sub> ) sensor head, 0-1000 ppm
S4168H2	HYDROGEN (H <sub>2</sub> ) sensor head, 0-2000 ppm
S4169H2	HYDROGEN (H <sub>2</sub> ) sensor head, 0-3000 ppm



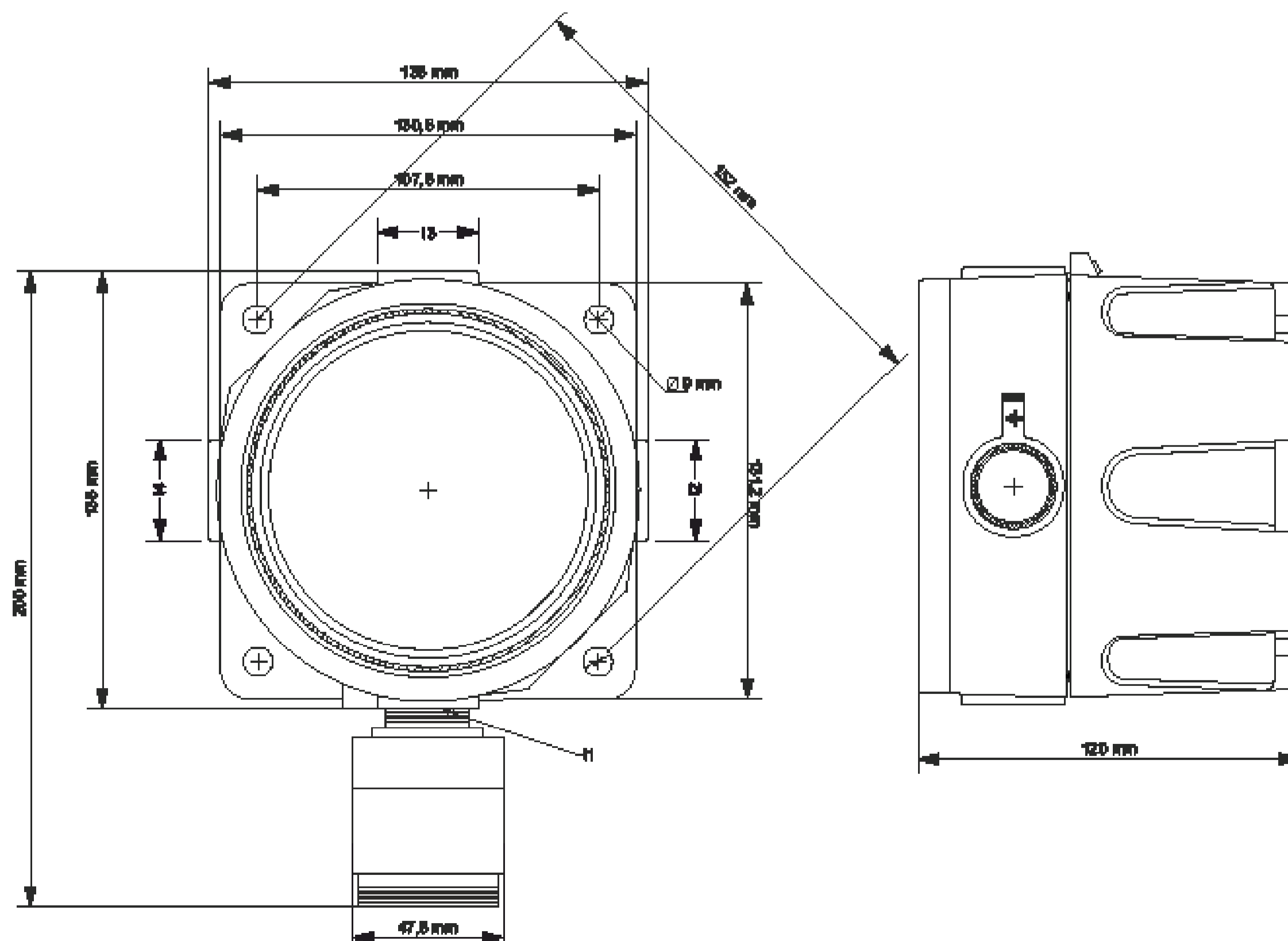
STG/AD3 dust adapter  
(optional accessory available for all models)



Mechanical drawings SMART S-SS with 3A enclosure

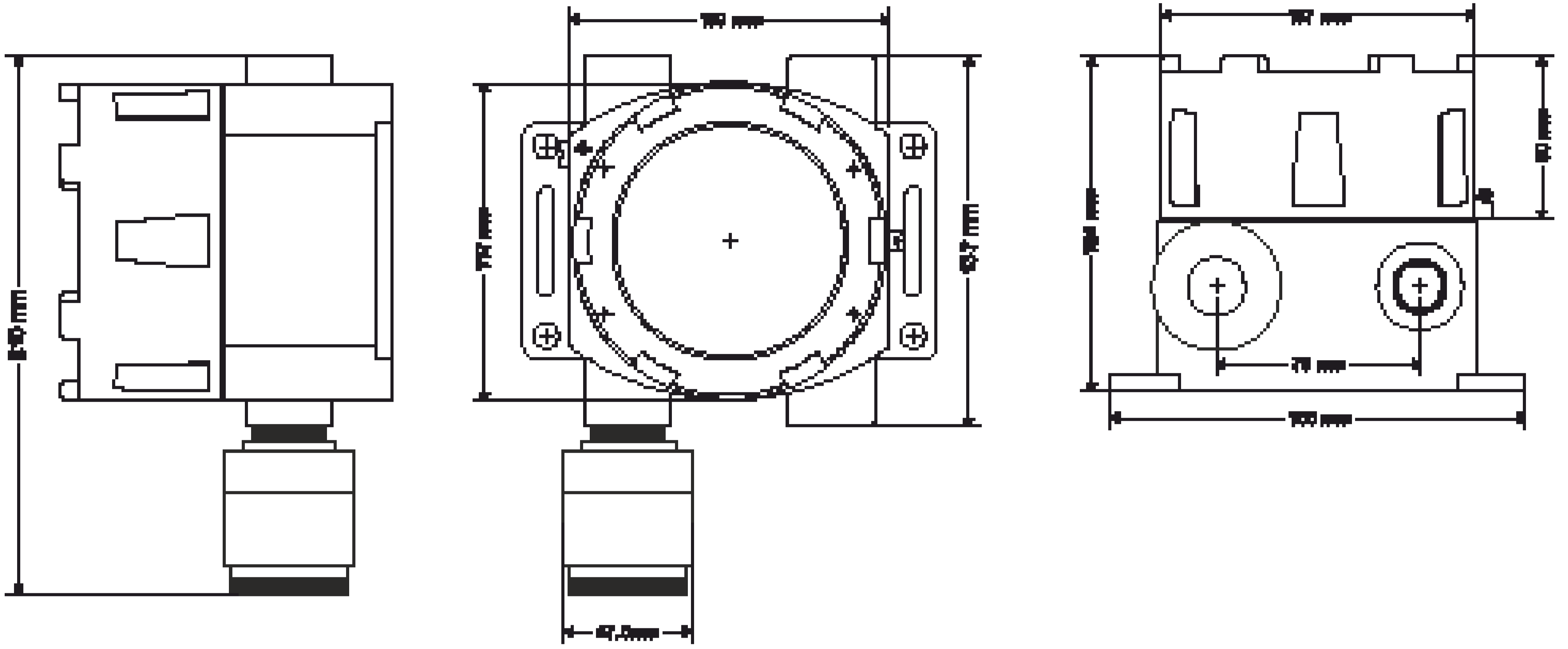


Mechanical drawings SMAR





Mechanical drawings SMART S-SS with 2S enclosure



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