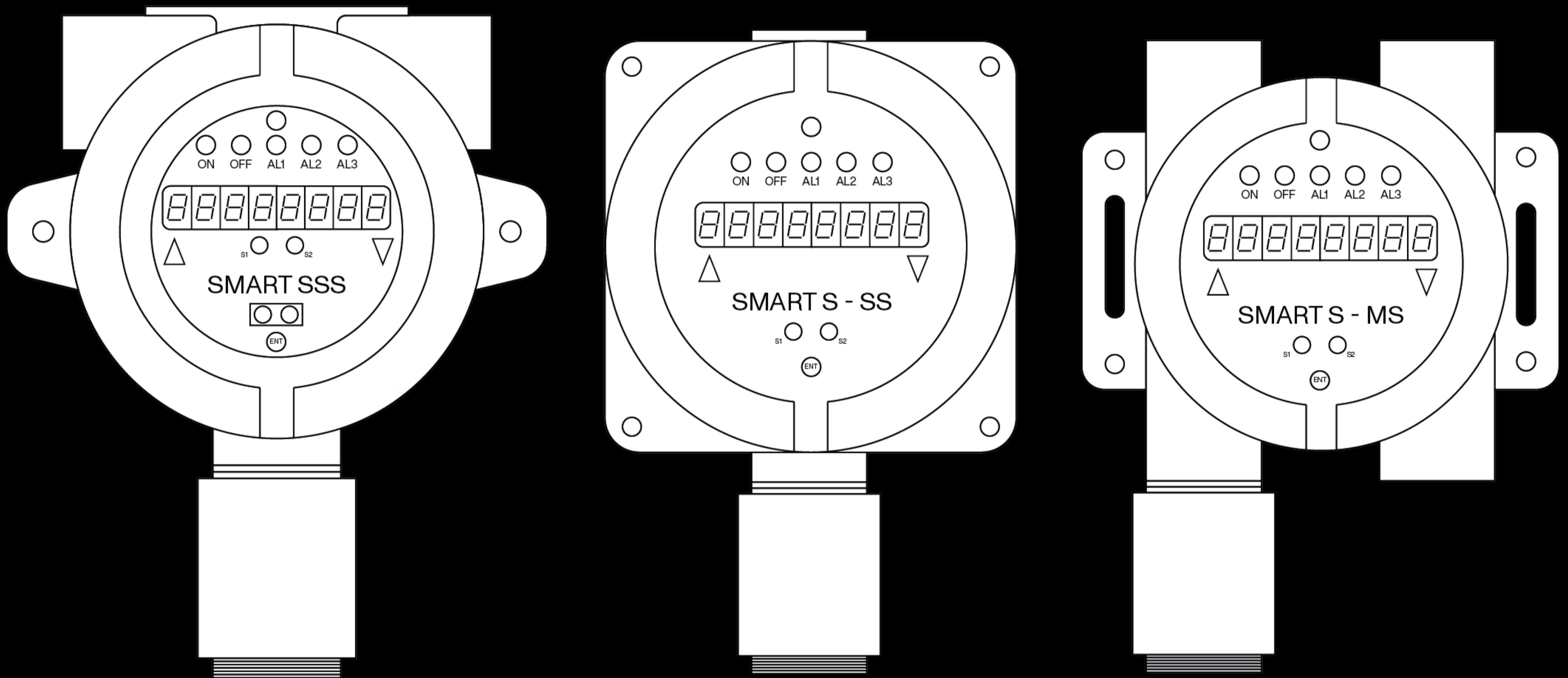


# SMART S-SS

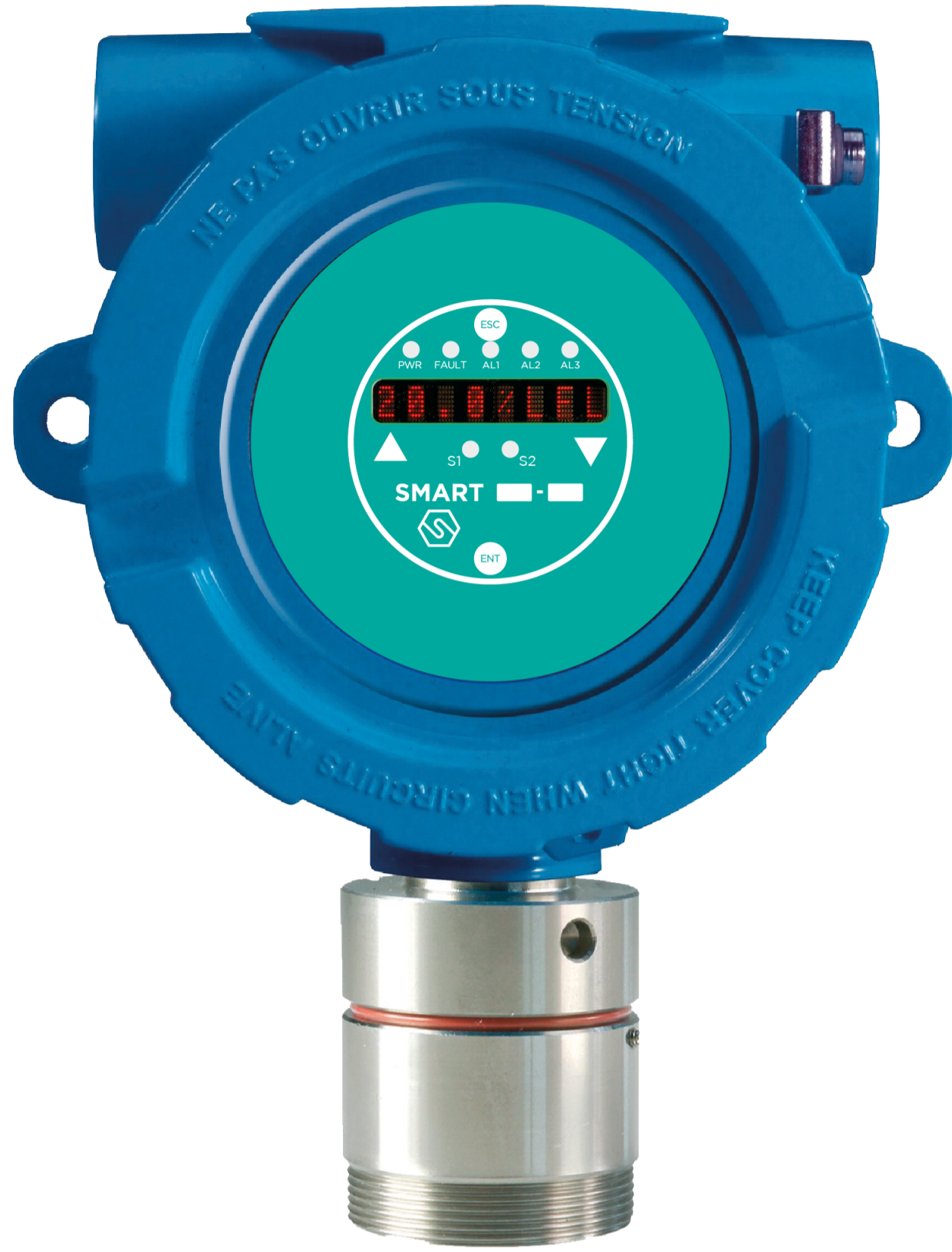
with infrared sensor



Datasheet







Designed to meet the toughest industrial standards, the SMART S-MS series gas detectors are used in classified areas (zone 1 and, if equipped with the dust adapter, zone 21).

For the detection of flammable substances, refrigerant gases and carbon dioxide, the infrared sensor is used, not susceptible to poisoning and with high selectivity. 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 T5 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** Infrared

**Estimated sensor life** > 5 years

**Gas detected and range**  
0 - 100% LFL flammable gases  
0 - 2000 ppm refrigerant gases  
0-2%Vol; 0-5%Vol; 0-30%Vol; 0-100%Vol CO<sub>2</sub>

## 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** -40 / +85°C

**Operating temperature**  
-20 / +60°C \* (LCD)  
-40 / +60°C \* (LED)

**Operating humidity** 20 / 90% RH @40°C \*

**Operating pressure** 86 / 120 kPa \*

**Air velocity** 6 m/s \*

**Response time**  $t_{90} < 60 \text{ s}$  ;  $t_{50} < 20 \text{ s}$  \*

\* Data tested according to EN 60079-29-1 standard

## 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 EN 60079-29-1:2016
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

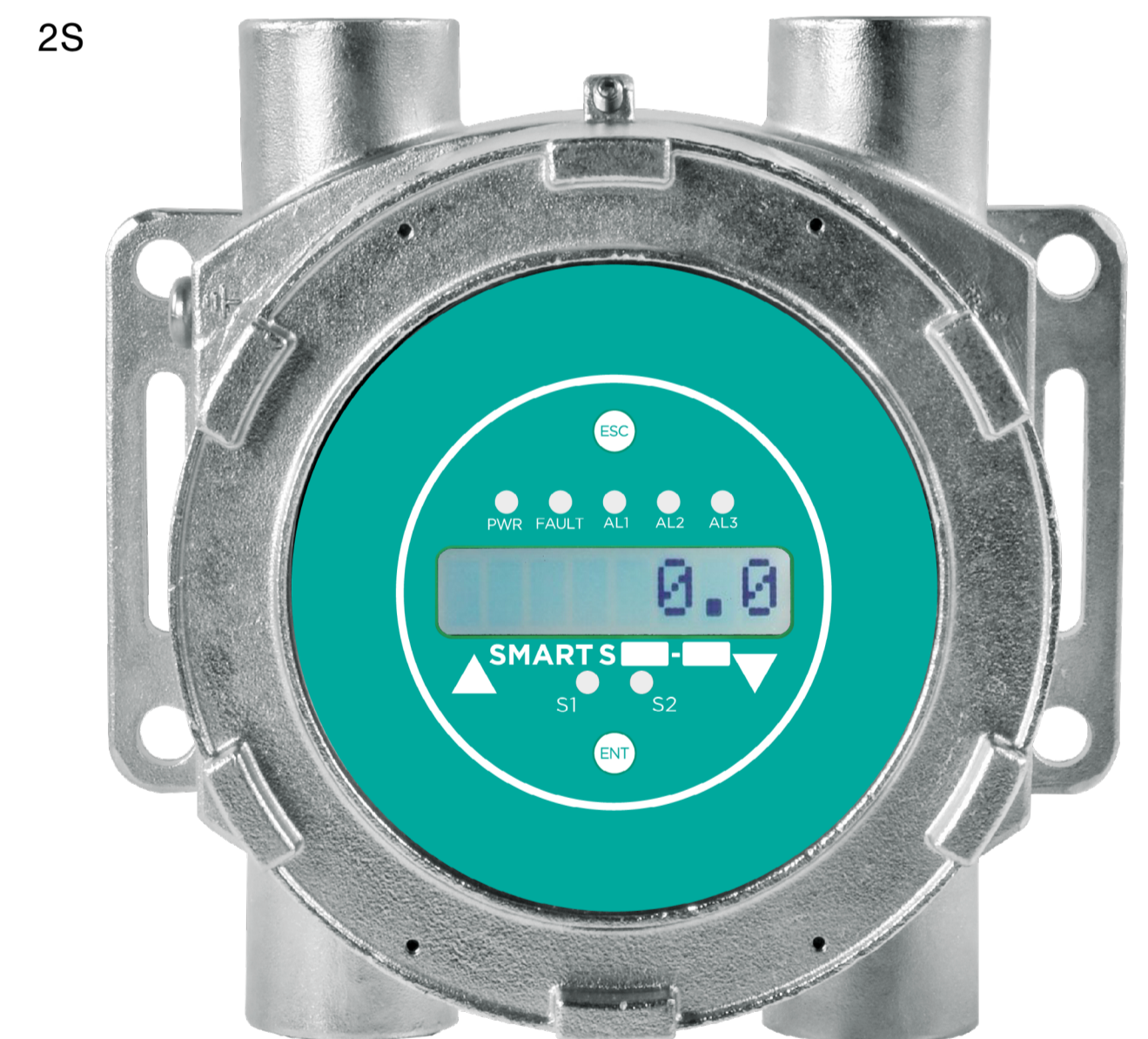
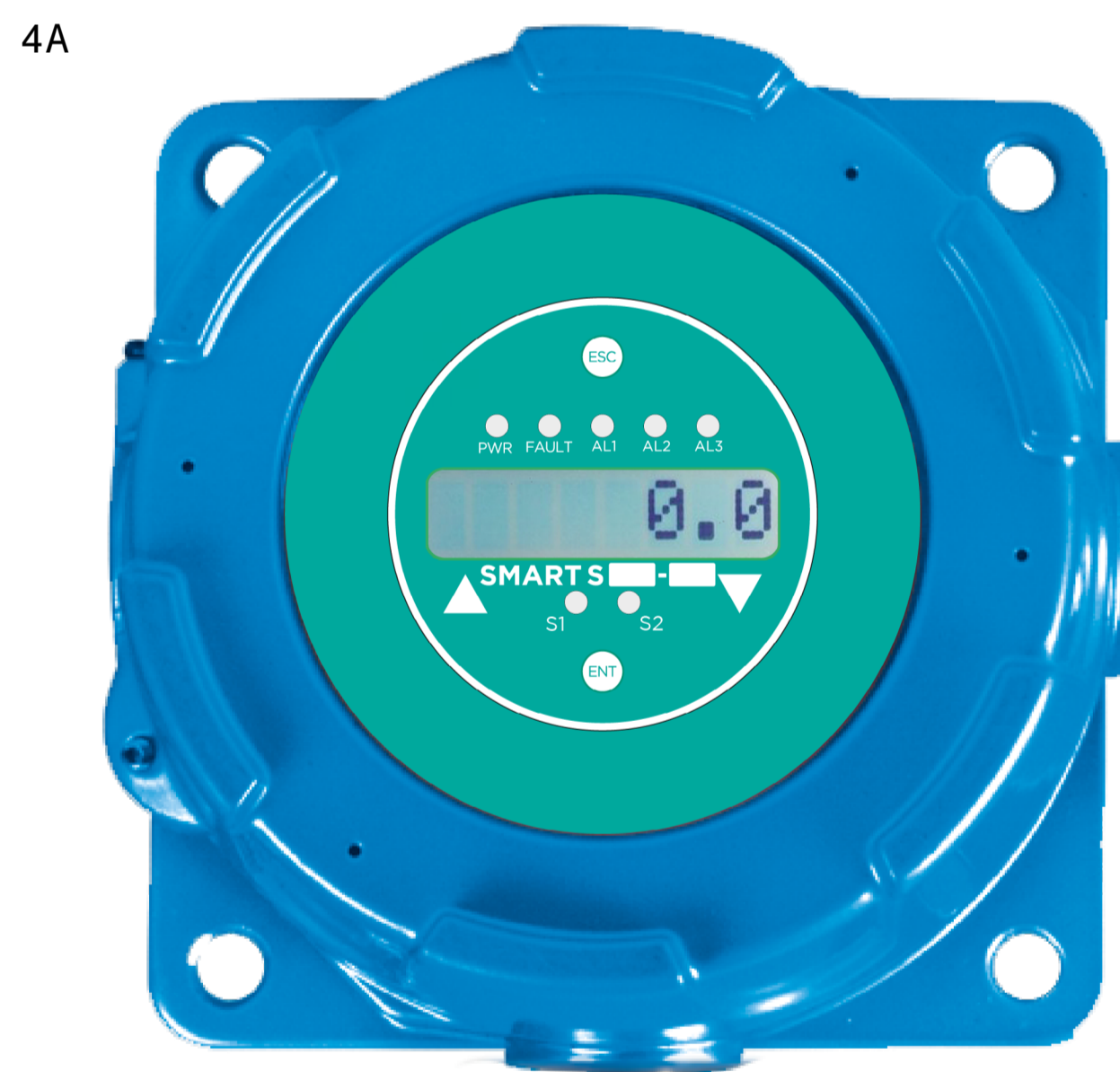
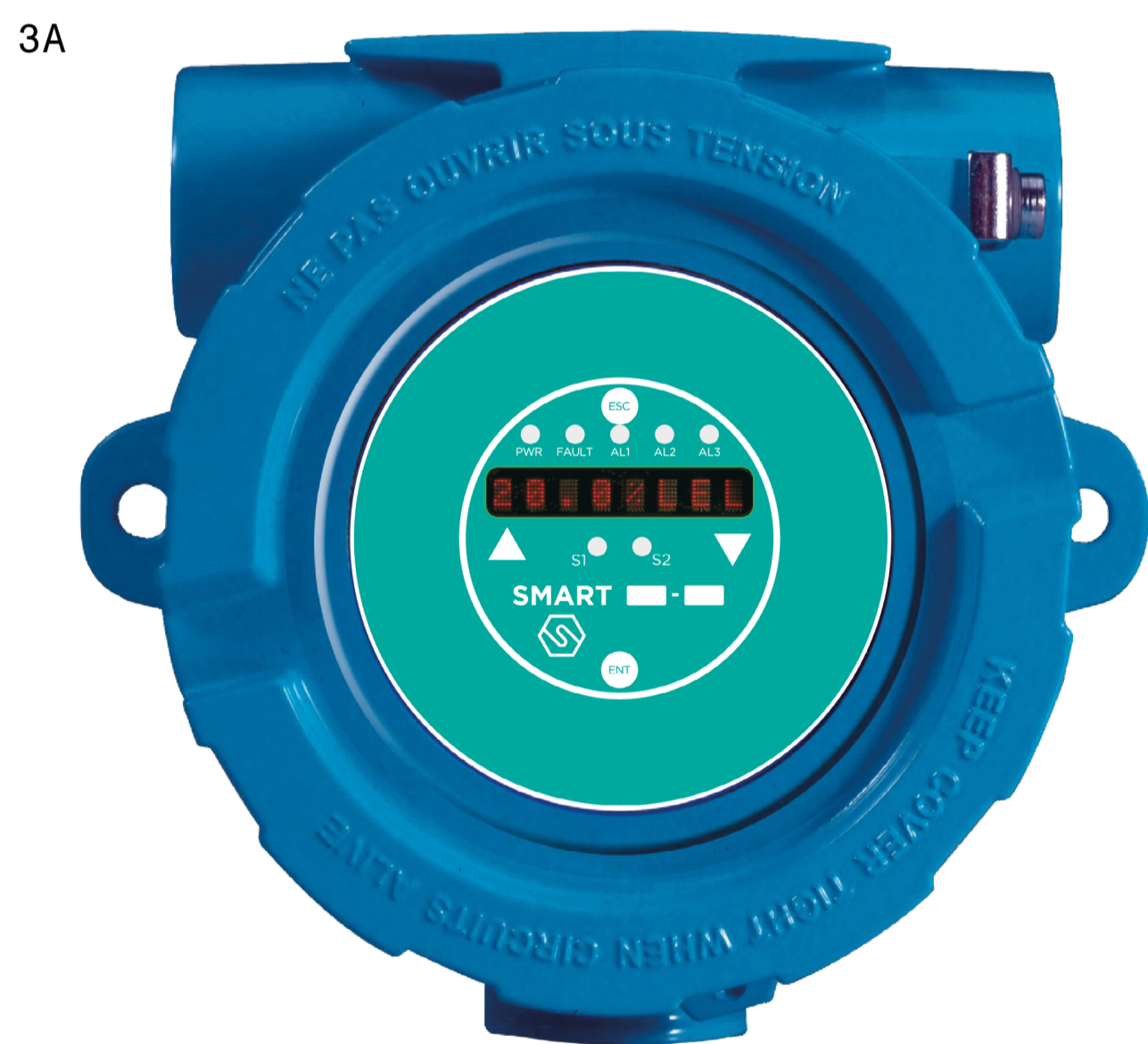
To order a SMART S-SS detector, the transmitter must be paired with the container and sensor head of the gas of interest.

The product code is composed as follows:

SSS | enclosure code | transmitter code - sensor head code

Example:

the code SSS3A18-S4019ME 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 S4019ME is for methane 0-100% LFL.



## 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 (flammable gas 0-100% LFL)**

S4019ME	METANO
S4004PR	PROPANO
S4004BU	BUTANO
S4004AT	ACETONE
S4004BN	BUTADIENE
S4004CE	CICLOESANO
S4004DT	DIMETILETERE
S4004EN	ETANO
S4004AE	ACETATO DI ETILE
S4004ET	ALCOL ETILICO
S4004EP	EPTANO
S4004ES	ESANO
S4004IB	ISOBUTANO
S4004IL	ISOBUTILENE
S4004IP	ALCOL ISOPROPILICO
S4004PE	PENTANO
S4004PP	PROPILENE
S4004TO	TOLUENE
S4004ST	STYRENE
S4004DE	R152a DIFLUOROETHANE
S4157R454B	R454B
S4065R32	R32 DIFLUOROMETHANE
S4066R1234YF	R1234yf
S4067R1234ZE	R1234ze





**Sensor head code (SF6 and refrigerant gases)**

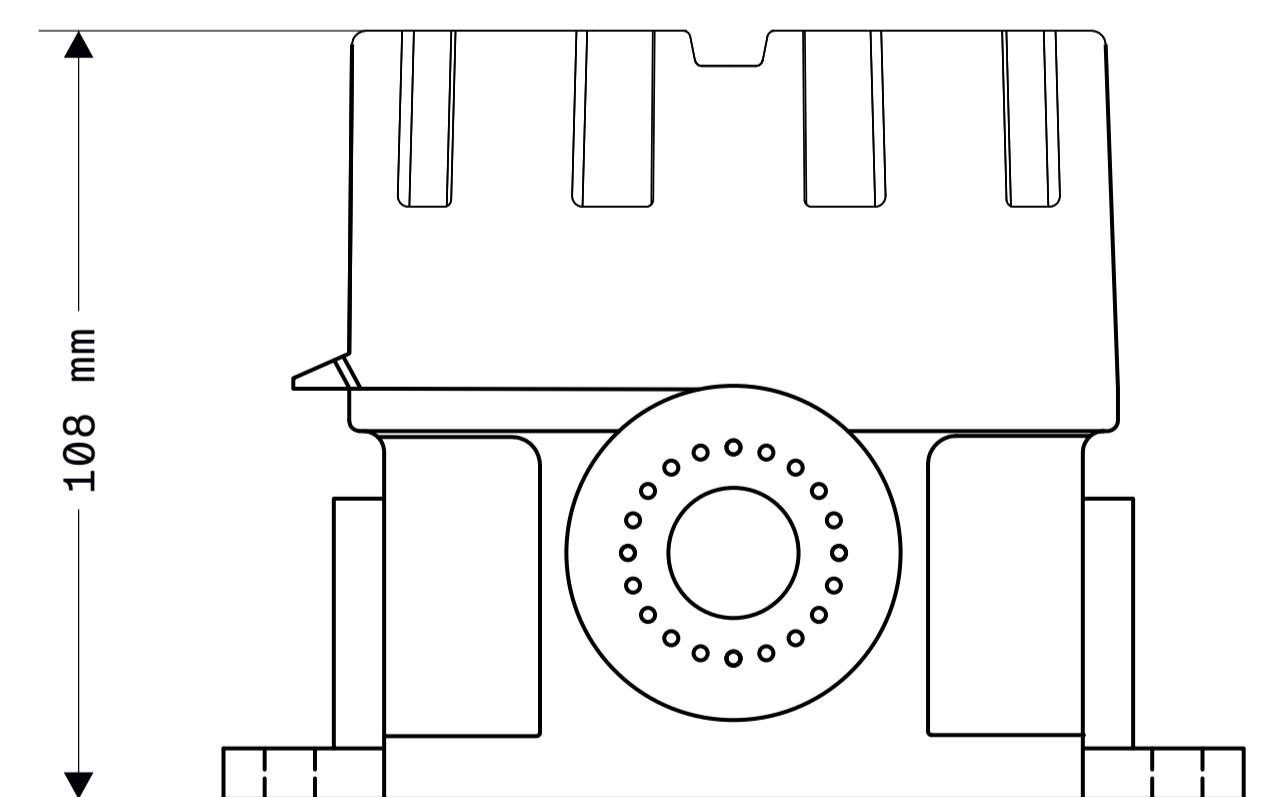
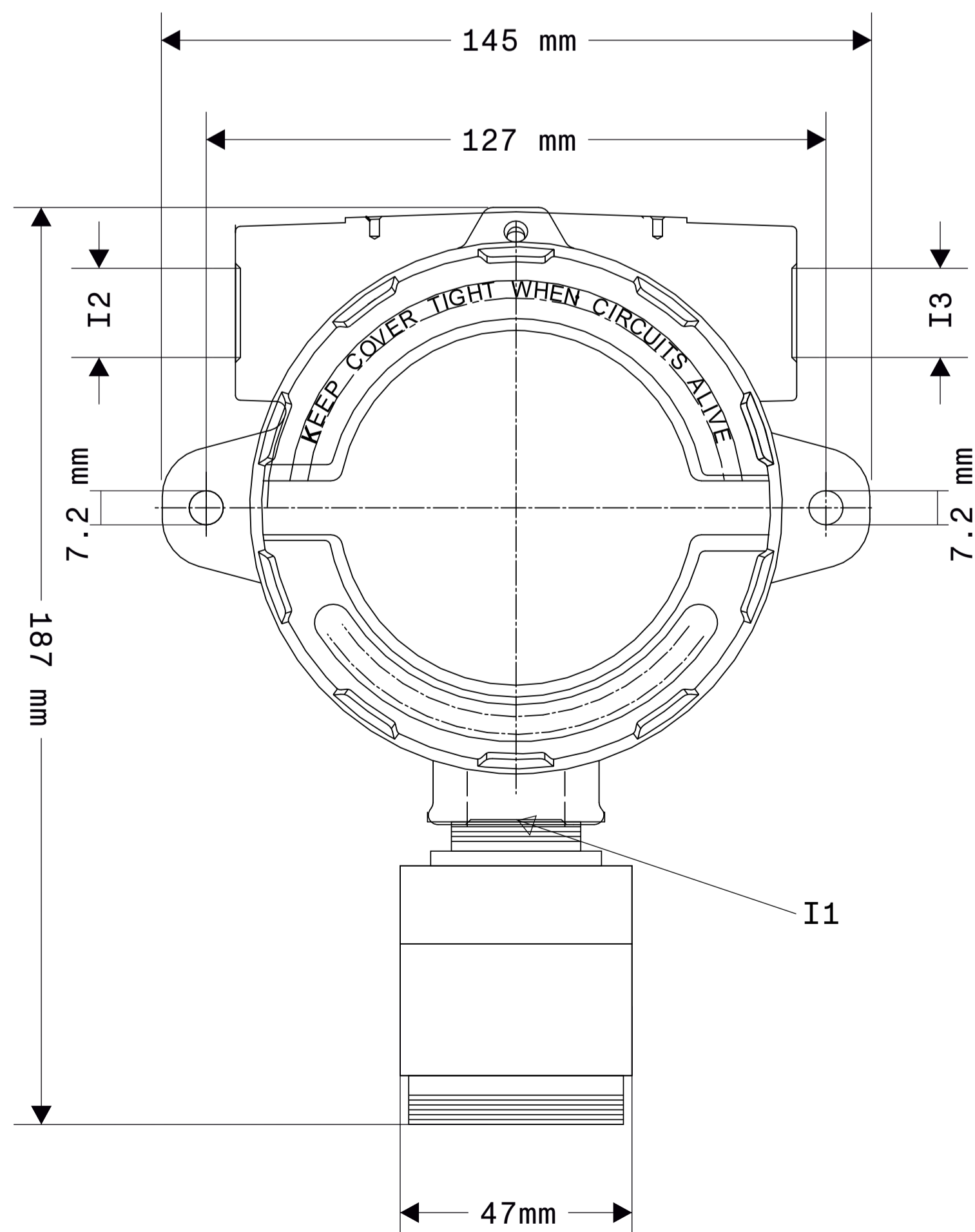
S4152R32	R32 0-2000 ppm
S4026R134A	R134A 0-2000 ppm
S4027SF6	SF6 0-2000 ppm
S4031R125	R125 0-2000 ppm
S4032R1234YF	R1234yf 0-2000 ppm
S4153R1234ZE	R1234ze 0-2000 ppm
S4033R404A	R404A 0-2000 ppm
S4034R407A	R407A 0-2000 ppm
S4034R407F	R407F 0-2000 ppm
S4154R449A	R449A 0-2000 ppm
S4035R507A	R507A 0-2000 ppm
S4036R410A	R410A 0-2000 ppm
S4155R417A	R417A 0-2000 ppm
S4156R448	R448 0-2000 ppm

**Sensor head code (carbon dioxide)**

S4015CO2	CO <sub>2</sub> , 0-2% Vol.
S4016CO2	CO <sub>2</sub> , 0-5% Vol.
S4017CO2	CO <sub>2</sub> , 0-30% Vol.

**Mechanical Drawings**

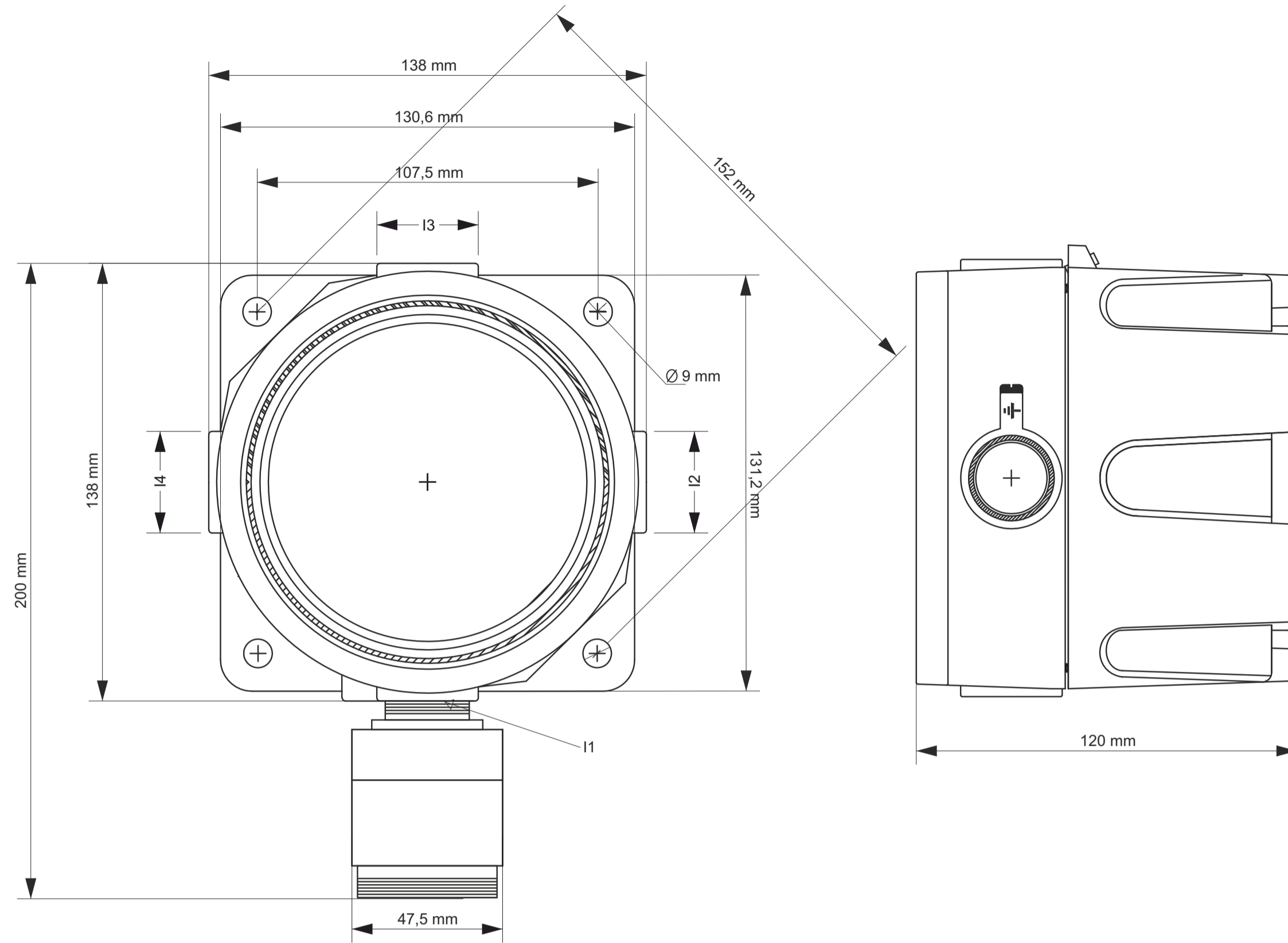
Mechanical drawings SMART S-SS with 3A enclosure



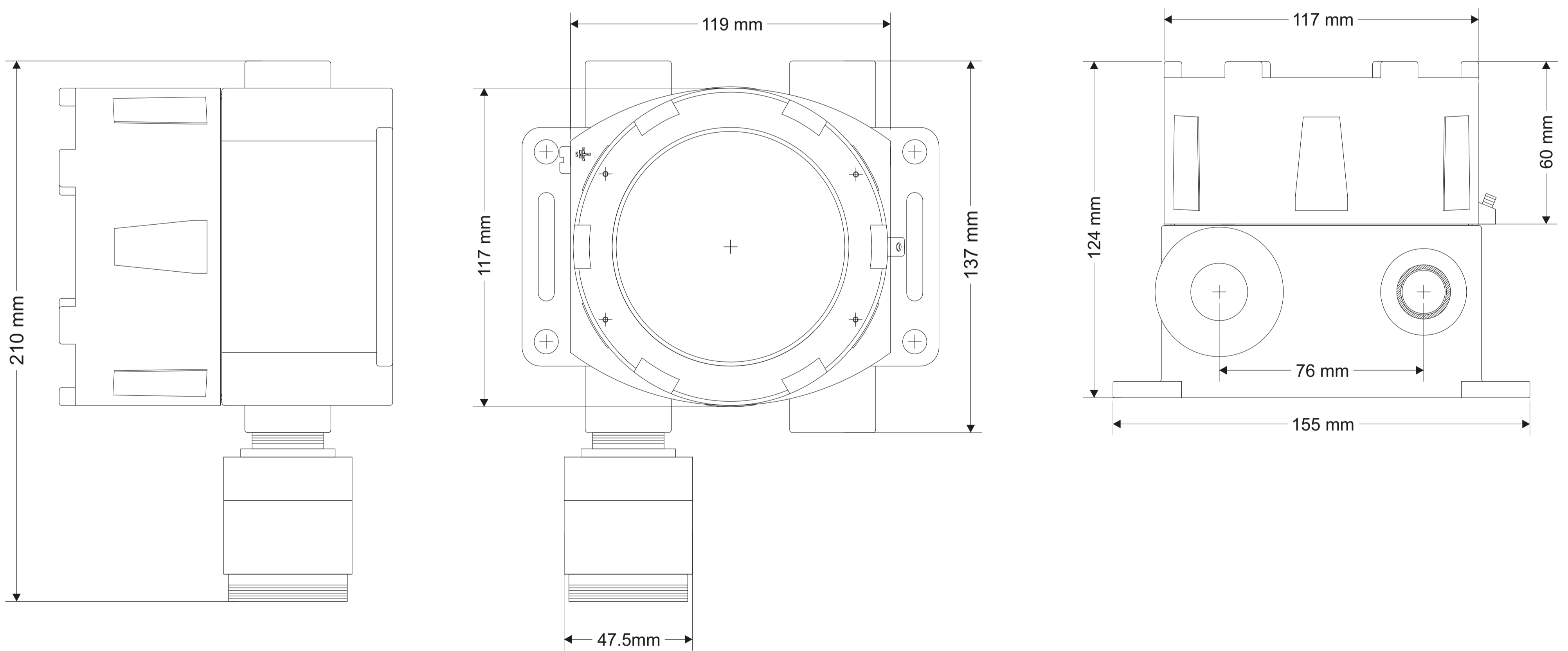




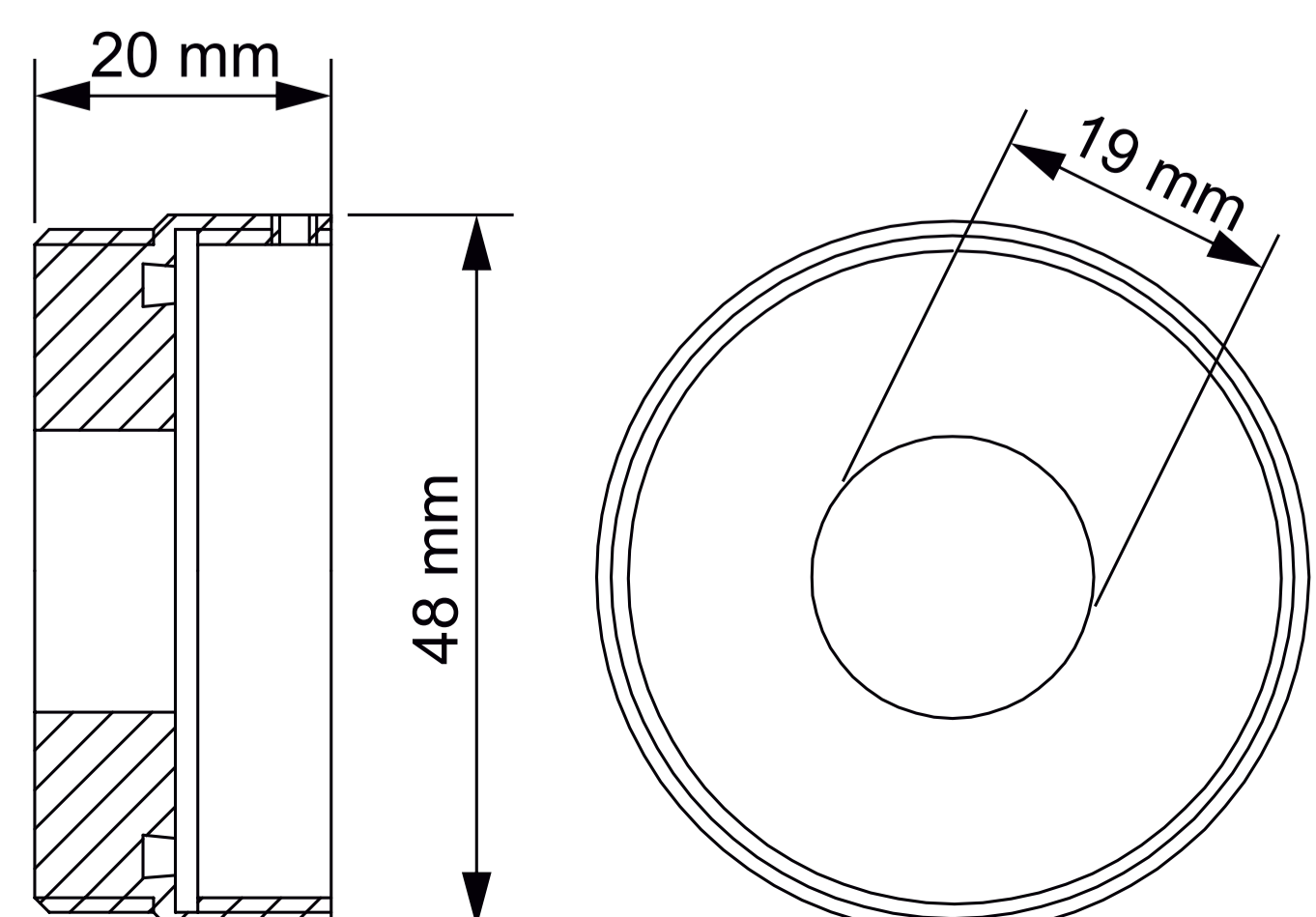
Mechanical drawings SMART S-SS with 4A enclosure



Mechanical drawings SMART S-SS with 2S enclosure



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





## Contatti/Contacts

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Sensitron S.r.l.

