

Ribble Enviro
...everything gas detection

Data Sheet

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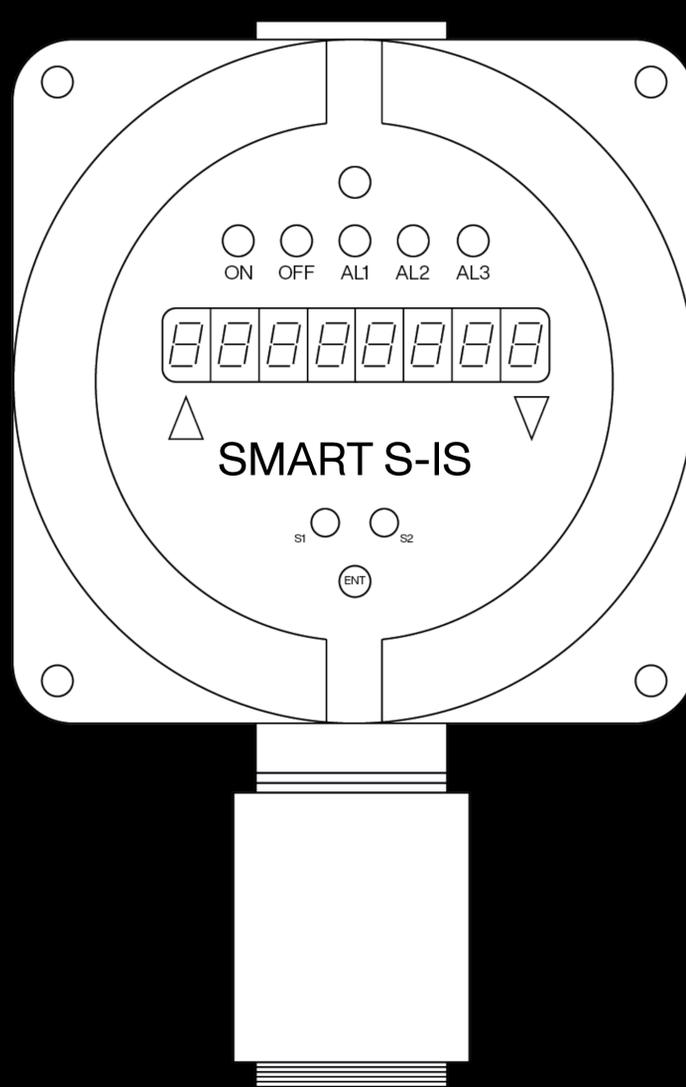
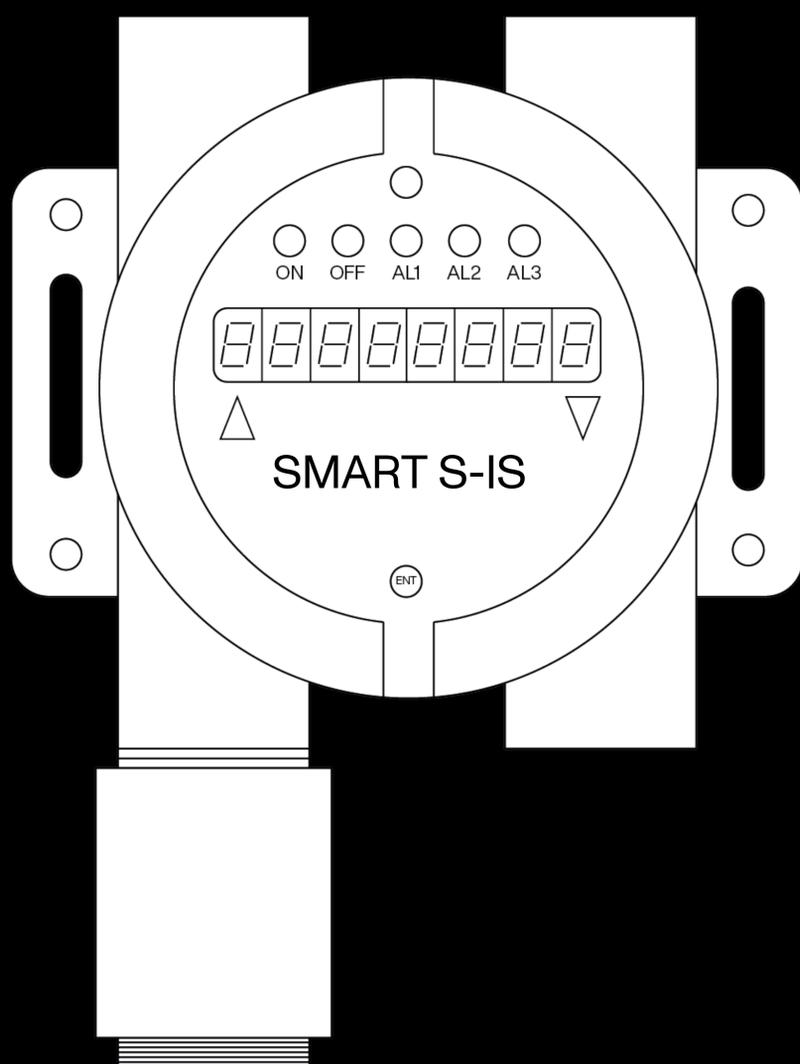
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SMART S-IS

with electrochemical cell



Datasheet





Designed to meet the toughest industrial standards, the SMART S-IS 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 SMART S-IS detectors are internally equipped with a Zener barrier and a galvanic separation circuit that guarantees intrinsic safety protection.

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

The SMART S-IS 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-IS detector has the following customization possibilities:

- I Choice of the sensor head based on the gas to be detected
- II Choice of transmitter (type of display, 3-relay board)
- 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 [ib] ib IIC T6 Gb

Or, if equipped with a dust adapter:

CE 0722 Ex II 2G Ex db [ib] ib IIC T6 Gb
Ex tb IIIC T85°C Db
IP65

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

Ex db [ib] ib IIC T6 Gb

Or, if equipped with a dust adapter:

Ex db [ib] ib IIC T6 Gb
Ex tb IIIC T85°C Db
IP65

SMART S-IS 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	From 1.5 to 3 years depending on target gas
Gas detected and range	O ₂ [0-25% Vol], SO ₂ [0-20 ppm and 0-100 ppm], NO ₂ [0-20 ppm], Cl ₂ [0 - 5/20 ppm]; HCl [0 - 50 ppm]



Electrical parameters

Power supply	12-24 Vdc
Output	Analogue 4-20 mA output; RS485 serial output; 3 relay board (optional)
Maximum dissipated power	4.5 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 / +50°C
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 i: Intrinsically safe electronics. Ex t : Equipment dust ignition protection by enclosure (when equipped with optional dust adapter)
Dimensions	138 x 200 x 120 mm (4A enclosure) 155 x 210 x 124 mm (2S enclosure)
Weight	2800 g (4A enclosure) 4200 g (2S enclosure)
Cable entries	4 x 3/4" NPT
IP grade	IP65 (when equipped with optional dust adapter)

Compliance

EMC	EN 61000-6-3:2007 + A1:2011; EN 50270:2015
ATEX	ATEX directive 2014/34/EU EN 60079-0:2012+A11:2013 EN 60079-1:2014 EN 60079-11:2012 EN 60079-31:2014
IECEX	IEC 60079-0:2011 IEC 60079-1:2014 IEC 60079-11:2011 IEC 60079-31:2013
SIL	EN 61508:2010 Parts 1, 2, 3, 4, 5, 6, 7 EN 50402:2017



To order a SMART S-IS detector, the transmitter must be paired with the container and sensor head of the gas of interest.
The product code is composed as follows:

SIS | enclosure code | transmitter code - sensor head code

Exemple:

The code SIS4A24-S5005O2 is a SMART S-IS detector with the 4A enclosure, the electronics with LED display, 3-relay, IS and GI boards. The sensor head code S5005O2 is for oxygen 0-25% Vol.

4A



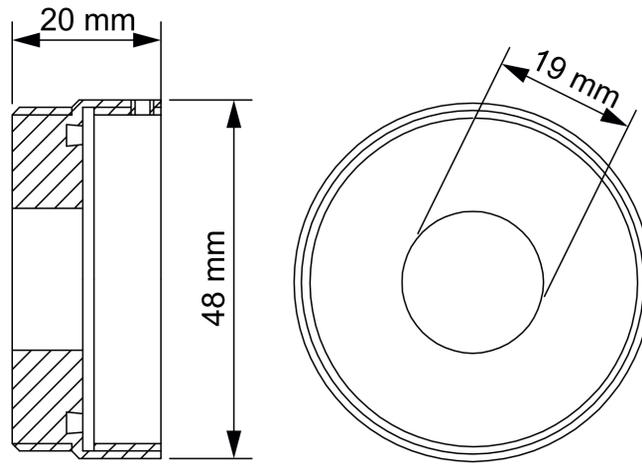
2S



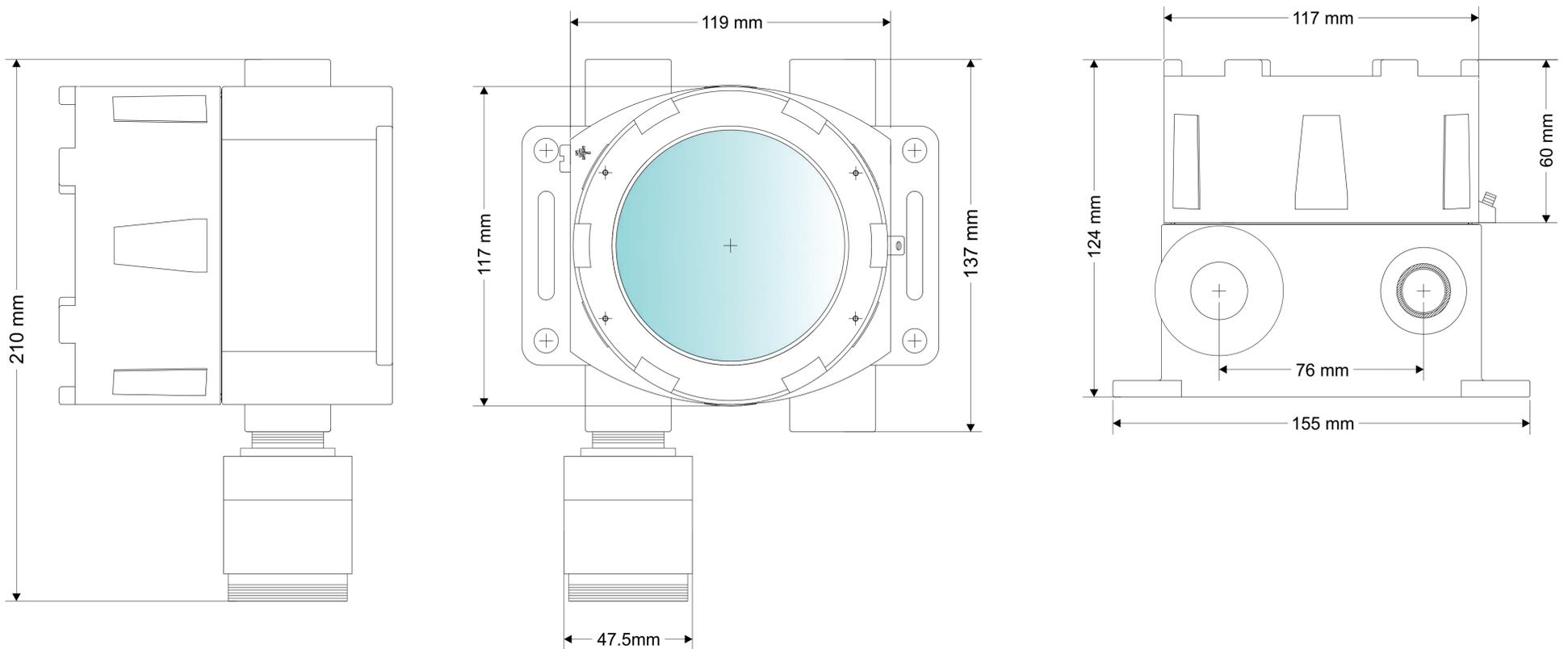
Enclosure code		ATEX code
4A	Aluminium enclosure with four 3/4" NPT conduits	ST / 7W / EL / SI
2S	Stainless steel enclosure with four 3/4" NPT conduits	ST / 8K / EL / SI
Transmitter code		
21	Electronic with1 output RS485+4-20 mA, LCD display, IS & GI card	
22	Electronic with1 output RS485+4-20 mA, LED display, IS & GI card	
23	Electronic with1 output RS485+4-20 mA, LCD display, 3-relay card, IS & GI card	
24	Electronic with1 output RS485+4-20 mA, LED display, 3-relay card, IS & GI card	
Sensor head code		
S5005O2	OXYGEN (O ₂) sensor head, 0-25% vol.	
S5011SD	SULPHUR DIOXIDE (SO ₂) sensor head, 0-20 ppm	
S5049SD	SULPHUR DIOXIDE (SO ₂) sensor head, 0-100 ppm	
S5012ND	NITROGEN DIOXIDE (NO ₂) sensor head, 0-20 ppm	
S5015CL	CHLORINE (CL ₂) sensor head, 0-5 ppm	
S5013CL	CHLORINE (CL ₂) sensor head, 0-20 ppm	
S5014HC	HYDROCHLORIC ACID (HCl) sensor head, 0-50 ppm	



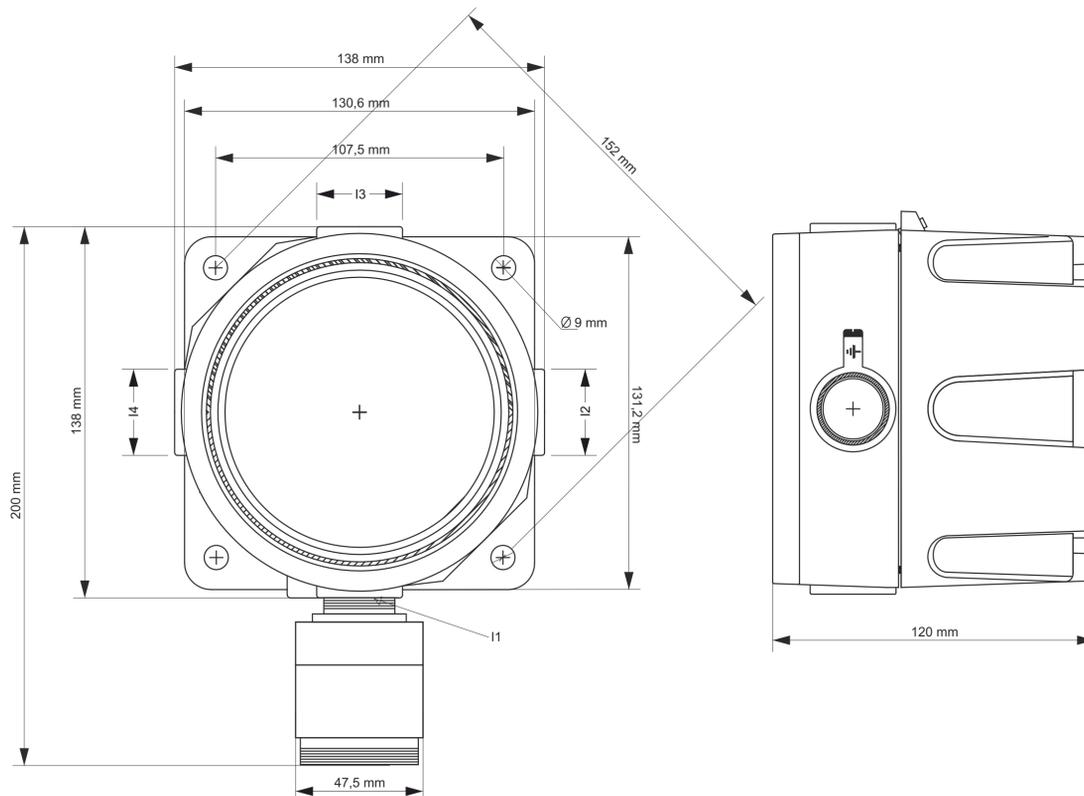
STG/AD3 dust adapter
(optional accessory available for all models)



Mechanical drawings SMART S-IS with 2S enclosure



Mechanical drawings SMART S-IS with 4A enclosure



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