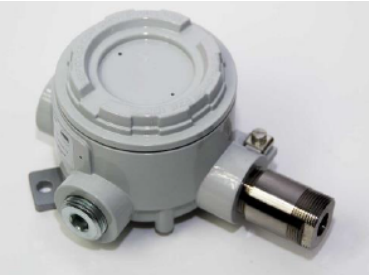
Explosion Proof ATEX - Detector for Toxic Gases and Oxygen in Zone 2

ATEX 2
SIL 2

Feb. 16



Sensor without display

Red = alarm for fault

Sensors with LCD display

Green = in operation

Features

- **ATEX and IEC Ex certificates for electrical Ex protection**
- **ATEX metrical test & SIL2 safety functions 4 – 20 mA, RS485 and relay**
- **Type "Ex d" with flame-proof enclosure**
- **Continuous monitoring**
- **Self-monitoring system**
- **Easy calibration**
- **Calibration service by exchanging the sensor head**
- **Reverse polarity protection**
- **Overload protection**
- **LCD display with status LEDs (optional)**
- **Alarm and fault signal relay (optional)**

Technical Data

Power supply	16 – 28Vdc, 20 – 29Vac	
Power consumption (at 24Vdc)	90 mA, max. 130 mA	
Control unit	Microprocessor with 12 bit converter resolution	
Digital filter	Averaging in order to increase the EMC immunity	
Visual indications	2 LEDs for operation, alarm and communication	
Analog output signal (active)	Proportional, overload and short-circuit proof, load ≤ 500 Ω 4 – 20 mA = measuring range 3,2 < 4 mA = underrange > 20 – 21.6 mA = overrange 2.5 mA = service mode 2 mA = fault Low > 21.8 mA = fault High	
Serial interface	Serial data bus	
Fault relay (optional)	Max. 30Vac/dc, 1 A	
Alarm relay (optional)	Max. 30Vac/dc, 1 A	
LCD (optional)	2 x 16 characters, 3 status LEDs, 4 menu operating elements	
Sensor data		
Gas type	Toxic gases & oxygen	
Sensor element	**Electrochemical**	**Infrared**
Measuring range	See Ordering Information	0 – 100 % LEL
Response time	t_{90} ≤ depending on gas type	t_{90} ≤ 30 sec
Accuracy	Depending on gas type	± 1 % below 25% of measuring range
Repeatability	Depending on gas type	± 2 % of measuring range

Design Features

Microprocessor based gas detector with 4 – 20 mA / RS485-Modbus output signal, alarm and fault relays (all SIL2 certified) for
monitoring the ambient air to detect oxygen and toxic gases and vapors by means of an electrochemical sensor element (el.ch.) or an infrared sensor element.

The calibration of detectors without LCD display is carried out via the calibration device Cal ATEX or the PC software PC-ATEX.

Detectors with LCD display have an integrated calibration routine that is started from the outside by a permanent magnet without opening the housing.

In case of an **alarm or a fault** the backlight of detectors with LCD display changes from **green to red**.

Application

The detector is used in industrial areas like oil/gas industry, biogas plants, petrochemical industry, power plants etc. in Ex-Zone 2.

The detector is also suitable for commercial areas like gas transfer stations etc.

With the 4 – 20 mA / RS485-ModBus output signal the detector is suitable for connection to the AP gas leak alarm units, as well as to any other controllers or automation devices.

Optionally, the detector is also available with LCD display and relay output.

Ordering Codes (see p. 2)

Stabilization time	300 sec.	900 sec.
Warm-up time	Measuring mode after 120 sec.	Measuring mode after 60 sec.

Environmental Conditions

Humidity	20 to 90% r.H (non-condensing)
Operating temperature	-25 °C to 55 °C (reduced measuring operation up to +65 °C)
Storage temperature	-5 °C to +30 °C
Pressure range	800 to 1200 mbar (80 to 120 kPa)
Air velocity	< 6 m/sec.

Physical Characteristics

Case / colour	Die-cast aluminium / light grey RAL 7032
Dimensions (D x H)	95 x 82 mm
Weight	Ca. 1.3 kg
Protection class	IP 54
Mounting	Wall mounting (sensor head downwards)
Cable entry	1 x ¾ in. plastic, ATEX certified
Wire connection	Spring-type terminal, 0.08 to 2.5 mm² AWG 28 - 12
Wire length	Max. load 500 Ω (= wire resistance + controller input resistance)

ATEX marking	Ex II2G Ex d IIC T4 Gb, CE 0158
EC-type examination certificate	BVS 15 ATEX E 129 X (electrical Ex protection) Ex d EN60079-0, -1 Metrological approval: (pending) EN 50104 for O_2 Functional safety (SIL2) EN 50402 EN 61508-1, -2, -3 EN 50271
WARRANTY	1 year on material and workmanship (without the sensor)

Ordering Codes

Detector	Gas Type		Sensor Type	Measuring range
ATEX1 CO 500	Carbon monoxide	CO	El. chem.	0-500 ppm
ATEX1 NH3 100	Ammonia	NH_3	El. chem.	0-100 ppm
ATEX1 NH3 200	Ammonia	NH_3	El. chem.	0-200 ppm
ATEX1 NH3 1000	Ammonia	NH_3	El. chem.	0-1000 ppm
ATEX1 NO 100	Nitrogen monoxide	NO	El. chem.	0-100 ppm
ATEX1 NO2 20	Nitrogen dioxide	NO_2	El. chem.	0-20 ppm
ATEX1 C2H4 200	Ethylene	C_2H_4	El. chem.	0-200 ppm
ATEX1 Cl2 5	Chlorine	Cl_2	El. chem.	0-5 ppm
ATEX1 Cl2 20	Chlorine	Cl_2	El. chem.	0-20 ppm
ATEX1 SO2 20	Sulphur dioxide	SO_2	El. chem.	0-20 ppm
ATEX1 H2S 50	Hydrogen sulphide	H_2S	El. chem.	0-50 ppm
ATEX1 O2 25	Oxygen	O_2	El. chem.	0-25 vol %
ATEX1 O2 21	Oxygen	O_2	El. chem.	0-21 vol %
ATEX1 CO2 5	Carbon dioxide	CO_2	Infrared	0-5 vol %

Options:

Relay-set	2 Relay outputs
LCD Display	Display with menu status
Relay-set + LCD Display	Display and Relay Pack

Electrical connection