GAS DETECTOR
ST450EC

PART.NO. **1228000-1228010**

DETECTION OF TOXIC GASES AND OXIGEN

SYSTEM **CGD50, CGD500 TOUCH**

GENERAL DESCRIPTION

- Detection of toxic gases and Oxygen
- All-round industrial gas detector!
- ATEX / IECEx approved
- Touch screen experience, control without additional tools
- Self-diagnostics
- Reliable sensor technology

The **ST450EC** is an all-round gas detector which functions well under the most difficult circumstances. The heart of the detector is a replaceable gas sensor, which is available for Oxygen, Toxic gases and Hydrogen. The measuring principle is based on an electrochemical sensor, which is developed to meet the highest standards. The sensor has an outstanding stability, which achieves long-term reliability. The high selectivity of the sensors minimalizes "false" readings.

The **ST450EC** comes standard with a graphic display. The display shows the measured value and various status notifications locally. The capacitive key control gives you an experience similar to a touchscreen and enables easy navigation through the user/calibration menu.

The user menu is secured with a password, unauthorized users cannot access the gas detector. The control of the user/calibration menu *does not* require additional tools (for example magnets). Simple, easy and user friendly! The user menu provides different features, such as a zero and span calibration, adjusting alarm set points (local alarm indication through notifications on the display and bright colored LED), showing set points, diagnostic information and simulation of the output signal (4-20mA) for loop testing.

The **ST450EC** is **Ex d** and **Ex t** approved (ATEX UKEX and IECEx). This makes the sensor an all-round gas detector and useful in GAS and DUST zones. The gas detector can be used in Ex applications (zone 1/2 and 21/22). without having a zener barrier. This reduces investment costs directly.

HEIGHTS AREAS / REMOTE APPLICATIONS:

An remote version, **ST450EC Remote** available to allow the user to mount the sensor separately from the transmitter. Remote sensors are ideal for applications where the gases present ascend, i.e. gases lighter than air. High located detection areas are often difficult to reach for example during maintenance. When using a remote sensor, the sensor itself will be mounted high and the transmitter will be mounted within close reach. This makes maintenance quick and easy and therefore cost effective. Cable lengths up to 150 meters are supported between the transmitter and the remote sensor (depending on the type).
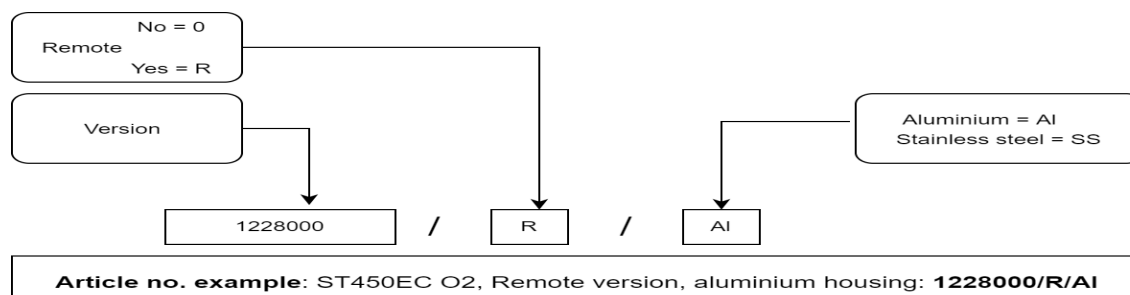
APPLICATIONS:

- Water Industry
- Refineries
- Oil & Gas Industry
- Food Industry
- Pharmaceutical Industry
- Steel Industry
- Laboratory / Universities

ORDERING INFORMATION

GAS DETECTOR						
TYPE	RANGE	PART NO.			OPERATING TEMPERATURE	RELATIVE HUMIDITY (N.C.)
		STANDARD	REMOTE	STAINLESS		
ST450EC-O$_2$	0-25 Vol.%	1228000			-20 to +50 °C*	20-90%
ST450EC-O$_2$ Longlife	0-25 Vol.%	1228000/LL3			-20 to +50 °C*	20-90%
ST450EC-H$_2$S	0-30 ppm	1228001			-20 to +50 °C	15-90%
ST450EC-H$_2$S	0-50 ppm	1228002			-20 to +50 °C	15-90%
ST450EC-H$_2$S	0-100 ppm	1228003			-20 to +50 °C	15-90%
ST450EC-CO	0-100 ppm	1228004/100			-20 to +50 °C	15-90%
ST450EC-CO	0-250 ppm	1228004/250			-20 to +50 °C	15-90%
ST450EC-CO	0-500 ppm	1228004/500	+ /R	+ /SS	-20 to +50 °C	15-90%
ST450EC-CO	0-500 ppm (LHS)	1228004/500/LHS			-20 to +50 °C	15-90%
ST450EC-NO	0-100 ppm	1228007			-20 to +50 °C	15-90%
ST450EC-NO$_2$	0-20 ppm	1228008			-20 to +50 °C	15-90%
ST450EC-H$_2$	0-1000 ppm	1228005			-20 to +40 °C	15-95%
ST450EC-H$_2$	0-100 %LEL	1228006			-20 to +40 °C	15-95%
ST450EC-CS$_2$	0-50 ppm	1228009/50			-20 to +50 °C	15-90%
ST450EC-CS$_2$	0-100 ppm	1228009/100			-20 to +50 °C	15-90%

* Acc. EN 50104 -30 to +50°C / 20 to 90 r.H. N.C

Article no. example: ST450EC O2, Remote version, aluminium housing: **1228000/R/AI**

The specifications described herein are subject to change without notice.

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ORDERING INFORMATION

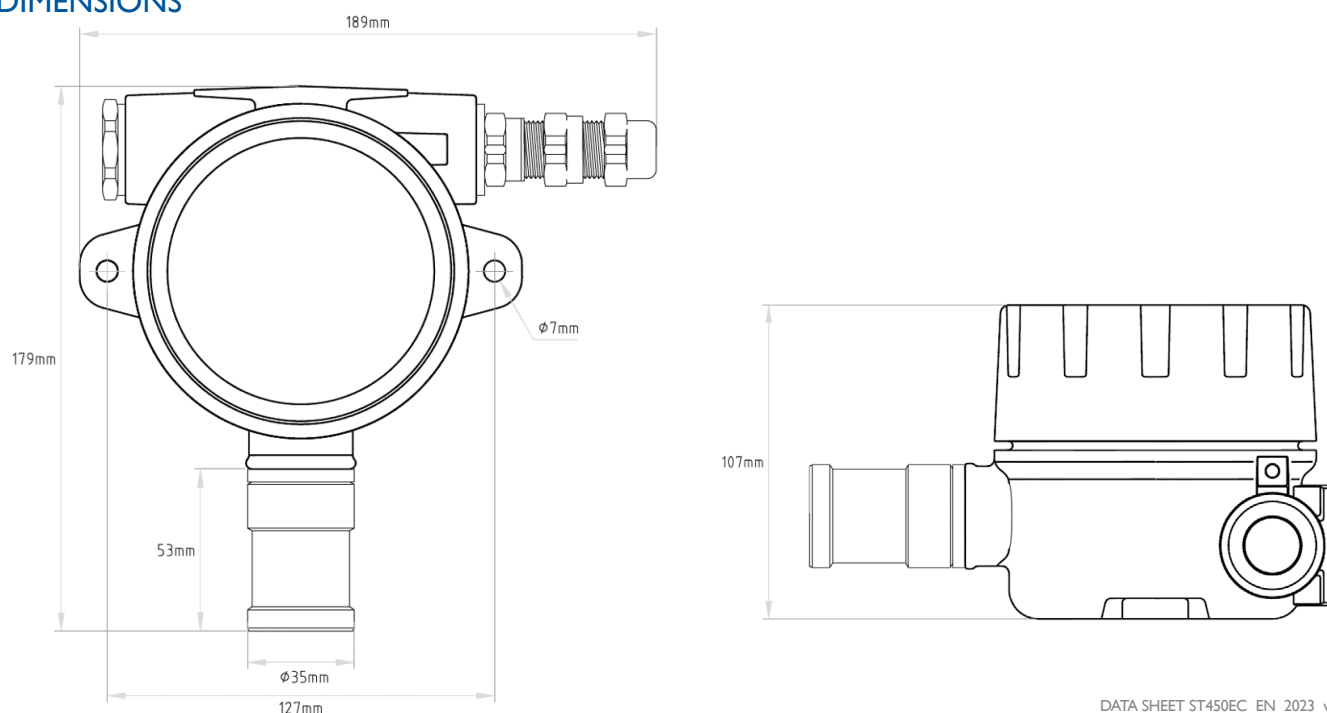| ACCESSORIES			
TYPE	**IMAGE**	**PART NO.**	**DESCRIPTION**
Signal cable		4002426	Mesh shielded cable, 2x0,75 mm2 (flexible cores), per meter
Signal cable		4002427	Mesh shielded cable, 3+1x0,75 mm2 (flexible cores), per meter
Duct mounting set JIS		Duct kit for JIS ducts Stainless Steel	
		5101101-00A 5101102-00A 5101103-00A 5101104-00A 5101105-00A	100A (Ø 200mm) 125A (Ø 235mm) 150A (Ø 265mm) 200A (Ø 320mm) 250A (Ø 385mm)
Duct mounting set DIN		Duct kit for DIN ducts Stainless Steel	
		5101731-00A 5101732-00A 5101733-00A 5101734-00A 5101735-00A	DIN 100 (Ø 220mm) DIN 125 (Ø 250mm) DIN 150 (Ø 285mm) DIN 200 (Ø 340mm) DIN 250 (Ø 385mm)
Duct mounting set		4002722, 4002723	Duct mounting set for mounting in ventilation ducts. (250x200x1,5 mm). 4002722 for brass 4002723 for Stainless steel.
Splash guard		4002712	Enviromental sensor protection, incl. splash water
Inline flow adapter		4002720	Inline flow adapter for sample applications, connection 2x6mm, SS
Protective hood		4002714	Protective hood SS, for optimal protection in "wet" production areas, dim. 315x300x138 mm
Isolation set EMC/RFI		4002440	Isolation plate EMC/RFI, 160x160 mm
Protective bracket		4002713	SS bracket, extra protection for use in e.g. warehouses
Conical collector hood		4000657	Conical hood for ascending gases

ORDERING INFORMATION

SPARE PARTS / CONSUMABLES			
SPARE GAS SENSOR	**PART NO.**	**RANGE**	**DESCRIPTION**
EC Sensor O_2	1228600	0-25 Vol.% O_2	Oxygen sensor
EC Sensor O_2 LL3	1228600/LL3	0-25 Vol.% O_2	Oxygen sensor Long life 3 Years
EC Sensor H_2S	1228602	30 / 50 / 100 ppm H_2S	Hydrogen sulfide sensor
EC Sensor CO	1228604	100/250/500 ppm CO	Carbon monoxide sensor
EC Sensor CO (LHS)	1228604/LHS	0-500 ppm CO	CO sensor with low sensitivity to H2
EC Sensor H_2	1228605	0-1000 ppm H_2	Hydrogen ppm sensor
EC Sensor H_2	1228606	0-100 %LEL H_2	Hydrogen LEL sensor
EC Sensor NO	1228607	0-100 ppm NO	Nitric oxide sensor
EC Sensor NO_2	1228608	0-20 ppm NO_2	Nitrogen dioxide sensor
EC Sensor CS_2	1228609	0-50/100 ppm CS_2	Carbon disulfide sensor

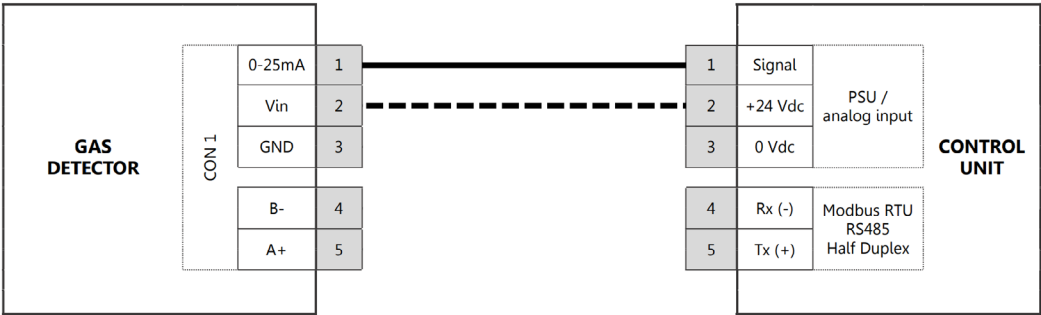| TEST GASES AND ACCESSORIES		
TYPE	**PART NO.**	**DESCRIPTION**
BUGAS, 100 Vol.% N_2	9990524	Nitrogen, 100 Vol.%, 110 gas liters
BUGAS, 20,9% O_2 / N_2	9990537	Synthetic air, 20,9% O_2 / 79% N_2, 110 gas liters
BUGAS, 10 ppm H_2S	9990540	Hydrogen sulfide, 10 ppm in air, 58 gas liters
BUGAS, 25 ppm H_2S	9990507	Hydrogen sulfide, 25 ppm in air, 58 gas liters
BUGAS, 50 ppm CO	9990505	Carbon monoxide, 50 ppm in air, 110 gas liters
BUGAS, 100 ppm CO	9990522	Carbon monoxide, 100 ppm in air, 110 gas liters
BUGAS, 500 ppm CO	9990534	Carbon monoxide, 500 ppm in air, 110 gas liters
BUGAS, 200 ppm H_2	9990542	Hydrogen, 200 ppm in air, 110 gas liters
BUGAS, 2 Vol.% H_2	9990506	Hydrogen, 2 Vol.% in air, 110 gas liters
Calibration adapter	4002715	Stainless Steel / calibration flow adapter
Gas hose	1225819	Flexible gas hose, Ø 4x6mm, suitable for non corroisve gassses 1 meter.
Gas hose	1910204	Flexible gas hose, Ø 4x6mm, suitable for corroisve gassses 1 meter.
Flow regulator brass	9990600	Flow regulator Chrome/brass, fixed flow 0,5 l/min (for non corrosive gasses)
Flow regulator SS	9990601	Flow regulator Stainless, fixed flow 0,5 l/min (for corrosive gasses)

Consilium offers a wide range of test gases, if the required test gas is not listed, please contact us.
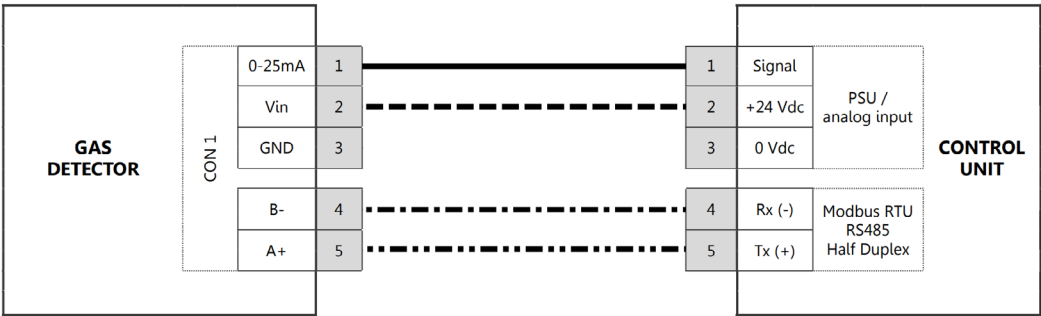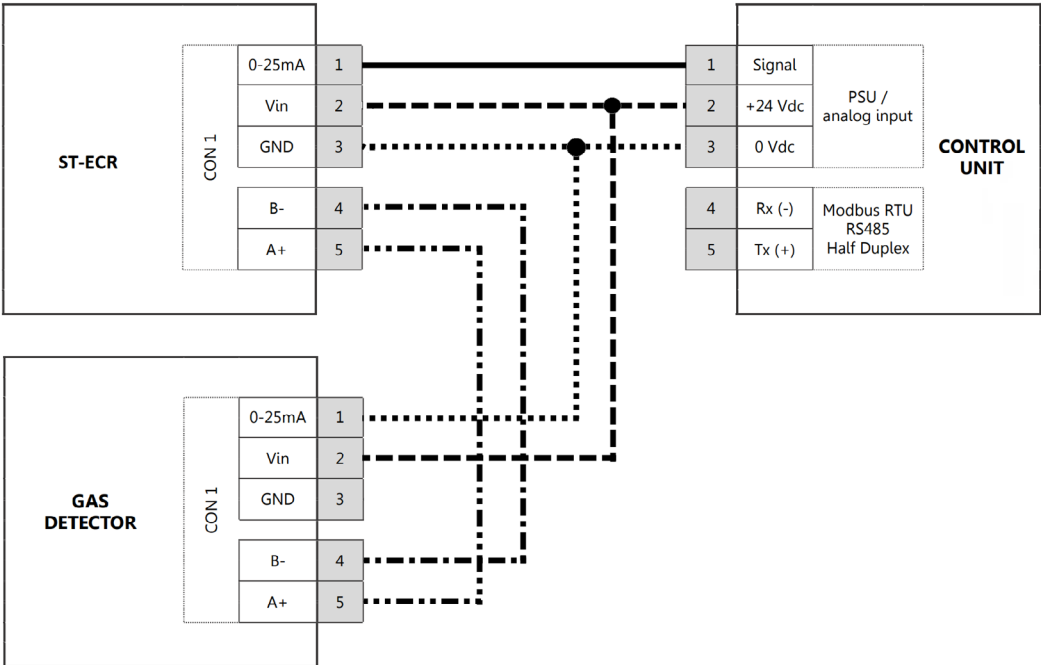
DIMENSIONS

Consilium

CONNECTION DIAGRAM GAS DETECTOR

ST450EC connected as 4-20 mA transmitter

ST450EC connected via modbus

ST450EC connected as Remote

SPECIFICATIONS

PRODUCT	ST450EC
Gas type	Oxygen, Hydrogen and Toxic gases (O_2, H_2S, CO, H_2, CS_2)
Sensor type	Electrochemical sensor (2 or 3 electrodes)
Display	Digital graphic display with backlight
Status LED display	Green: OK, Red: Alarm, Yellow: SF (System Failure), Blue: User menu active
Power supply	24-30 VDC (max. 40 mA)(120 mA remote)
Outputs	Analogue: 4-20 mA (2 mA system failure, >20 mA overrange) Digital: RS485 Modbus RTU (half-duplex)
Signal cable (ST450EC)	2-wire shielded, 0.75 … 2.5 mm² (excluding earth connection and Modbus)
Signal cable (ST450EC Remote)	4-wire shielded, 0.75 … 2.5 mm² (excluding earth connection and Modbus)
Cable gland	Standard Brass, optional SS (thread M20x1.5)
Load impedance	max. 160 Ω at 24 VDC
Operating temperature	See table "Order information"
Relative humidity	See table "Order information"
Pressure range	Toxic: Atmospheric ± 10%, Oxygen: 80 to 120 kPa
Enclosure	Aluminum with coating, optional SS
Dimensions	179 x 189 x 107 mm (HxWxD)
Weight	1.8 kg (Alu), 3.15 kg (SS)
Ingress Protection	IP 66 (Sensor IP 6x)
Enclosure gas sensor	SS 316
CE marking	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU)

Approvals	ATEX / UKEX II 2G Ex db IIC T6 Gb
	                     II 2D Ex tb IIIC T85°C Db
	
	 IECEx Ex db IIC T6 Gb
	                     Ex tb IIIC T85°C Db IECEx
	                     (Tamb: -20°C to +60°C)

Type examination	Oxygen: EN 50104:2019, EN 50271:2018 H_2S: EN 45544-1:2015, EN 45544-3:2015, EN 50270:2015, EN 50271:2010
Manufacturer	Consilium Safety Netherlands B.V.

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