



GAS DETECTOR

ST480xi

PART.NO. 1229000-1229020

DETECTION OF TOXIC GASES, OXYGEN AND HYDROGEN

SYSTEM CGD50, CGD500 Touch

GENERAL DESCRIPTION

- Detection of toxic gases, Oxygen and Hydrogen
- ATEX / IECEx approved
- Zone 1/21 without barrier
- Sensor hot swappable in Ex Zone
- Touch screen control, without additional tools
- Reliable sensor technology

The **ST480xi** is a stationary gas detector which is developed to detect a numerous of toxic gasses, Oxygen and Hydrogen with a high reliability. This all-round gas detector can be applied at virtually every type of industrial application. Functionality and maintenance of this new generation of gas detector meets today's essential demands for reliability, accuracy and cost reduction.

The **ST480xi** comes standard with a high-quality electrochemical sensor. This type of sensor is available for many different gasses and is perfectly suitable for the detection of the target gas with high precision. This proven sensor technology has demonstrated to function perfectly under the toughest conditions. The ST480xi relies on a specially developed intrinsic safe sensor connection, allowing an easy and quick sensor replacement within an Ex-zone.

The **ST480xi** is equipped 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 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 **ST480xi** is Ex d, and Ex t approved (ATEX 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 and 21) without needing an external zener barrier, directly reducing investment costs.

HEIGHTS AREAS / REMOTE APPLICATIONS:

A remote application allows 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
- + Marine
- + Pharmaceutical Industry
- + Steel Industry
- + Laboratory / Universities

ORDERING INFORMATION

GAS DETECTOR					
TYPE	RANGE	PART NO.		OPERATING TEMPERATURE	RELATIVE HUMIDITY (N.C.)
		ALUMINUM	STAINLESS STEEL		
ST480xi-O ₂	0-25 Vol.%	I229000/25	I229000/25/SS	-20 to +55 °C	5-95%
ST480xi-H ₂ S	0-20 ppm	I229001/20	I229001/20/SS	-20 to +50 °C	15-90%
ST480xi-H ₂ S	0-30 ppm	I229001/30	I229001/30/SS	-20 to +50 °C	15-90%
ST480xi-H ₂ S	0-50 ppm	I2290701/50	I229001/50/SS	-20 to +50 °C	15-90%
ST480xi-H ₂ S	0-100 ppm	I229001/100	I229001/100/SS	-20 to +50 °C	15-90%
ST480xi-CO	0-250 ppm	I229004/250	I229004/250/SS	-20 to +50 °C	15-90%
ST480xi-CO	0-500 ppm	I229004/500	I229004/500/SS	-20 to +50 °C	15-90%
ST480xi-CO	0-250 ppm	I229004/250/LHS	I229004/250/SS/LHS	-20 to +50 °C	15-90%
ST480xi-H ₂	0-1000 ppm	I229005/1000	I229005/1000/SS	-20 to +50 °C	15-95%
ST480xi-H ₂	0-100 %LEL	I229005/40000	I229005/40000/SS	-20 to +50 °C	15-95%
ST480xi-NH ₃	0-100 ppm	I229006/100	I229006/100/SS	-20 to +50 °C	15-90%
ST480xi-NH ₃	0-1000 ppm	I229006/1000	I229006/1000/SS	-20 to +50 °C	15-90%
ST480xi-NH ₃ (LL)	0-100 ppm	I229006/100/LL	I229006/100/SS/LL	-20 to +40 °C	15-95%
ST480xi-NH ₃ (LL)	0-1000 ppm	I229006/1000/LL	I229006/1000/SS/LL	-20 to +40 °C	15-95%
ST480xi-Cl ₂	0-5 ppm	I229007/5	I229007/5/SS	-20 to +40 °C	15-90%
ST480xi-Cl ₂	0-50 ppm	I229007/50	I229007/50/SS	-20 to +40 °C	15-90%
ST480xi-ClO ₂	0-2 ppm	I229008/2	I229007/2/SS	-20 tot +50 °C	15-95%
ST480xi-HCN	0-30 ppm	I229010/30	I229010/30/SS	-20 to +50 °C	15-90%
ST480xi-HCl	0-20 ppm	I229011/20	I229011/20/SS	-20 to +50 °C	15-90%
ST480xi-HF	0-10 ppm	I229012/10	I229012/10/SS	-20 to +50 °C	15-90%
ST480xi-H ₂ O ₂	0-50 ppm	I229013/50	I229013/50/SS	-20 to +45 °C	15-90%
ST480xi-NO	0-25 ppm	I229014/25	I229014/25/SS	-20 to +50 °C	15-90%
ST480xi-NO	0-100 ppm	I229014/100	I229014/100/SS	-20 to +50 °C	15-90%
ST480xi-NO ₂	0-20 ppm	I229015/20	I229015/20/SS	-20 to +50 °C	15-90%
ST480xi-SO ₂	0-10 ppm	I229016/10	I229016/10/SS	-20 to +50 °C	15-90%
ST480xi-CH ₄ S	0-20 ppm	I229017/20	I229017/20/SS	-20 tot +50 °C	15-95%
ST480xi-SiH ₄	0-50 ppm	I229018/50	I229018/50/SS	-20 to +40 °C	10-95%
ST480xi-O ₃	0-1 ppm	I229019/1	I229019/1/SS	-20 to +40 °C	15-90%
ST480xi-CH ₂ O	0-10 ppm	I229020/10	I229020/10/SS	-20 tot +50 °C	15-90%

*The standard CO sensor is cross sensitive to H₂. The LHS version (Low Hydrogen Sensitivity), offers a highly improved selectivity relative to H₂.

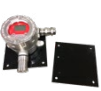
**The standard NH₃ sensor is not suited for applications where continuous (low) concentrations of NH₃ are present. The LL version (Long Life) is more resistant against above-average exposure to NH₃ and offers an extended life-time.

ORDERING INFORMATION

SPARE PARTS / CONSUMABLES			
SPARE GAS SENSOR	PART NO.	RANGE	DESCRIPTION
Type O ₂	I229700	0-25 Vol.% O ₂	Oxygen Vol.% sensor
Type H ₂ S	I229701	20 / 30 / 50 / 100 ppm H ₂ S	Hydrogen sulfide ppm sensor
Type CO	I229704	250 / 500 ppm CO	Carbon monoxide ppm sensor
Type CO (LHS)	I229704/LHS	250 / 500 ppm CO	Carbon monoxide ppm sensor (LHS) Low H ₂ Sensitivity
Type H ₂	I229705/1000	0-1000 ppm H ₂	Hydrogen ppm sensor
Type H ₂	I229705/40000	0-100 %LEL H ₂	Hydrogen LEL sensor
Type NH ₃	I229706/100	0-100 ppm NH ₃	Ammonia ppm sensor
Type NH ₃	I229706/1000	0-1000 ppm NH ₃	Ammonia ppm sensor
Type NH ₃ (LL)	I229706/100/LL	0-100 ppm NH ₃	Ammonia ppm sensor (LL) Long Life
Type NH ₃ (LL)	I229706/1000/LL	0-1000 ppm NH ₃	Ammonia ppm sensor (LL) Long Life
Type Cl ₂	I229707	5 / 50 ppm Cl ₂	Chlorine ppm sensor
Type ClO ₂	I229708	2 ppm ClO ₂	Chlorine dioxide ppm sensor
Type HCN	I229710	0-30 ppm HCN	Hydrogen cyanide ppm sensor
Type HCl	I229711	0-20 ppm HCl	Hydrogen chloride ppm sensor
Type HF	I229712	0-10 ppm HF	Hydrogen fluoride ppm sensor
Type H ₂ O ₂	I229713	0-50 ppm H ₂ O ₂	Hydrogen peroxide ppm sensor
Type NO	I229714	25 / 100 ppm NO	Nitrogen monoxide ppm sensor
Type NO ₂	I229715	0-20 ppm NO ₂	Nitrogen dioxide ppm sensor
Type SO ₂	I229716	0-10 ppm SO ₂	Sulfur dioxide ppm sensor
Type CH ₄ S	I229717	0-20 ppm CH ₄ S	Methyl Mercaptan ppm sensor
Type SiH ₄	I229718	0-50 ppm SiH ₄	Silane ppm sensor
Type O ₃	I229719	0-1 ppm O ₃	Ozone ppm sensor
Type CH ₂ O	I229720	0-10 ppm CH ₂ O	Formaldehyde ppm sensor
Type F ₂	I229721	0-1 ppm F ₂	Fluoride ppm sensor

ORDERING INFORMATION

ACCESSORIES

TYPE	IMAGE	PART NO.	DESCRIPTION
Signal cable		4002427	2 core shielded cable, 2 x 0,75 mm ² (flexible cores), per meter.
Duct mounting set		4002723	Duct mounting set for mounting in ventilation ducts.
Splash Guard for ST480xi		4002702	Splash Guard ST480xi, for enviromental sensor protection, incl. splash water.
Inline flow adapter for ST480xi		1229262	Inline flow adapter ST480xi, for sample applications, SS.
Protective hood		4002714	Protective hood SS, for optimal protection in "wet" production areas, dim. 315 x 300 x 138 mm.
Isolation set EMC/RFI		4002440	Isolation plate EMC/RFI, 160 x 160 mm.
Protective bracket		4002713	SS bracket, extra protection for use in e.g. warehouses.
Calibration adapter for ST480xi		1229261	Stainless Steel calibration flow adapter; for ST480xi.
RS485 Cable		4002763	RS485 cable to connect and program using gaswizzard.

TEST GASES AND ACCESSORIES

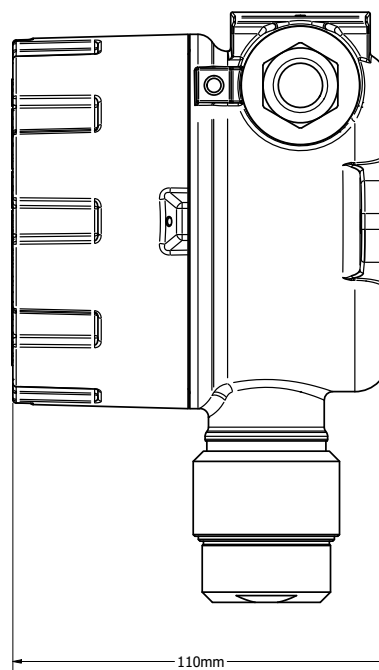
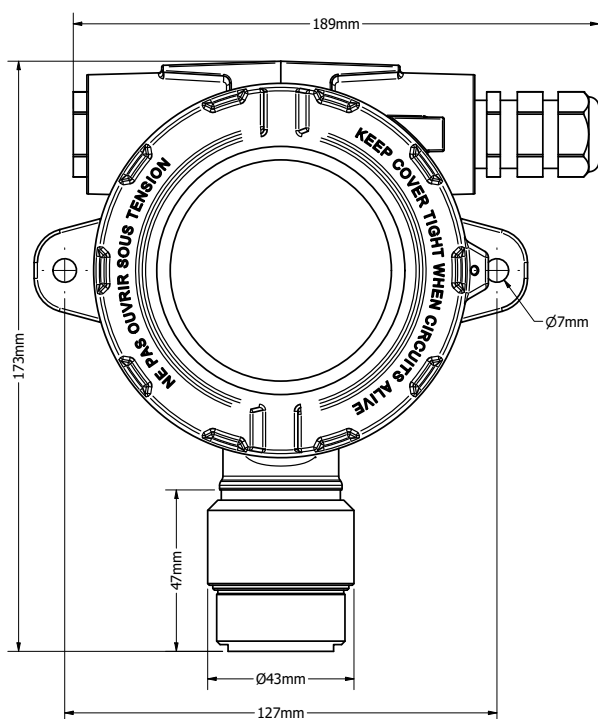
TYPE	PART NO.	DESCRIPTION
BUGAS, 100 Vol.% N ₂	9990524	Nitrogen, 100 Vol.%, 110 gas liters
BUGAS, 20,9% O ₂ / N ₂	9990537	Synthetic air, 20,9% O ₂ / 79% N ₂ , 110 gas liters
BUGAS, 100 ppm CO	9990522	Carbon monoxide, 100 ppm in air, 110 gas liters
BUGAS, 10 ppm H ₂ S	9990540	Hydrogen sulfide, 10 ppm in air, 58 gas liters
BUGAS, 25 ppm H ₂ S	9990507	Hydrogen sulfide, 25 ppm in air, 58 gas liters
BUGAS, 10 ppm HCN	9990509	Hydrogen cyanide, 10 ppm in air, 58 gas liters
BUGAS, 50ppm NH ₃	9990538	Ammonia, 50 ppm in air, 110 gas liters
BUGAS, 25 ppm NO	9990510	Nitrogen oxide, 25 ppm in air, 58 gas liters
BUGAS, 5 ppm NO ₂	9990512	Nitrogen dioxide, 5 ppm in air, 58 gas liters
BUGAS, 10 ppm SO ₂	9990515	Sulphur dioxide, 10 ppm in air, 110 gasliters
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
Gas hose	1225819	Flexible tubing, Ø 6mm, per meter
Flow regulator brass	9990600	Flow regulator Chrome / brass nickleplated (applicable for 58/110 gas liters), fixed flow 0,5 l/min
Flow regulator SS	9990601	Fixed Flow regulator SS (applicable for 58/110 gas liters), fixed flow 0,5 l/min

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

The specifications described herein are subject to change without notice.

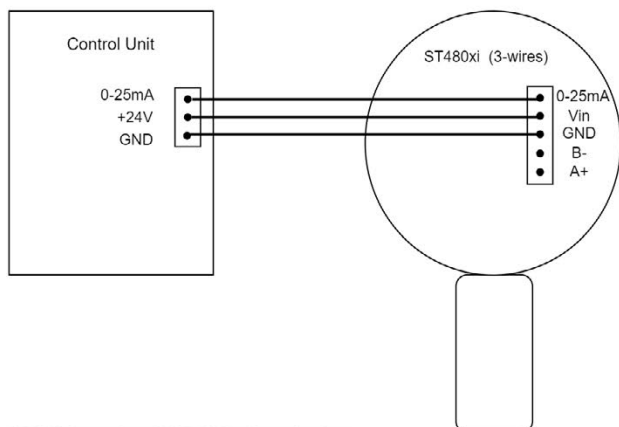
DATA SHEET ST480xi no. 1229000-1229020_EN_2022_v1.15

DIMENSIONS

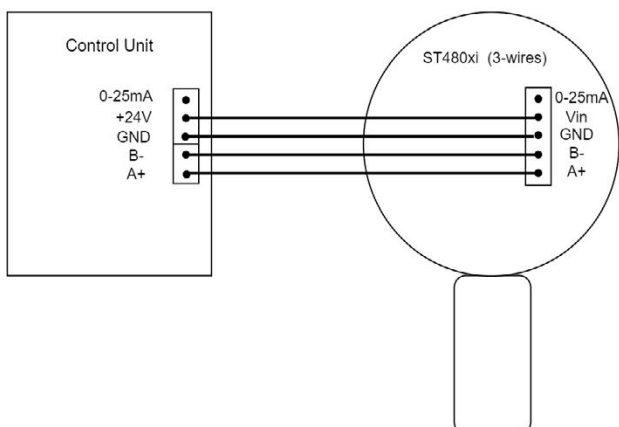


CONNECTION DIAGRAM GAS DETECTOR

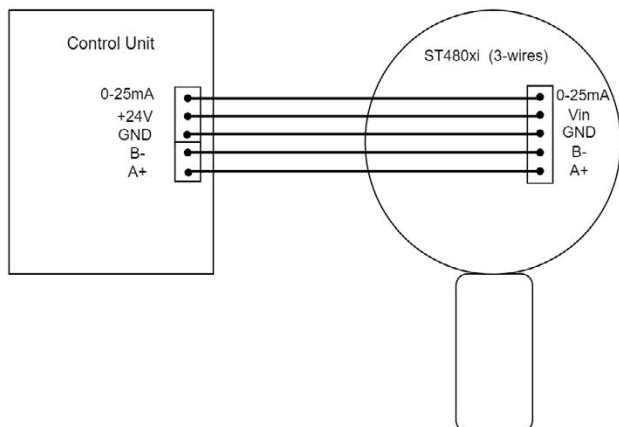
ST480xi used as 4-20mA transmitter:



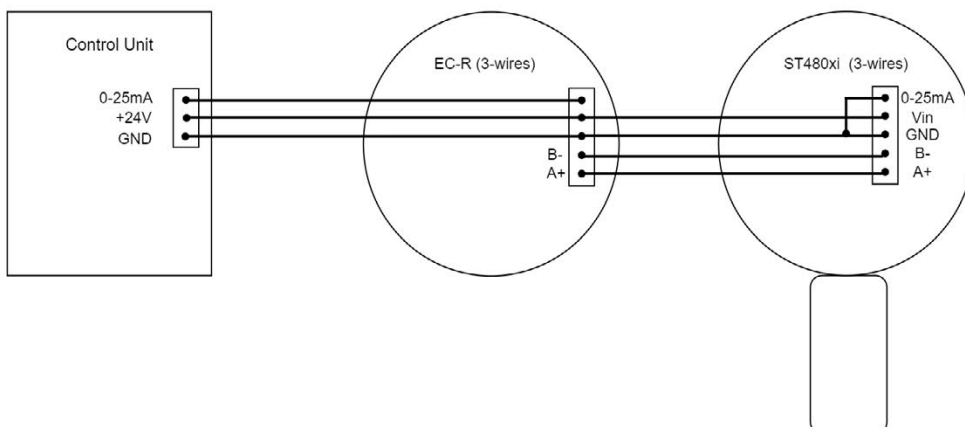
ST480xi used as MODBUS slave device:



ST480xi used as MODBUS slave device and 4-20 mA transmitter:



ST480xi used in remote installation:



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DATA SHEET ST480xi no. I229000-I229020_EN_2022_v1.15

SPECIFICATIONS

PRODUCT	ST480xi
Gas type	Oxygen, Hydrogen and Toxic gases
Sensor type	Electrochemical sensor
Range	See table "Order information" for ranges
Display	Digital graphic display with backlight
Status LED display	Green: OK, Red: Alarm, Yellow: SF (System Failure), Blue: User menu active
Power supply	17.5-30 VDC (max. 3 Watt)
Outputs	Analogue: 4-20 mA (<2.4 mA system failure, >20 mA overrange)
Signal cable	3-wire shielded, 0.75 ... 2.5 mm ² (excluding earth connection and Modbus)
Cable gland	Standard Brass, optional SS (thread M20 x 1.5)
Load impedance	max. 300 Ω at 24 VDC
Operating temperature	See table "Order information"
Relative humidity	See table "Order information"
Pressure range	Toxic: Atmospheric $\pm$ 10%, Oxygen: 80 to 120 kPa
Enclosure	Aluminum with coating, optional SS
Dimensions	173 x 189 x 110 mm (HxWxD)
Weight	2.0 kg (Alu), 3.35 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 (pending)	ATEX II 2G Ex db ia IICT4 Gb II 2D Ex ia tb IIIC T135°C Db IECEx Ex db ia IICT4 Gb Ex ia tb IIIC T135°C Db
Manufacturer	Consilium Safety Netherlands B.V.

