



GAS DETECTOR ST350EX

type: SCV - SCF - PID - NDIR

PART.NO. 1226030-1227540
8226030-8227540

DETECTION OF TOXIC GASES CO₂, N₂O, Refrigerants, C_xH_y and VOC's

SYSTEM CGD50, CGD500 TOUCH

GENERAL DESCRIPTION

- Detection of toxic gases, natural and synthetic refrigerants (R134a, CO₂ (R744), HFO's and HFC's and more) VOC's, Aromatic Hydro-Carbons (ppm)
- All-round industrial gas detector
- ATEX / IECEx / UKEX / cCSAus approved
- Touch screen experience, control without additional tools
- Self-diagnostics
- Reliable sensor technology

The ST350EX is an all-round gas detector and useful for many applications. The heart of the detector is a replaceable gas sensor. The ST350EX can be equipped with a Semi Conductor sensor (**SCV/SCF**), also known as metal oxide sensor; photo ionisation detection sensor (**PID**) or infrared sensors (**NDIR**).

The SCV sensor is suitable for the detection of Aromatic Hydrocarbons at ppm level (for example Toluene or Xylene). The SCF sensor is suitable for the detection of synthetic refrigerants HFO's and HFC's. These are well known Freon's such as R134a, R407c and R1234yf. The NDIR sensors are available for CO₂ or N₂O. The PID can be used to detect over 600 volatile organic compounds (VOC's)

The **ST350EX** is available with or without a graphic display. The version with a graphic 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 colored LED), showing set points, diagnostic information and simulation of the output signal (4-20mA) for loop testing without gas.

HIGH 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:

- + Refrigeration
- + Soil remediation
- + Painting industry, printing ink industry
- + Spraying booths and dry cabins
- + Shipping
- + Storage of dangerous goods
- + Chemical industry

WE OFFER MORE THAN A PRODUCT!

- + Tailored advice
- + Project advice
- + Technical support
- + Training and education
- + Commissioning
- + Onsite service / maintenance / calibration

ORDERING INFORMATION INTERNATIONAL MODELS

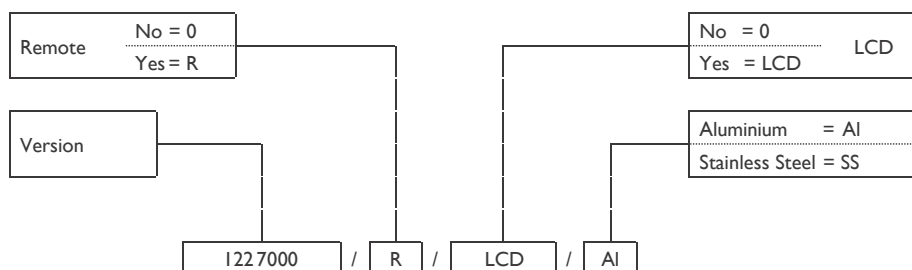
GAS DETECTOR							
TYPE	GASTYPE	RANGE	PART NO				
			STANDARD	REMOTE	LCD	ALU or SS	
ST350EX-SCV	Isobutylene C ₄ H ₈	0-100 ppm	1227000	.../R	.../LCD	.../AI	.../SS
	Ethanol C ₂ H ₅ OH	0-250 ppm	1227002				
	Methanol CH ₃ OH	0-250 ppm	1227003				
	Hexane C ₆ H ₁₄	0-150 ppm	1227004				
	Vinyl Chloride C ₂ H ₃ Cl	0-200 ppm	1227005				
	Methyl Chloride CH ₃ Cl	0-100 ppm	1227006				
	Xylene C ₈ H ₁₀	0-100 ppm	1227008				
	Propene C ₃ H ₆	0-1000 ppm	1227009				
	Toluene C ₇ H ₈	0-100 ppm	1227012				
ST350EX-SCF	R134a	0-1000 ppm	1227050	.../R	.../LCD	.../AI	.../SS
	R404A	0-1000 ppm	1227052				
	R410A	0-1000 ppm	1227053				
	R1234yf	0-1000 ppm	1227054				
	R507	0-1000 ppm	1227055				
	R407C	0-1000 ppm	1227056				
	R449A	0-1000 ppm	1227057				
	R32	0-1000 ppm	1227058				
	R1234ze	0-1000 ppm	1227059				
	R1233zd	0-1000 ppm	1227060				
ST350EX-PID LR 10,6eV	Isobutylene C ₄ H ₈ *	0-10 ppm	1227530/10	N/A	.../LCD	.../AI	.../SS
ST350EX-PID HR 10,6eV		0-100 ppm	1227520/100				
		0-1000 ppm	1227520/1000				
ST350EX-PID 10.0 10,0eV**		0-100 ppm	1227540/100				
ST350EX-NDIR	N ₂ O	0-1000 ppm	1227090	.../R	.../LCD	.../AI	.../SS
		CO ₂ (R744)	0-1 Vol.%	1226036	.../R	.../LCD	.../AI
	0-5 Vol.%		1226030				
	0-10 Vol.%		1226033				
	0-100 Vol.%		1226035				

* Standard calibration, other calibrations to be specified when ordered.

**Enhanced selectivity of compounds with lower ie.

Note: Remote Incl. 10 meter tubing

EXAMPLE



Article no. example: ST350EX-SCV (Toluene) standard version, with LCD, aluminium housing: **1227000/0/LCD/AI**

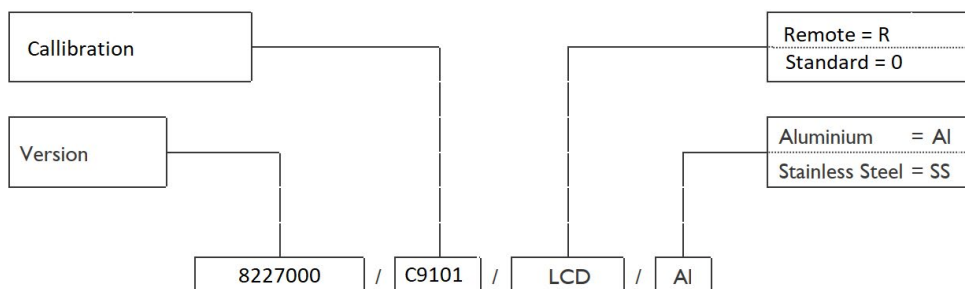
ORDERING INFORMATION NORTH AMERICAN MODELS

GAS DETECTOR							
TYPE	GASTYPE	RANGE	PART NO				
			STANDARD	GAS TYPE	REMOTE	ALU or SS	
ST350EX-SCV	Isobutylene C ₄ H ₈	0-100 ppm	8227000	C9007/B	.../R	.../Al	.../SS
	Hexane C ₆ H ₁₄	0-150 ppm		C9031/B			
	Vinyl Chloride C ₂ H ₃ Cl	0-200 ppm		C9041/B			
	Methyl Chloride CH ₃ Cl	0-100 ppm		C9028/B			
	Xylene C ₈ H ₁₀	0-100 ppm		C9102/B			
	Propene C ₃ H ₆	0-1000 ppm		C9035/B			
	Toluene C ₇ H ₈	0-100 ppm		C9101/B			
	Ethanol C ₂ H ₅ OH	0-250 ppm		C9026/B			
	Methanol CH ₃ OH	0-250 ppm		C9025/B			
ST350EX-SCF	R134a	0-1000 ppm	8227050	C9203	.../R	.../Al	.../SS
	R22	0-1000 ppm		C9200			
	R404A	0-1000 ppm		C9204			
	R410A	0-1000 ppm		C9205			
	R1234yf	0-1000 ppm		C9207			
	R507	0-1000 ppm		C9206			
	R407C	0-1000 ppm		C9208			
	R449A	0-1000 ppm		C9209			
	R32	0-1000 ppm		C9201			
	R1234ze	0-1000 ppm		C9210			
	R1233zd	0-1000 ppm		C9211			
ST350EX-PID LR 10,6eV	Isobutylene C ₄ H ₈	0-10 ppm	8227530/10	C9007/B	.../R	.../Al	.../SS
ST350EX-PID HR 10,6eV	<i>Standard calibration, other calibrations to be specified when ordered.</i>	0-100 ppm	8227520/100				
		0-1000 ppm	8227520/1000				
ST350EX-PID ES 10,0eV*		0-100 ppm	8227540/100				
ST350EX-NDIR	CO ₂ (R744)	0-1 Vol.%	8226030/1	C9304	.../R	.../Al	.../SS
		0-5 Vol.%	8226030/5				
		0-10 Vol.%	8226030/10				
		0-100 Vol.%	8226030/100				
ST350EX-NDIR	N ₂ O	0-1000 ppm	8227090	C9320	.../R	.../Al	.../SS

*Enhanced selectivity of compounds with lower ie.

Note: Remote Incl. 10 meter tubing

EXAMPLE



Article no. example: ST350EX-SCV (Toluene) standard version, with LCD, aluminium housing: **8227000/C9101/0/Al**



Standard version



LCD version



Remote / LCD version











REFRIGERANT TABLE

Synthetic Refrigerant

GAS NAME	TYPE	SAFETY CLASS	SUITABLE DETECTOR	DETECTION RANGE
R134a	HFC	A1	ST350EX-SCF	0-1000 ppm
R404A		A1		
R410A		A1		
R507		A1		
R407C		A1		
R449A		A1		
R32	A2L			
R1233zd	HFO	A1		
R1234yf		A2L		
R1234ze		A2L		

Natural Refrigerant

R744	Carbon dioxide (CO ₂)	CO ₂	A1	ST350EX-NDIR	0-5 Vol%
R717	Ammonia (NH ₃)	NH ₃	B2L	See ST480xi / ST150xi datasheet	0-100/1000 ppm
R290	Propane (C ₃ H ₈)	HC	A3	See ST650EX datasheet	0-100% LEL
R600a	Isobutane (C ₄ H ₁₀)		A3		
R600	n-butane (C ₄ H ₁₀)		A3		

ACCESSORIES			
TYPE	IMAGE	PART NO.	DESCRIPTION
Signal cable		4002427	Mesh shielded cable, 3+1x0,75 mm ² (flexible cores), per meter
Duct mounting set JIS		Duct kit for JIS ducts Stainless Steel	
		5101101-00A	100A (Ø 200mm)
		5101102-00A	125A (Ø 235mm)
		5101103-00A	150A (Ø 265mm)
		5101104-00A	200A (Ø 320mm)
5101105-00A	250A (Ø 385mm)		
Duct mounting set DIN		Duct kit for DIN ducts Stainless Steel	
		5101731-00A	DIN 100 (Ø 220mm)
		5101732-00A	DIN 125 (Ø 250mm)
		5101733-00A	DIN 150 (Ø 285mm)
		5101734-00A	DIN 200 (Ø 340mm)
5101735-00A	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	Environment 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 sensor protection in "wet" production areas, dim. 315x300x138 mm
Isolation set EMC/RFI		4002440	Isolation plate EMC/RFI, 160 x 160 x 7,5mm.
Protective bracket		4002713	SS bracket, extra protection for use in e.g. warehouses
Conical collector hood		4000657	Conical hood for ascending gases

SPARE PARTS / CONSUMABLES

SPARE GAS SENSOR	PART NO.	RANGE	DESCRIPTION
Type SCV	1212587	Calibration dependent	Standard applications, (Aromatic) Hydrocarbons, ppm level (SCV sensor)
Type SCF	1212582	Calibration dependent	Freon applications, detection of synthetic refrigerants (SCF sensor)
Type SCF A2L	1212581	Calibration dependent	Freon applications, detection of synthetic refrigerants (SCF sensor)
Type NDIR CO ₂	1219620	0-5 Vol.% CO ₂	Infrared sensor (NDIR), Carbon dioxide Standard only
Type NDIR CO ₂	1219620/V	0-5 Vol.% CO ₂	Infrared sensor (NDIR), Carbon dioxide Remote only
Type NDIR CO ₂	1219670/V	0-1 Vol.% CO ₂	Infrared sensor (NDIR), Carbon dioxide Standard and remote
Type NDIR CO ₂	1219671/V	0-10 Vol.% CO ₂	Infrared sensor (NDIR), Carbon dioxide Standard and remote
Type NDIR CO ₂	1219673/V	0-100 Vol.% CO ₂	Infrared sensor (NDIR), Carbon dioxide Standard and remote
Type NDIR N ₂ O	1212590/V	0-1000 ppm N ₂ O	Infrared sensor (NDIR), Nitrous oxide Standard and remote
Type PID HR 10.6 eV	1227910	0-100 / 0-1000 ppm	PID sensor; High range
Type PID LR 10.6 eV	1227911	0-10 ppm	PID sensor; Low range
Type PID 10.0 100 eV	1227912	0-100 ppm	PID sensor; Enhanced selectivity

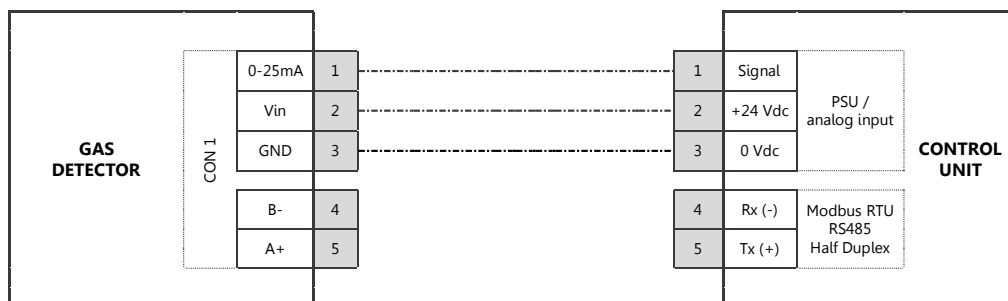
TEST GASES AND ACCESSORIES

TYPE	PART NO.	DESCRIPTION
Toluene	9990521	Toluene, 100 ppm in air; 110 gas liters
Propene	9990541	Propene, 1000 ppm in air; 110 gas liters
Isobutylene	9990525	Isobutylene, 10 ppm in air; 110 gas litre
Isobutylene	9990527	Isobutylene, 100 ppm in air; 110 gas litre
CO ₂ 1,0 Vol.%	9990548	Carbon dioxide 1 Vol.% in air; 110 gas liters
CO ₂ 2,0 Vol.%	9990544	Carbon dioxide 2 Vol.% in air; 110 gas liters
CO ₂ 10,0 Vol.%	9990565	Carbon dioxide 10 Vol.% in air; 110 gas liters
N ₂ O 200 ppm	9990528	Nitrous oxide 200 ppm in N ₂ ; 110 gas liters
Refrigerant R1233zd	9990568	Refrigerant, 500 ppm R1233ZD in air 110 gas liters
Refrigerant R404a	9990572	Refrigerant, 500 ppm R404A in air 110 gas liters
Refrigerant R134a	9990578	Refrigerant, 500 R134a ppm in air 110 gas liters
Refrigerant R143a	9990579	Refrigerant, 1000 ppm R143a in air 110 gas liters
Refrigerant R410a	9990580	Refrigerant, 1000 ppm R410a in air 110 gas liters
Refrigerant R449a	9990583	Refrigerant, 1000 ppm R449a in air 110 gas liters
Refrigerant R125	9990519	Refrigerant, 500 ppm R125 in air; 110 gas liters
Air	9990537	Synthetic air, 20,9% /N ₂ ; 110 gas liters
Calibration adapter	4002715	Stainless Steel calibration flow adapter
Gas hose	1225819	Flexibele gas hose, Ø 4x6mm, suitable for non corrosive gasses meter.
Gas hose	1910204	Flexibele gas hose, Ø 4x6mm, suitable for corrosive gasses meter.
Gas humidity bottle	1227300	Humidity bottle, to humidify the test gas (only applicable for SCV/SCF sensors)
Flow regulator	9990600	Flow regulator Chrome/brass, fixed flow 0,5 l/min
Flow regulator	9990601	Flow regulator Stainless Steel, fixed flow 0,5 l/min

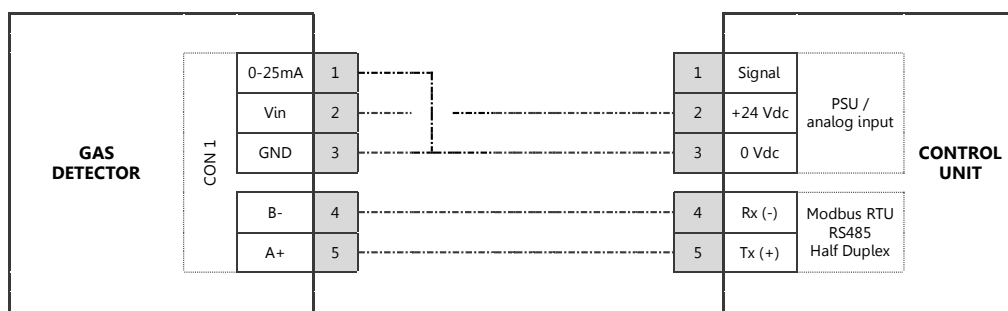
Consilium offers a wide range of test gases, if the required test gas is not listed, please contact us.

CONNECTION DIAGRAM GAS DETECTOR

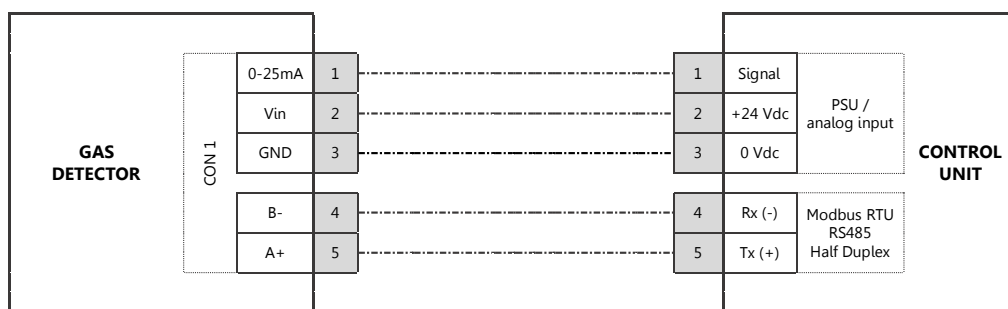
ST350EX used as 4-20mA transmitter (3 wires):



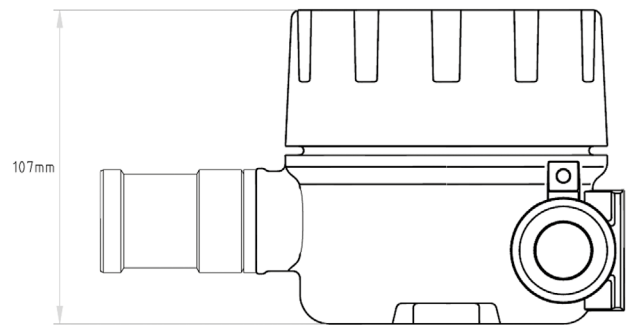
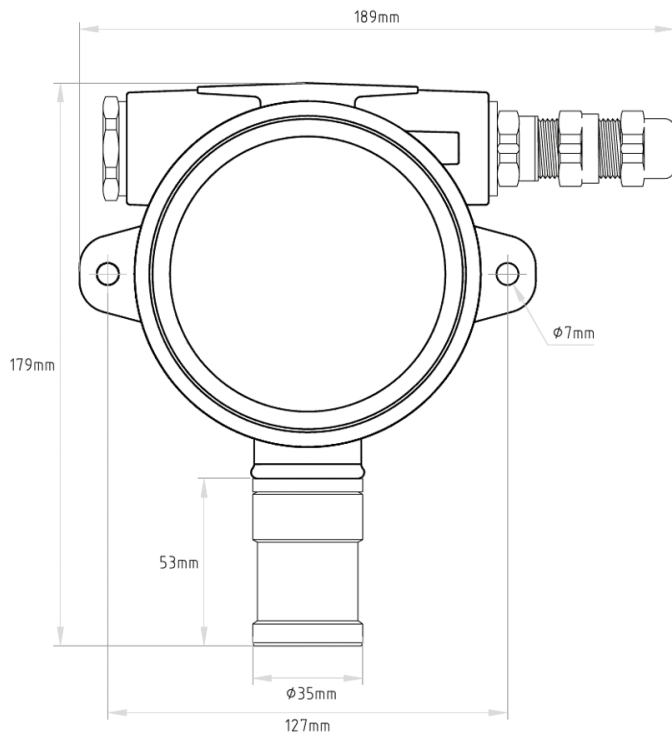
ST350EX used as MODBUS slave device:



ST350EX used as MODBUS slave device and 3 wire 4-20 mA transmitter:



DIMENSIONS



SPECIFICATIONS

PRODUCT	ST350EX
Gas type	Toxic gases (CO ₂ / N ₂ O), (aromatic) Hydrocarbons, synthetic refrigerants, HFC's, HFO's, VOC's
Sensor type	SemiConductor sensor (MOS) type SCV / SCF, NDIR, PID
Display (optional)	Digital graphic display with backlight
Status LED display	Green: OK, Red: Alarm, Yellow: SF (System Failure), Blue: User menu active
Power supply	18-30VDC (max. 120 mA)
Outputs	Analogue: 4-20 mA (2 mA system failure, >20 mA overrange) Digital: RS485 Modbus RTU (half-duplex)
Signal cable	3-wire mesh shielded, 0,75 ... 2.5 mm ² (excluding earth connection and Modbus)
Cable gland	Standard Brass, optional SS (thread M20x1.5)
Load impedance	max. 400 Ω at 24VDC
Operating temperature	SCF / SCV -10 to +50 °C NDIR, PID -20 to + 50 °C
Relative humidity	15-95 % (non-condensing)
Pressure range	700 to 1300 hPa
Enclosure	Aluminum with coating, optional SS
Dimensions	179 x 189 x 107 mm (HxWxD)
Weight	Aluminum: 1,3 kg Stainless Steel: 2,55 kg, Aluminum LCD: 1,75 kg Stainless Steel LCD: 3 kg
Ingress Protection	IP 66 (Sensor IP 6x)
Enclosure gas sensor	SS 316
CE marking (international models)	ATEX (Directive 2014/34/EU) Electromagnetic Compatibility (Directive 2014/30/EU)
Approvals (international models)	ATEX / UKEX II 2G Ex db IICT6 Gb II 2D Ex tb IICT85°C Db IECEX Ex db IICT6 Gb Ex tb IICT85°C Db (Tamb: -20°C to +60°C)
Approvals (North American models)	cCSAus Class I, Zone I, AEx db IICT6 Gb Zone 21, AEx tb IICT85°C Db Class I, Division I, GP A, B, C, D T6 Class II, Division I, GP E, F, GT85°C 60079-29-1 (flammable)
Compliance with: (North American models)	CSA C22.2 No. 60079-0:19, 60079-1:16, 60079-31:15, 25:17, 30:20 CAN/CSA C22.2 No. 61010-1-12 UL 61010-1, 60079-0:19, 60079-1:15, 60079-31 FM 3600:2022, 3615:2022, 3616:2022
Manufacturer	Consilium Safety Netherlands B.V.

