ST650 EX Gas Detector (CH4, 0-100 %LEL, Aluminium, LCD)

Product reference	
Part No.	5150209-00A
Manufacturer	Consilium / Salwico
Model	ST650 EX



Product overview

ST650 EX gas detector with Catalytic, NDIR and TCD sensor versions; exact configuration follows the ordered Part No. Original manufacturer ST650 EX family example; exact gas, sensor, range, housing and version depend on the ordered Part No. Other calibrations must be specified when ordering. Accessories and spare sensors are separate items, not host products.

Technical specifications

Part no.	5150209-00A	Dimensions	179 × 189 × 107 mm (H × W × D).
Order-table application	Methane	Weight	1.5 kg ± 5% (Al); 2.6 kg ± 5% (SS).
Order-table gas (source footnote marker)	CH4 *	Enclosure gas sensor	SS 316.
Order-table sensor	NDIR	Specific conditions of use	Refer to ATEX certificate.
Order-table range	0-100 %LEL	Certification marking and directives	CE mark shown with 0344 beside it; ATEX (Directive 2014/34/EU); Electromagnetic Compatibility (Directive 2014/30/EU); 0344 is not identified as a certificate ID in the source; current validity unknown.
Material	Aluminium	ATEX approvals	Compact/remote: II 2G Ex d IIC T6 Gb; II 2D Ex tb IIIC T85°C Db. Remote HT: II 2G Ex d IIC T3 Gb; II 2D Ex tb IIIC T200°C Db.
Version	LCD	IECEx approvals	Compact/remote: Ex d IIC T6 Gb; Ex tb IIIC T85°C Db. Remote HT: Ex d IIC T3 Gb; Ex tb IIIC T200°C Db.
Model	ST650 EX	Certification note	More information can be found in the sensor datasheets. Current certificate validity is unknown.
Product type	Gas detector.	Sensor differences	Measuring range; resistance to silicone poisoning; detects hydrogen; affected by hazardous chemical environments; detection in anaerobic / inert conditions; no sensor burn-out at high concentrations; sensor lifetime.
Compatible systems	CGD50/500; CGS50/500.	Silicone poisoning resistance	Catalytic: no; TCD: limited; NDIR: yes.
General description	The ST650 EX is an all-round gas detector which functions well under the most difficult circumstances. The sensor is available in various versions, such as a catalytic flammable gas sensor, Infrared (NDIR) and a Thermal Conductivity sensor (TCD). The sensor has a long life-span, which achieves an optimal cost of ownership.	Hydrogen detection	Catalytic: up to 100 %LEL; TCD: up to 100 Vol.%; NDIR: no.
Family display (optional)	Digital graphic display with backlight (optional).	Hazardous chemical environments	Catalytic: yes; TCD: limited; NDIR: no.
Status LED	Green: OK; red: alarm; yellow: system failure.	Anaerobic / inert detection	Catalytic: no; TCD: yes; NDIR: yes.
Family calibration (order requirement)	Standard: Methane. Also available for Propane, Butane, Hydrogen, Methanol, Ethanol, Kerosene, Gasoline, Toluene, Hexane, Ammonia, Acetic acid, and more (calibration to be specified when ordered).	No sensor burn-out at high concentrations (family comparison)	Catalytic: no; TCD: yes; NDIR: yes.
Gas type	Combustible gases and vapours; exact order-table gas is listed separately for each SKU.	Sensor lifetime	Catalytic: 3 years; TCD: 3 years; NDIR: 4-6 years.

Sensor type	Catalytic bead sensor, Infrared (NDIR), or Thermal conductivity sensor (TCD); exact order-table sensor is listed separately for each SKU.	Sensor-selection safety note	Special care should be taken when selecting sensors for certain environments. If uncertain, consult your local Consilium representative.
Order-table footnote	* Standard calibration. Other calibrations to be specified when ordered.	Mounting	Mount the detector in a vertical position, with the sensor pointing downwards.
Family range	0-100 %LEL, 0-10 %LEL, 0-100 Vol.% (depending on gas type, sensor type, and calibration).	Installation clearance	Leave at least 11 cm free space below the sensor head to ensure the splashguard can be removed during sensor exchange. This also allows connection of a hose for bump tests.
Power supply	17.5-24 V DC (max. 120 mA).	Connections	Follow the original manufacturer connection diagram on source page 5; terminal allocation is not reproduced here.
Outputs	4-20 mA; RS485 Modbus RTU (half-duplex); 2 mA system failure; >20 mA over range.	Remote application (family remote condition)	Remote sensors are ideal where gases ascend. Cable lengths up to 150 metres are supported between transmitter and sensor (depending on type).
Signal cable	3-wire shielded; 0.75-2.5 mm².	Touch-style control (family LCD-version feature)	Capacitive key control similar to a touchscreen; no additional tools required.
Cable gland (by enclosure material)	Aluminium housing: Brass; SS housing: SS (thread M20x1.5).	Self-diagnostics	Included.
Cable dimension	Ø max. 16 mm (incl. shielding).	Splashguard	Included.
Load impedance	Max. 400 Ω at 24 V DC.	User menu (family LCD-version feature)	Zero and span calibration; alarm set-point adjustment; set-point display; diagnostics; 4-20 mA output simulation.
Family temperature limits by application/sensor	Standard: -20 °C to +60 °C. IR versions: -20 °C to +50 °C. Remote HT: -20 °C to +120 °C.	Password protection (family LCD-version feature)	User menu secured with a password; unauthorized users cannot access the gas detector.
Ingress protection	Enclosure IP66; sensor IP6X. IP ratings do not imply that the equipment will detect gas during and after exposure to those conditions.	Applications	Chemical industry; refineries; wastewater plants; boiler rooms; marine; storage of packed dangerous substances; food industry.
Relative humidity	15-95% RH (non-condensing).	Source conditions	The specifications described herein are subject to change without notice.
Pressure range	700 to 1300 hPa.	Accessories (separate items)	Splash guard 5150227-00A: Sensor protection against splash water; Inline flow adapter 5150228-00A: Inline flow adapter for sample applications, connection 2×6mm, SS; Protective hood 5150226-00A: Protective hood SS, for optimal protection in “wet” protection areas, dimensions 315×300×138 mm; Isolation set EMC/RFI 5150231-00A: Isolation board, 160×160 mm; Protective bracket 5150225-00A: SS bracket, extra protection for use in warehouses; Conical collector hood 5150230-00A: Conical hood for ascending gases
Enclosure material	Aluminium with coating, optional SS.	Spare gas sensors (separate items)	ST650 EX, Sensor 5150240-00A, 0-100 %LEL CH4: Gas sensor for standard applications; ST650 EX, Sensor 5150247-00A, 0-100 %LEL CH4: High temperature, applications up to 120 °C ambient temperature; ST650 EX, Sensor 5150241-00A, 0-100 %LEL: Gas sensor for combustible vapours containing halogens; ST650 EX, Sensor 5150242-00A, 0-100 %LEL Kerosene / 0-100 %LEL Gasoline / 0-10 %LEL NH3: Kerosene, Gasoline and Ammonia applications with listed ranges; ST650 EX, Sensor 5150243-00A, 0-100 Vol.% CH4: Thermal Conductivity sensor, measurements up to 0-100 Vol.% CH4; ST650 EX, Sensor 5150245-00A, 0-100 %LEL CH4: Infrared sensor (NDIR), Methane; ST650 EX, Sensor 5150246-00A, 0-100 %LEL C3H8: Infrared sensor (NDIR), Propane