



# Certificate of Compliance

**Certificate:** 80082143

**Master Contract:** 301808

**Project:** 80168719

**Date Issued:** 2023-10-19

**Issued To:** Consilium Safety Netherlands B.V.  
Zuidpool 9  
Gouda, South Holland, 2801 RW  
Netherlands

**Attention:** Joeri Rietbroek

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.*



**Issued by:** *Bhas Nanavati*  
Bhas Nanavati

## PRODUCTS

4828 02 - SIGNAL APPLIANCES - Toxic Gas Detection Instruments - For Hazardous Locations  
4828 82 - SIGNAL APPLIANCES - Toxic Gas Detection Instruments - For Hazardous Locations - Certified to U.S. Standards

**Ex db IIC T6 Gb**  
**Ex tb IIIC T85°C Db**

**Class I, Zone 1, AEx db IIC T6 Gb**  
**Zone 21, AEx tb IIIC T85°C Db**

**Class I, Division 1, Groups A, B, C, and D T6**  
**Class II, Division 1, Groups E, F, and G T85°C**

Model ST350EX, ST360EX, ST350-CO<sub>2</sub>, ST450EC, and ST650-CO<sub>2</sub>; Compact or Remote versions;  
24Vdc or 18 to 30 Vdc, 120mA max.; Oxygen, and/or Toxic Fixed (Stationary) Gas Detector;



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Indoor and Outdoor Use; IP66; Type 4X;  
Ambient Temperature Ranges: -20°C to +60°C

Model	Description	Sensor Type
ST350EX	Toxic Gases, (aromatic) Hydrocarbons, Synthetic Refrigerants (Freons) (H) CFK's and HFK's	Semiconductor sensor (or named MOS): Type SCV for Hydrocarbons; Type SCF for Freons Nondispersive InfraRed (NDIR)
ST360EX	Toxic Gases, (aromatic) Hydrocarbons, Synthetic Refrigerants (Freons) (H) CFK's and HFK's	Semiconductor sensor (or named MOS): Type SCV for Hydrocarbons; Type SCF for Freons Nondispersive InfraRed (NDIR)
ST350-CO <sub>2</sub>	Carbon Dioxide (CO <sub>2</sub> )	Nondispersive InfraRed (NDIR)
ST450EC	Toxic Gases and Oxygen (e.g. O <sub>2</sub> , H <sub>2</sub> S, CO)	Electrochemical sensor (2 or 3 electrodes)
ST650-CO <sub>2</sub>	Carbon Dioxide (CO <sub>2</sub> )	Nondispersive InfraRed (NDIR)

**Conditions of Acceptability:**

1. This equipment may only be powered by a power supply unit with a limited energy electric circuit in accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, or Class 2 as defined in the Canadian Electrical Code C22.1, Section 16-200 and/or National Electrical Code (NFPA 70), article 725.121.
2. The nonmetallic enclosure parts of this equipment may become a spark ignition hazard in the presence of static electricity. The enclosure shall be cleaned only with a damp cloth, and the equipment shall be mounted to avoid building static electric charge from nonconductive process flow, strong air currents, or other potential charging through friction.
3. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.
4. For details on the dimensions of the flameproof joints the manufacture manual shall be referred to and/or manufacturer shall be contacted.
5. Cable Glands and/or blanking elements shall be suitably certified to maintain ratings of the equipment.
6. Cables or conductors rated for +70°C or greater shall be used.

4828 01 - SIGNAL APPLIANCES - Combustible Gas Detection Instruments - For Hazardous Locations  
4828 81 - SIGNAL APPLIANCES - Combustible Gas Detection Instruments - For Hazardous Locations -  
Certified to U.S. Standards

**Ex db IIC T6 Gb**  
**Ex tb IIIC T85°C Db**

**Class I, Zone 1, AEx db IIC T6 Gb**  
**Zone 21, AEx tb IIIC T85°C Db**

**Class I, Division 1, Groups A, B, C, and D T6**  
**Class II, Division 1, Groups E, F, and G T85°C**



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Model ST650EX, and ST650EX IR ; Compact or Remote version;  
24Vdc or 18 to 30 Vdc, 120mA max.; Combustible Fixed (Stationary) Gas Detector; Indoor and Outdoor Use;  
IP66; Type 4X; Ambient Temperature Ranges: ST650EX: -20°C to +60°C

*Note: Display LCD of the equipment is for indication purposes only. 4-20mA output shall be used for all safety related alarms and signals.*

Model	Description	Sensor Type
ST650EX	Combustible Gas (0-100% LFL Methane and Propane)	Catalytic bead (CAT)
ST650EX NDIR	Combustible Gas (0-100% LFL Methane and Propane)	Nondispersive InfraRed (NDIR)
ST650EX	Combustible Gas (0-100% LFL Methane only)	Molecular Property Spectrometer (MPS)

#### **Conditions of Acceptability:**

1. This equipment may only be powered by a power supply unit with a limited energy electric circuit in accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, or Class 2 as defined in the Canadian Electrical Code C22.1, Section 16-200 and/or National Electrical Code (NFPA 70), article 725.121.
2. The nonmetallic enclosure parts of this equipment may become a spark ignition hazard in the presence of static electricity. The enclosure shall be cleaned only with a damp cloth, and the equipment shall be mounted to avoid building static electric charge from nonconductive process flow, strong air currents, or other potential charging through friction.
3. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.
4. For details on the dimensions of the flameproof joints the manufacture manual shall be referred to and/or manufacturer shall be contacted.
5. Cable Glands and/or blanking elements shall be suitably certified to maintain ratings of the equipment.
6. Cables or conductors rated for +70°C or greater shall be used.
7. IP and Type Ratings do not imply that the equipment will detect gas during and after exposure to those conditions. Refer to instruction manual for recommended calibration and maintenance requirements.

4828 02 - SIGNAL APPLIANCES - Toxic Gas Detection Instruments - For Hazardous Locations

4828 82 - SIGNAL APPLIANCES - Toxic Gas Detection Instruments - For Hazardous Locations - Certified to U.S. Standards

*Compact Version / Remote Sensor Version:*

**Ex db ia IIC T4 Gb**

**Ex ia tb IIIC T135°C Db**

**Class I, Zone 1, AEx db ia IIC T4 Gb**

**Zone 21, AEx ia tb IIIC T135°C Db**

**Class I, Division 1, Groups A, B, C, and D T4**



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**Class II, Division 1, Groups E, F, and G T135°C**

*Remote Transmitter Version:*

**Ex db IIC T4 Gb**  
**Ex tb IIIC T135°C Db**

**Class I, Zone 1, AEx db IIC T4 Gb**  
**Zone 21, AEx tb IIIC T135°C Db**

**Class I, Division 1, Groups A, B, C, and D T4**  
**Class II, Division 1, Groups E, F, and G T135°C**

Model ST480xi-xx; Non-intrinsically safe input (connector CON1) with the following maximum values:  
 $U_N = 18$  to 30 Vdc;  $U_M = 250$  Vac;  $P_{max} = 2.2$ W; Oxygen, and/or Toxic Fixed (Stationary) Gas Detector; Indoor and Outdoor Use; IP 66; Type 4X; Ambient Temperature Range: -20°C to +60°C;  
Installation Dwg: "ST480xi\_Manual"

Model	Description	Sensor Type
ST480xi	Toxic Gases and Oxygen (e.g. O <sub>2</sub> , H <sub>2</sub> S, CO)	Electrochemical sensor (2 or 3 electrodes)

**Conditions of Acceptability:**

1. This equipment may only be powered by a power supply unit with a limited energy electric circuit in accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, or Class 2 as defined in the Canadian Electrical Code C22.1, Section 16-200 and/or National Electrical Code (NFPA 70), article 725.121.
2. The nonmetallic enclosure parts of this equipment may become a spark ignition hazard in the presence of static electricity. The enclosure shall be cleaned only with a damp cloth, and the equipment shall be mounted to avoid building static electric charge from nonconductive process flow, strong air currents, or other potential charging through friction.
3. For details on the dimensions of the flameproof joints the manufacture manual shall be referred to and/or manufacturer shall be contacted.
4. The flamepaths of the equipment are not intended to be repaired. Consult the manufacturer if repair of the flamepath joints is necessary.
5. Cable Glands and/or blanking elements shall be suitably certified to maintain ratings of the equipment.
6. Cables or conductors rated for +70°C or greater shall be used.

8721 06 - ELECTRICAL LABORATORY EQUIPMENT - Electrical Laboratory Equipment  
8721 86 - ELECTRICAL LABORATORY EQUIPMENT - Certified to US Standards

Model ST150 24Vdc or 18 to 30 Vdc, 120mA max.; Oxygen, and/or Toxic Fixed (Stationary) Gas Detector;  
Indoor and Outdoor Use; IP65; Type 4X; Ambient Temperature Ranges: -20°C to +60°C

The ST150 is available in various variants such as ST150xi, ST150xe, ST150xr, and ST150xf:



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ST150xi	Available with various type of electrochemical sensors and uses ST450 2 wire or 3 wire transmitter PCB
ST150xe, xr, or xf	Available with NDIR sensors, MPS sensors, PID sensors, MOS sensors and other sensors that fits mechanical and electrically in the sensor housing. This variant uses the ST350/650 3 wire transmitter PCB

**Conditions of Acceptability:**

1. This equipment may only be powered by a power supply unit with a limited energy electric circuit in accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, or Class 2 as defined in the Canadian Electrical Code C22.1, Section 16-200 and/or National Electrical Code (NFPA 70), article 725.121.
2. Cable Glands and/or blanking elements shall be suitably certified to maintain Ingress Protection ratings of the equipment.
3. Cables or conductors rated for +70°C or greater shall be used.



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**APPLICABLE REQUIREMENTS**

CSA C22.2 No. 60079-0:19	Explosive atmospheres – Part 0: Equipment – General requirements
CAN/CSA C22.2 No. 60079-1:16	Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures “d”
CAN/CSA C22.2 No. 60079-11:14	Explosive atmospheres – Part 11: Equipment protection by intrinsic safety “i”
CAN/CSA C22.2 No. 60079-31:15	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure “t”
CSA C22.2 No. 25:17	Enclosure for use in Class II, Division 1, Groups E, F, and G hazardous locations
CSA C22.2 No. 30:20	Explosion-proof Equipment
CAN/CSA C22.2 No. 60079-29-1:17	Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases
CAN/CSA C22.2 No. 61010-1-12 + Amd 1 – 18	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements
UL 61010-1 Third Edition	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 1: General Requirements
UL 60079-0:19 Seventh Edition	Explosive atmospheres – Part 0: Equipment – General requirements
UL 60079-1:15 Seventh Edition	Explosive Atmospheres – Part 1: Equipment Protection by Flameproof Enclosures “d”
ANSI/UL 60079-11:13 Sixth Edition	Explosive Atmospheres – Part 11: Equipment Protection by Intrinsic Safety “i”
UL 60079-31 Second Edition	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure “t”
UL 60079-29-1 Second Edition	Explosive atmospheres - Part 29-1: Gas detectors - Performance requirements of detectors for flammable gases
FM 3600:2022	Approval Standard for Electrical Equipment for Use in Hazardous (Classified) Locations - General Requirement
FM 3615:2022	Examination Standard for Explosionproof Electrical Equipment - General Requirements
FM 3616:2022	Approval Standard for Dust-Ignitionproof Electrical Equipment General Requirements