



Certificate of Compliance

Certificate: 1714037 (LR)

Master Contract: 185562

Project: 70041397

Date Issued: August 22, 2017

Issued to: Emerson Process Management GmbH & Co. OHG
Industriestrasse 1
Hasselroth, 63594
GERMANY
Attention: Gabriele Blendin

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and US Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only



Issued by:

Herbert Peters

PRODUCTS

CLASS - 8721 05 - LABORATORY EQUIPMENT-Electrical

CLASS - 8721 85 - ELECTRICAL EQUIPMENT FOR LABORATORY USE-Certified to US Standards

Gas analyzer, Model: X-STREAM, rated 100-240Vac, 50/60 Hz, 3 - 1.5A, Class I, Pollution Degree II.

- **X-STREAM (XLF) or X-STREAM Enhanced Field Housing Gas Analyzer (XEF):** Wall mounting with field wiring terminals, for outdoor use Type 4 & IP66 and display;
- **X-STREAM (X2GP) or X-STREAM Enhanced (XEGP) General Purpose Gas Analyzer:** Table Top or Rack Mount with appliance inlet for indoor use and display (optional with field wiring terminals for indoor use);
- **X-STREAM Gas Analyzer Core (XCA)** Table Top or Rack Mount with appliance inlet for indoor use and no display (optional with field wiring terminals for indoor use)

Gas analyzer, Model: X-STREAM, rated 100-240Vac, 50/60 Hz, 1.3- 0.7A, Class I, Pollution Degree II.

- **X-STREAM Gas Analyzer Core Compact (XCK)** Table Top or Rack Mount with appliance inlet for indoor use and no display (optional with field wiring terminals for indoor use);



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- **X-STREAM (X2GK) or X-STREAM Enhanced (XEGK) General Purpose Compact Gas Analyzer:** Table Top or Rack Mount with appliance inlet for indoor use and display (optional with field wiring terminals for indoor use);
- **X-STREAM X100 Compact Gas Analyzer (X100GK):** Table Top or Rack Mount with appliance inlet for indoor use and display (optional with field wiring terminals for indoor use);

Gas analyzer, Model: X-STREAM, rated 100-240Vac, 50/60 Hz, 5.5 - 3A, Class I, Pollution Degree II.

- **X-STREAM (XXF) or X-STREAM Enhanced Field Housing Gas Analyzer (XDF):** Wall mounting with field wiring terminals, for outdoor use Type 4 & IP66 and display;

Gas analyzer, Model: X-STREAM, rated 24Vdc, 2.5A, Class I, Pollution Degree II.

- **X-STREAM (X2GC or X2GK) or X-STREAM Enhanced (XEGC or XEGK) General Purpose Compact Gas Analyzer** Table Top or Rack Mount with 24Vdc in connector and display;
- **X-STREAM Compact Gas Analyzer Core (XCC or XCK):** Table Top or Rack Mount with 24Vdc in connector.

CONDITIONS OF ACCEPTABILITY

- For the X-STREAM Models X2GP, XCA and XEGP and the AC powered versions of X2GK, XCK, XEGK and X100GK, the equipment is supplied with an approved power supply cord set or power supply cord with plug that is acceptable to the authorities in the country where the equipment is to be used. Units supplied without a power cord and that are not permanently connected are considered as component. Component-type units must be provided with a Fire, Mechanical and Electrical enclosure and must be re-evaluated by CSA.
- The plug/connector is used as the disconnected device. The switch for X2GP/XCA/XEGP/XCK/X2GK/XEGK/X100GK is not considered the disconnect device. All units must be provided with a disconnect device.
- If at any time there is a conflict between the system safety provisions and any relevant local (national or regional) requirements, the local requirements always take precedence.



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CLASS - 2258 02 - PROCESS CONTROL EQUIPMENT – For Hazardous Locations
CLASS - 2258 82 - PROCESS CONTROL EQUIPMENT – For Hazardous Locations – Certified to U.S. Standards.

Technical data for the sample:

Sample temperature range = ambient temperature range

Max oxygen concentration= 21%

Range of the sample pressure: 800 –1100 hPa*

*Until 1500 hPa are possible if the enclosure is installed with a breather (flow limit: ≥1 L/min) and additional external flame arrestors suitable for this pressure.

X-Stream FD (X2FD): Flameproof for Hazardous Locations

Class I, Zone 1, Ex d IIB+H₂, T3 and/or Class I, Division 2, Groups B, C, and D, T3

Class I, Zone 1, AEx d IIB+H₂, T3 and/or Class I, Division 2, Groups B, C, and D, T3

Gas analyzer , Model: X-Stream, rated 100-240Vac, 50/60 Hz, 3 - 1.5A, Class I, Pollution Degree II

IP66, Enclosure Type 4X; Ambient temperature range –20 °C to +55 °C

Max sample

X-Stream FD (X2FD) has same electronics as the X-STREAM General Purpose Gas Analyzer (X2GP) with new Hazardous Locations Enclosure.

Type designation X2FD-Level 1 to 22

X2FD	X-STREAM Flameproof Process Gas Analyzer	
		Serial number begins with XMD
Level 1	Language	Language used for the display: A, B, C,.... F, G /alphanumeric symbol (one), for the language
Level 2	Ambient Conditions : VFD or LCD display for different temperature ranges (–20°C to +55°C or 0 °C to +55°C)	
Level 3	Instrument	Combination of the benches/channels
Level 4	Bench 1	Gas measurement range and type of measurement
Level 5	Bench 1 - Special	Linearization or Calibration
Level 6	Bench 2	Gas measurement range and type of measurement
Level 7	Bench 2 - Special	Linearization or Calibration
Level 8	Bench 3	Gas measurement range and type of measurement
Level 9	Bench 3 - Special	Linearization or Calibration
Level 10	Bench 4	Gas measurement range and type of measurement
Level 11	Bench 4 - Special	Linearization or Calibration
Level 12	Enclosure	Options are case purge for toxic and corrosive gases or T-stat control
Level 13	Hazardous Area Options and Special Approvals, For US/C: B and D	
	B	CSA-C/US Ex Class I, Zone 1, IIB+H ₂ & Class I, Div. 2, Group BCD, T3: Ex d flameproof, inlets for conduits ¾" NPT
	D	CSA-C/US Ex Class I, Zone 1, IIB+H ₂ & Class I, Div 2, Group BCD, T3: Ex d flameproof, conduit inlets ¾" NPT; sample pressure 1100-1500 hPa (1.45 - 7 psig) requires 1 breather (flow limit: ≥1 L/min) and suitable external high pressure flame arrestors



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Level 14	Analog Outputs (4 Status relays included for all options): 1, 2, 3 or 4
Level 15	Digital Inputs / Relay Outputs: 0, 1 or 2
Level 16	Communication Interface: 0, A, B, C or D (RS 232C for service included for all options)
Level 17	Spare
Level 18	Sample Handling: 0, 1, 2, 3, 4, 5 or 6(pump, valve block etc.)
Level 19	Gas Path Sensors: 0, 1, 3, 5, 7 or 9(Flow sensor or pressure sensors)
Level 20	Gas Path Tubing: A, B, C, D, E, F, G, H, I(Viton, PFA or SS tubing)
Level 21	Gas Path Fittings: E, F, G, H, I, J, K or L
Level 22	Flame Arrestors: numbers of flame arrestors: 2, 3, 4, 5, 6, 7 or 8

X-STREAM FD (XEFD): Flameproof for Hazardous Locations

Class I, Zone 1, Ex d IIB+H₂, T3 and/or Class I, Division 2, Groups B, C, and D, T3

Class I, Zone 1, AEx d IIB+H₂, T3 and/or Class I, Division 2, Groups B, C, and D, T3

Gas analyzer , Model: X-STREAM, rated 100-240Vac, 50/60 Hz, 3 - 1.5A, Class I, Pollution Degree II

IP66, Enclosure Type 4X; Ambient Temperature Range: -20 °C to +55 °C

X-STREAM FD Enhanced (XEFD) has same electronics as the X-STREAM Enhanced General Purpose Gas Analyzer (XEF) with same Hazardous Locations Enclosure as X-STREAM X2FD.

XEFD-Level 1 to 24

XEFD	X-STREAM Enhanced Flameproof Process Gas Analyzer	
Level 1	Language	used for the display: A, B, C,.... F, G /alphanumeric symbol (one), for the language
Level 2	Ambient Conditions : VFD or LCD display for different temperature ranges (-20 °C to +55 °C or 0 °C to +55 °C)	
Level 3	Instrument	
Level 4	Bench 1	
Level 5	Bench 1 - Special Linearization or Calibration	
Level 6	Bench 2	
Level 7	Bench 2 - Special Linearization or Calibration	
Level 8	Bench 3	
Level 9	Bench 3 - Special Linearization or Calibration	
Level 10	Bench 4	
Level 11	Bench 4 - Special Linearization or Calibration	
Level 12	Bench 5	
Level 13	Bench 5 - Special Linearization or Calibration	
Level 14	Enclosure	Optional with case purge for toxic and corrosive gases or Tstat control
Level 15	Hazardous Area Options and Special Approvals	
	B	CSA-C/US Ex Class I, Zone 1, IIB+H ₂ & Class I, Div. 2, Group BCD, T3: Ex d flameproof, inlets for conduits 3/4" NPT
	D	CSA-C/US Ex Class I, Zone 1, IIB+H ₂ & Class I, Div. 2, Group BCD, T3: Ex d flameproof, inlets for conduits 3/4" NPT; sample pressure 1100 - 1500 hPa abs. (1.45 - 7 psig) requires 1 breather



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	(flow limit: ≥ 1 L/min) and suitable external high pressure flame arrestors
Level 16	Analog Outputs 1, 2, 3, 4 or 5 (4 Status relays included for all options)
Level 17	Digital Inputs: 0, 1, 2 or A & Relay Outputs / Analog Inputs 0, 5 or A
Level 18	Communication Interface (Ethernet for service included for all options) 0, A, B or C
Level 19	Advanced Software capabilities
Level 20	Sample Handling: 0, 1, 2, 3, 4, 5 or 6 (optional gas pump or valve block)
Level 21	Gas Path Sensors: 0, 1, 3, 5, 7, 9 or A (optional: pressure sensor, flow sensor)
Level 22	Gas Path Tubing: A, B, C, D, E, F, G, H, or I (Viton, PFA, SS)
Level 23	Gas Path Fittings: E, F, G, H, I, J, K or L (SS: 6mm or 1/4")
Level 24	Flame Arrestors: 2, 3, 4, 5, 6, 7 or 8 (optional number of flame arrestors)

X-STREAM FN (XLFN, XXFN, XEFN, XDFN): Non-Incendive for Hazardous Locations

Class 1 Zone 2 Ex nAC IIC T4

Class 1 Zone 2 AEx nAC IIC T4

Class I Div 2 Groups ABCD

-20 °C to +50 °C IP66 Enclosure Type 4X

- **X-STREAM (XLFN) or X-STREAM Enhanced (XEFN) Field Housing Gas Analyzer:**

Gas analyzer, Model: X-STREAM, rated 100-240Vac, 50/60 Hz, 3 - 1.5A, Class I, Pollution Degree II.

- **X-STREAM (XXFN) or X-STREAM Enhanced Dual (XDFN) Field Housing Gas Analyzer:**

Gas analyzer, Model: X-STREAM, rated 100-240Vac, 50/60 Hz, 5.5 - 3A, Class I, Pollution Degree II.



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APPLICABLE REQUIREMENTS

- | | |
|--|---|
| CAN/CSA-C22.2 No. 61010-1-04 | - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements |
| UL 61010-1 (Second Edition) | - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements |
| CAN/CSA-E60079-0:02 (R2006) | - Electric Apparatus for Explosive Gas Atmospheres, Part 0: General Requirements |
| CAN/CSA-E60079-1:02 (R2006) | - Electric Apparatus for Explosive Gas Atmospheres, Part 1: Construction and Verification Test of Flameproof Enclosures of Electrical Apparatus "d" |
| CAN/CSA-E60079-15:02 (R2006) | - Electric Apparatus for Explosive Gas Atmospheres, Part 15: Type of protection "n" |
| CSA C22.2 No 213-M1987 | - Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations |
| CAN/CSA-C22.2 No. 94-M91 (R2006) | - Special Purpose Enclosures |
| CAN/CSA C22.2 No. 60529:05 | - Degrees of protection provided by enclosure (IP Code) |
| ANSI/ISA-12.00.01-2002 (IEC 60079-0 Mod) | - Electric Apparatus for Use in Class I, Zones 0, 1 & 2 Hazardous (Classified) Locations: General Requirements |
| ANSI/ISA-12.22.01-2002 (IEC 60079-1 Mod) | - Electric Apparatus for Use in Class I, Zones 1 Hazardous (Classified) Locations Type of Protection – Flameproof "d" |
| UL 60079-15:2009 | - Electric Apparatus for Explosive Gas Atmospheres, Part 15: Construction, Test and Marking of Type of Protection 'n' Electrical Apparatus |
| UL 50 11th Ed | - Enclosures for Electrical Equipment |
| ANSI/ISA 12.12.01-2011 | - Non-Incendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations |



Supplement to Certificate of Compliance

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*The products listed, including the latest revision described below,
are eligible to be marked in accordance with the referenced Certificate.*

Product Certification History

Project	Date	Description
70041397	2017-08-22	Update to Report 1714037 to include several editorial changes and minor mechanical changes of the design of the models XEFD and X2FD in the documentation. Deleting the model XFD in the documentation. Testing the reference pressure with fixtures for the models XEFD and X2FD. Changing the ambient temperature range of the models XEFD and X2FD to -20 °C to +55 °C.
70063023	2016-07-05	Update of cCSAus Certification 1714037 for the following changes - alternate heating elements for TCD, pO2 the heating system.
70030128	2015-08-14	Update of cCSAus Certification 1714037 (2607135) for constructional changes (LED UV, IR source, pwb changes) and corrections of certification.
2607135	2013-03-13	Update to report 1714037 to include change in EX enclosure material from AISi12(a) to AISi12(b) and AISi12(Cu). Update drawing based on IECEx report.
Sever2578465	2012-11-29	Evaluation for update of report 1714037 to include Alternate components / construction and formal corrections based on updated IECExTR.
2519719	2012-05-04	Update to report 1714037 to include change to motor and printed circuit board.
2507282	2012-03-14	Update of report 1714037 to include changes as per RFQ.
2425669	2011-06-09	Update of report 1714037 to include minor design changes and alternate component.
2280890	2010-03-05	Update to Report 1714037 to correct errors and add missing information.
2247530	2010-01-21	update to report 1714037 to include variations and new models.
2213371	2009-08-28	Correction to report and certificate 1714037 to show the correct model number X-Stream FD (X2FD) on the certificate.
2192929	2009-07-15	Update to report 1714037 to include mechanical modifications and additions and a inert purge option
2051233	2008-08-22	Update Report 1714037 to include alt. flameproof enclosure (X2FD) with same electronics as X2GP
2065703	2008-08-13	CSA c/us project update of a gas analyser under witness testing - alternate construction (addition of optional internal temperature controller PCB).
1980978	2008-04-25	CSA c/us project update of a gas analyser - addition of DC powered unit.
1875359	2007-06-18	Update to add Alternate Model XFD Flameproof for Class I, Zone 1, Ex/AEx d IIB+H2 T3 for Hazardous Locations.



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1780347	2006-06-01	c/CSA/us Certification project upgrade of a gas analyser, Model X-Stream Series. Alternate construction with new model designation.
1714037	2005-12-01	CSA C/US Certification project of a gas analyser, model: X-Stream Series*.