



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx ITS 17.0032X

Issue No: 1

Certificate history:

Issue No. 1 (2019-07-25)

Issue No. 0 (2017-06-19)

Status: **Current**

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Date of Issue: **2019-07-25**

Applicant: **Envent Engineering Ltd.**
2721 Hopewell Place NE
Calgary, AB T1Y 7J7
Canada

Equipment: **330S-Ex & 330SDS-Ex H2S Analyzer**

Optional accessory:

Type of Protection: **Flameproof, intrinsic safety and op is**

Marking:

Ex db ib op is IIB+H2 T3 Gb

0°C≤Tamb≤50°C

IECEX ITS 17.0032X

*Approved for issue on behalf of the IECEx
Certification Body:*

P Moss

Position:

Certification Officer

*Signature:
(for printed version)*

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

Intertek Testing & Certification Limited
ITS House, Cleeve Road,
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Manufacturer: **Envent Engineering Ltd.**
2721 Hopewell Place NE
Calgary, AB T1Y 7J7
Canada

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2014-06 Edition:7.0	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-28 : 2015 Edition:2	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/ITS/ExTR16.0066/00](#)

[GB/ITS/ExTR16.0066/01](#)

Quality Assessment Report:

[GB/ITS/QAR16.0011/02](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

330S-Ex & 330SDS-Ex are analyzers made up of up to three flameproof enclosures two of which are provided component approved.

The drive motor housing enclosure (approved under certificate number IECEx UL 13.0039U) contains a motor with a single rotating shaft exiting to the rear via a custom bushing/shaft assembly.

The main analyzer enclosure (approved under certificate number IECEx ETL 13.0034U) contains various electronics and approved intrinsically safe barriers. It is also fitted with an LCD display which can be viewed via the window provided as part of the component approved enclosure. The cover of this enclosure is secured with A4-70 zinc plated steel bolts. Analyzers may be provided with various solenoids and pressure sensors all of which are approved devices (covered by certificates IECEx SIR 14.0064X and IECEx SIR 10.0193X).

The analyzer can contain up to three MTL7761ac (IECEX BAS 04.0025) Zener barriers. The Zener barriers are separated from the rest of the electronics by a grounded metal plate. The intrinsically safe circuit outputs from the Zener barriers are routed through a dedicated conduit to the sample handling enclosure. All the Zener barriers share a common IS ground.

The total sulphur furnace is cylindrical and measures approximately 367.5mm long and 147mm in diameter. The housing is manufactured from aluminium pipe and has two end caps fitted to either end via a 6½" NPS thread form. These are secured with grub screws to prevent unintentional separation. Four bosses are welded along one side of the cylinder with ½" NPT thread forms. The furnace housing contains a source of release. The maximum flow through the sampling system shall not exceed 200cc/min (0.2 liters/min) and the inlet pressure shall not exceed 10-15PSIG. Approved flame arrestors are fitted to the inlet and outlet of the process connections (IECEX CSA 10.0007U or IECEx INE 12.0002U) and an additional breather is also fitted to the furnace housing (IECEX SIR 07.0045U).

The total sulphur furnace is optional and may be omitted.

The tape enclosure located above the main flameproof enclosure contains up to 2 sensor blocks (Part N^o 603000-ATEX) and one low tape sensor (Part N^o 330047ATEX). Each sensor block is powered by one MTL 7761ac (IECEX BAS 04.0025) Zener barrier. The low tape sensor is powered by one MTL 7761ac (IECEX BAS 04.0025) Zener barrier. Refer to H2S-Ex-57 for intrinsically safety wiring control drawing.

Where used, cable glands, entry devices, thread adapters and blanking elements must be suitably approved Ex db IIB+H2 Gb 0°C to +61°C minimum. All unused entries must be plugged.

Conditions of Manufacture - Routine Tests see annex

SPECIFIC CONDITIONS OF USE: YES as shown below:

- Union fittings used in this assembly must not be loosened for alignment purposes.
- Entry devices and sealing fittings must be installed in accordance with IEC 60079-14.
- Details of all Ex equipment fitted shall be provided to the end user.
- No modifications are to be made without consultation with the controlled drawings.
- knob has a capacitance of 119.7µF, user must determine suitability in the specific application.
- When the furnace is present, flow limiting devices shall be used to prevent the containment system exceeding 200cc/min. Flow limiting devices shall not incorporate polymeric or elastomeric materials but may incorporate ceramic or glass materials.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 01:

Update manufacturer and applicant address.

Annex:

[Annex 1 \(ex.IECEX_ITS_17.0032X_1\).pdf](#)



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Routine testing:

- A routine overpressure test per clause 16.1.1 of IEC 60079-1 is required on the motor enclosure/bushing assembly at 127.7 PSI. The motor/bushing assembly shall withstand the pressure without suffering permanent deformation or damage. It is sufficient to test the enclosure empty. The results of this test shall be documented and records maintained.
- A routine overpressure test per clause 16.1.1 of IEC 60079-1 is required on the furnace assembly at 144.2 PSI. The furnace assembly shall withstand the pressure without suffering permanent deformation of the joints or damage to the enclosure. It is sufficient to test the enclosure empty. The results of this test shall be documented and records maintained.
- A routine overpressure test per clause G.4.1 of IEC 60079-1 at a test pressure of at least 45PSI shall be applied to the containment system and maintained for a time of at least 2 min. The increase of the test pressure should achieve the maximum pressure within 5 seconds. The test is considered to be satisfactory if no permanent deformation occurs and compliance with the applicable leakage test for a containment system with a limited release is verified. The maximum helium-leakage rate shall be less than $10-2 \text{ Pa} \times \text{l/s}$ ($10-4 \text{ mbar} \times \text{l/s}$). The results of this test shall be documented and records maintained.

Manufacturer's documents			
Title:	Drawing No.:	Rev. Level:	Date:
(H2S-Ex-00) 330S/330SDS H2S Analyzer BOM for ATEX/IEC	H2S-Ex-00	0	07.May.17
330S-Ex & 330SDS-Ex XP Enclosure Enclosure Machining	H2S-Ex-01	0	25.Nov.16
330S-Ex H2S Analyzer General Arrangement	H2S-Ex-02	00	25.Nov.16
330SDS-Ex H2S Analyzer General Arrangement	H2S-Ex-03	00	25.Nov.16
330S-Ex & 330SDS Analyzer Blue Chassis Side View General Arrangement	H2S-Ex-04	00	25.Nov.16
330S-Ex with Standard Backpan General Arrangement	H2S-Ex-05	00	25.Nov.16
330SDS-Ex w/ Standard Backpan General Arrangement	H2S-Ex-06	00	25.Nov.16
330S-Ex Analyzer with Solenoid General Arrangement	H2S-Ex-07	00	25.Nov.16
330SDS-Ex Analyzer w/ Solenoid General Arrangement	H2S-Ex-08	00	25.Nov.16
330S-Ex Analyzer w/ Pressure Switch General Arrangement	H2S-Ex-09	00	25.Nov.16

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330SDS-Ex Analyzer w/ Pressure Switch General Arrangement	H2S-Ex-10	00	25.Nov.16
330S-Ex H2S and Total Sulfur General Arrangement	H2S-Ex-11	00	25.Nov.16
330SDS-Ex H2S & Total Sulfur General Arrangement	H2S-Ex-12	00	25.Nov.16
330S-Ex & 330SDS-Ex Electrical Termination 12-24 VDC Power - 1E Controller Board	H2S-Ex-13	00	25.Nov.16
330S-Ex & 330SDS-Ex Electrical Termination 110-240 VAC Power - 1E Controller Board	H2S-Ex-14	00	25.Nov.16
330S-Ex & 330SDS-Ex H2S-Total Sulfur Electrical Termination 110-240 VAC Power - 1E Mainboard	H2S-Ex-15	00	25.Nov.16
330S-Ex & 330SDS-Ex Analyzers Total Sulfur Enclosure (Envent Part#: 330425-01)	H2S-Ex-16	00	25.Nov.16
330S-Ex & 330SDS-Ex Analyzers Total Sulfur Furnace End Caps (Envent Part#: 330425-02)	H2S-Ex-17	00	25.Nov.16
TS Inner Furnace Shell Total Sulfur (Envent Part#: 330426-01)	H2S-Ex-18	00	25.Nov.16
330S-Ex & 330SDS-Ex TS Inner Furnace Left End Total Sulfur (Envent Part#: 330426-02)	H2S-Ex-19	00	25.Nov.16
330S-Ex & 330SDS-Ex TS Inner Furnace Right End Total Sulfur (Envent Part#: 330426-03)	H2S-Ex-20	00	25.Nov.16
330S-Ex & 330SDS-Ex Analyzers Total Sulfur Ceramic Fibre Heater (Part #: 330429)	H2S-Ex-21	00	25.Nov.16
330S-Ex & 330SDS-Ex Total Sulfur Total Sulfur to Controller Board Wiring	H2S-Ex-22	00	25.Nov.16
Ex & 330SDS-Ex Adalet XJD Motor Box General Arrangement	H2S-Ex-23	00	25.Nov.16
330S-Ex & 330SDS-Ex Motor Dimensions General Arrangement	H2S-Ex-24	00	25.Nov.16
330S-Ex 330SDS-Ex H2S Analyzers XP Shaft and Bushing (Envent Part#: 330083)	H2S-Ex-25	00	25.Nov.16
330S-Ex & 330SDS-Ex Motor Enclosure Assy. Enclosure Assembly	H2S-Ex-26	00	25.Nov.16
330S-Ex & 330SDS-Ex Series H2S Analyzers Intertek Nameplate Overview	H2S-Ex-27	01*	21.May.19
330S-Ex & 330SDS-Ex Serial Number Nameplate Overview	H2S-Ex-28	00	28.Nov.16
Sensor Block PCB BOM	H2S-Ex-46	00	15 May 17
330S-Ex & 330SDS-Ex H2S Sensor Block Layout	H2S-Ex-47	00	15.Apr.17
330S-Ex & 330SDS-Ex H2S Sensor Block Schematics	H2S-Ex-48	00	15.Apr.17

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Low Tape Sensor BOM	H2S-Ex-49	00	15 May 17
330S-Ex & 330SDS-Ex H2S Low Tape Sensor Layout	H2S-Ex-50	00	15.Apr.17
330S-Ex & 330SDS-Ex H2S Low Tape Sensor Schematics	H2S-Ex-51	00	15.Apr.17
330S-Ex & 330SDS-Ex H2S Sensor Block & Wiring	H2S-Ex-52	00	15.Apr.17
330S-Ex & 330SDS-Ex H2S Analyzers Low Tape Sensor & Wiring	H2S-Ex-53	00	15.Apr.17
330S-Ex & 330SDS-Ex H2S Analyzers IS Barriers Wiring (Worst Case Scenario)	H2S-Ex-54	00	15.Apr.17
330S-Ex & 330SDS-Ex H2S Analyzer IS Barriers Wiring (Worst Case Scenario)	H2S-Ex-55	00	15.Apr.17
Conformal Coating Procedure	H2S-Ex-56	00	08.May.17
330S-Ex & 330SDS-Ex H2S Installation for IS System (Zone 1 ib IIB + H2)	H2S-Ex-57	00	08.May.17
330S-Ex & 330SDS-Ex H2S Analyzer LT Sensor & Sensor Block Installation for IS System	H2S-Ex-58	00	16.May.17
Hydrogen Sulfide Analyzer Model 330S-Ex / Model 330SDS-Ex	H2S-Ex-59**	0	May 2017

* Indicates documentation which has been added or amended as per Issue 01.

** Indicates file name not detailed within the document.

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