



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEX CML 21.0077X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2021-09-22

Applicant: **H&B Sensors Ltd.**
Odyssey House
Durban Road
Bognor Regis
West Sussex
PO22 9RH
United Kingdom

Equipment: **Type 11 Connection Head**

Optional accessory:

Type of Protection: **Intrinsically safe**

Marking: Ex ia IIC T4 Ga
Ex ia IIIC T135°C Da

Tamb: -40°C to +85°C

Approved for issue on behalf of the IECEx
Certification Body:

A Snowdon MIET

Position:

Assistant Certification Manager

Signature:
(for printed version)

A Snowdon

Date:

2021-09-22

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 www.iecex.com or use of this QR Code.



Certificate issued by:

Eurofins E&E CML Limited
Unit 1, Newport Business Park
New Port Road
Ellesmere Port, CH65 4LZ
United Kingdom





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Manufacturer: **H&B Sensors Ltd.**
Odyssey House
Durban Road
Bognor Regis
West Sussex
PO22 9RH
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Additional
manufacturing
locations:

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with 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/CML/ExTR21.0191/00](#)

Quality Assessment Report:

[GB/SIR/QAR09.0015/08](#)



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Certificate No.: **IECEX CML 21.0077X**

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Date of issue: 2021-09-22

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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The Type 11 Connection Head is a general purpose intrinsically safe protected enclosure intended for use with temperature or level sensors including RTDs, Thermocouples, Thermistors, Temperature Fuses/Switches and Level Float Switches.

See Annex for full description and Conditions of Manufacture

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex for Specific Conditions of Use

Annex:

[Certificate Annex IECEx CML 21.0077X Issue 0.pdf](#)

Annexe to: IECEx CML 21.0077X Issue 0
Applicant: H&B Sensors Ltd
Apparatus: Type 11 Connection Head



Description

The Type 11 Connection Head is a general purpose intrinsically safe protected enclosure intended for use with temperature or level sensors including RTDs, Thermocouples, Thermistors, Temperature Fuses/Switches and Level Float Switches.

The Type 11 is a cylindrical enclosure manufactured from aluminium and includes a threaded cover, the cover has an EPDM gasket and includes a safety chain between the enclosure base and cover. The enclosure incorporates one M20 x 1.5 side entry and one 1/2" BSPP bottom entry. The sensor probe entry occupies the 1/2 BSP. User cable entries can only occupy the M20 position. The body and cover have an M4 fixing point for a chain and/or earthing point.

The sensor elements are encapsulated within a fabricated protective sheath filled with magnesium or aluminium oxide powder and sealed with resin epoxy, alternatively they are constructed from mineral insulated cable. All sensors are directly connected to the enclosure using a threaded fitting or via a flexible cable and cable gland arrangement.

The Type 11 enclosure can be fitted with either a terminal block or temperature transmitter. When the enclosure is being used within intrinsically safe environments it can be fitted with separately certified intrinsically safe devices or terminals and marked for 'Ex ia' applications. These applications are to be supplied by a separately certified barrier.

Electrical ratings:

Maximum Entity Parameters.			
Single thermocouple circuit		2 or more thermocouple circuit (per circuit), combined total of 3W Max.	
Ui =	30Vdc	Ui =	30 Vdc
li =	100mA	li =	100 mA
Pi =	900mW	Pi =	900mW
Ci =	2 nF/m x length of sensor	Ci =	2 nF/m x length of sensor
Li =	20 µH/m x length of sensor	Li =	20 µH/m x length of sensor
Uo =	1.2 V	Uo =	1.2 V
Io =	50 mA	Io =	50 mA
Po =	25 mW	Po =	25 mW

The capacitance and inductance or inductance/resistance ratio (L/R) of the hazardous area cables shall not exceed the values calculated from the C, L and L/R values permitted by the barrier, minus any Ci and Li of the sensor wiring.

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Maximum Entity Parameters			
Terminals/RTD's (per circuit), combined total of 3W Max.		Transmitter / Indicator (Max inputs as per certificate), 3W Max.	
U _i =	30V	U _i =	As per transmitter/indicator certificate
I _i =	100mA	I _i =	As per transmitter/indicator certificate
P _i =	900mW	P _i =	As per transmitter/indicator certificate
C _i =	2 nF/m x length of sensor	C _i =	As per transmitter/indicator certificate
L _i =	20 μH/m x length of sensor	L _i =	As per transmitter/indicator certificate
<p>The capacitance and inductance or inductance/resistance ratio (L/R) of the hazardous area cables shall not exceed the values calculated from the C, L and L/R values permitted by the barrier, minus any C_i and L_i of the transmitter and/or sensor wiring.</p>			

Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.
A copy of the separately certified transmitter/indicator certificate and instructions shall be provided with/made available for the equipment (if fitted).
- ii. Each sensor circuit shall undergo an electric strength test at 500Vac test to earth for 1 minute in accordance with IEC/EN 60079-11, clause 6.3.13.
If the equipment is fitted with a transmitter which does not meet this requirement, the manufacturer shall ensure that the requirements for safe installation are included within the instructions supplied with/available with the equipment.

Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- i. Where the product incorporates more than one intrinsically safe circuit, the manufacturer / installer (as applicable) shall ensure that the appropriate creepage and clearances are maintained between the circuits via solid insulation (probe wiring and powder filling, as well as terminal insulation) and via distances from terminals to other conductive parts (enclosure), etc, in accordance with Table 5, EN/IEC 60079-11.
- ii. Although the probe sensor may be installed in a location outside the marked ambient temperature range, the installer/user shall ensure the enclosure is located in an area within the marked ambient temperature range.
- iii. Cable entries and branching temperatures may reach 15°C above the ambient temperature, cable and entry devices shall be suitable for these temperatures. Cable glands shall be suitable for the application and have a minimum IP rating of IP54.
- iv. For dust applications, under certain extreme circumstances, the non-metallic paint incorporated on the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. This is particularly important if the equipment is installed in a Zone 20 location. In addition, the equipment shall only be cleaned with a damp cloth.
- v. The H&B Sensors Ltd product certificates / instructions for all constituent parts of the product shall be obtained and any requirements/conditions shall be adhered to. These documents are available for download at the manufacturer's website (www.hbsensors.com) or can be obtained by contacting the manufacturer.
- vi. When equipment is installed in Zone 0, the equipment shall be installed such that the risk of impact or abrasion of the aluminium enclosure is avoided. The user shall check for damage to the exterior paint finish and replace should signs of damage be observed.
- vii. The capacitance and inductance or inductance/resistance ratio (L/R) of the hazardous area cables shall not exceed the values calculated from the C, L and L/R values permitted by the barrier, minus any Ci and Li of the transmitter and/or sensor wiring. Longer probe arrangements may incorporate a combination of the sensors and cable, when this is the case, the sensor Ci and Li shall be calculated as follows:
 - $C_i = 2\text{nF/m} \times \text{length of sensor} + 200\text{pF/m} \times \text{length of wire}$
 - $L_i = 20 \mu\text{H/m} \times \text{length of sensor} + 1\mu\text{H/m} \times \text{length of wire}$

Components covered by Ex Certificates issued to older editions of Standards

None