EU Type Examination Certificate CML 21ATEX2666X Issue 0

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **Type 11 Connection Head**

3 Manufacturer **H&B Sensors Ltd**

4 Address Odyssey House, Durban Road,
Bognor Regis, West Sussex,
PO22 9RH, UK

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Chamber of Commerce No 6738671, Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN IEC 60079-0:2018 EN 60079-11:2012

10 The equipment shall be marked with the following:


II 1 G D

Ex ia IIC T4 Ga
Ex ia IIIC T135°C Da

Ta = -40°C to +85°C

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11 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 ½ 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
Ii =	100mA	Ii =	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.			

Maximum Entity Parameters			
Terminals/RTD's (per circuit), combined total of 3W Max.		**Transmitter / Indicator (Max inputs as per certificate), 3W Max.**	
Ui =	30V	Ui =	As per transmitter/indicator certificate
Ii =	100mA	Ii =	As per transmitter/indicator certificate
Pi =	900mW	Pi =	As per transmitter/indicator certificate
Ci =	2 nF/m x length of sensor	Ci =	As per transmitter/indicator certificate
Li =	20 µH/m x length of sensor	Li =	As per transmitter/indicator certificate
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.			

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	22 Sep 2021	R14072A/00	Issue of prime certificate

Note: Drawings that describe the equipment or component are listed in the Annex.

13 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 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.

14 Specific Conditions of Use (Special Conditions)

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:

- Ci = 2nF/m x length of sensor + 200pF/m x length of wire
- Li = 20 µH/m x length of sensor + 1µH/m x length of wire

Certificate Annex

Certificate Number CML 21ATEX2666X

Equipment Type 11 Connection Head

Manufacturer H&B Sensors Ltd

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
11-01-301	1 of 1	A	14 Sep 2021	Sensor with Connection Head
11-01-320	1 of 1	A	14 Sep 2021	Sensor with Thread
11-01-501	1 of 1	A	14 Sep 2021	Sensor with Cable
11-01-601	1 of 1	A	14 Sep 2021	Air Sensor
11-01-620	1 of 1	A	14 Sep 2021	Sensor with Connection Head
11-01-701	1 of 1	A	14 Sep 2021	Pipe Clamp Sensor
11-01-800	1 of 1	A	14 Sep 2021	Sensor with Flange
11-15-104	1 of 1	A	14 Sep 2021	Threaded Level Float Switch
11-15-303	1 of 1	A	14 Sep 2021	Flanged Level Float Switch
HBS-13-10993	1 of 1	A	14 Sep 2021	Type 11 Label
HBS-00-01555	1 of 1	A	14 Sep 2021	MI / Powder Filled Probe Datasheet
HBS-04-0441	1 of 1	D	14 Sep 2021	Type 11 Connection Head Body
HBS-04-0442	1 of 1	C	14 Sep 2021	Type 11 Connection Head – Screw Cap