



# 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](http://www.iecex.com)

Certificate No.:	<b>IECEx CML 16.0100X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 6	Issue 5 (2020-12-11)
Date of Issue:	2022-04-21		Issue 4 (2019-08-28)
Applicant:	<b>ABTECH Limited</b> 199 Newhall Road Sheffield S9 2QJ <b>United Kingdom</b>		Issue 3 (2018-01-04)
Equipment:	<b>HVJB and NKJB Junction Boxes</b>		Issue 2 (2017-11-01)
Optional accessory:			Issue 1 (2017-06-23)
Type of Protection:	<b>Increased Safety "eb", Dust Ignition "tb"</b>		Issue 0 (2016-10-05)
Marking:	Ex eb IIB or IIC T* Gb Ex tb IIIC T*°C Db Tamb = -20°C to +40°C or -50°C to +55°C* or -65°C to +60°C* * T-class, assigned maximum surface temperature and ambient range depend on the model and power rating. Refer to Annex.		

Approved for issue on behalf of the IECEx  
Certification Body:

**L A Brisk**

Position:

**Certification Officer**

Signature:  
(for printed version)

Date:  
(for printed version)

2022-04-21

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Certificate issued by:

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**United Kingdom**





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Manufacturer: **ABTECH Limited**  
199 Newhall Road  
Sheffield  
S9 2QJ  
**United Kingdom**

Manufacturing  
locations: **ABTECH Limited**  
199 Newhall Road  
Sheffield  
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**United Kingdom**

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 60079-31:2013](#) Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

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 Reports:

[GB/CML/ExTR16.0140/00](#)  
[GB/CML/ExTR18.0001/00](#)

[GB/CML/ExTR17.0108/00](#)  
[GB/CML/ExTR20.0263/00](#)

[GB/CML/ExTR17.0202/00](#)  
[GB/CML/ExTR22.0049/00](#)

Quality Assessment Report:

[GB/CML/QAR16.0021/07](#)



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**EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The HVJB and NKJB are a range of high voltage junction boxes with maximum rated working voltages of 11 kV. The maximum dissipated power is dependent on enclosure size and model.

Refer to Annex for full description and conditions of manufacture.

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

See annex for details



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

### Issue 1

This issue introduced the following change:

1. To include an option to allowed the enclosure to be painted with a coating thickness up to 2mm for 'IIB' applications. The description and marking has been modified accordingly.

### Issue 2

This issue introduced the following change:

1. To allow the ambient temperature to be optionally increased to +60°C.

### Issue 3

This issue introduced the following change:

1. To allow the terminal arrangements to be fitted in an alternative Nautilus enclosure. The description has been modified accordingly.

### Issue 4

This issue introduced the following change:

1. To update QAR reference

### Issue 5

This issue introduced the following changes:

1. To correct a Condition of Manufacture
2. To clarify that an optional internal power supply connection box for heater may be fitted. The description was modified accordingly.

### Issue 6

This issue introduced the following changes:

1. To allow anti-condensation heaters with a higher temperature class to be utilised.
2. To allow the temperature setting of the anti-condensation heater to be increased. The Condition of Manufacture has been altered accordingly.
3. To reduce the allowable lower ambient to -65°C, the Specific Conditions of Use have been updated in accordance with this modification.
4. Update standards 60079-0 and 60079-7 to the latest editions

### Annex:

[annex to IECEx CML 16.0100X Iss 6.pdf](#)

**Annexe to:** IECEx CML 16.0100X Issue 6  
**Applicant:** Abtech Ltd.  
**Apparatus:** HVJB and NKJB Junction Boxes

### Description

The HVJB and NKJB are a range of high voltage junction boxes with maximum rated working voltages of 11 kV. The maximum dissipated power is dependent on enclosure size and model. The enclosures utilise a previously certified stainless-steel enclosure, certified under IECEx CML 15.0039U and coded Ex e IIB/IIC Gb or Ex tb IIC Db. Alternatively, the terminal arrangements may be fitted inside a Nautilus enclosure certified under IECEx CML 14.0008X.

Internally are an arrangement of up to four copper bus bars supported on insulators which provide connection facilities for a single cable per phase or a combination, depending on the arrangement.

Insulated partitions are fitted between bus bars to maintain creepage and clearance distances between live parts. Additional separately certified terminals and internal BPG terminal boxes may be fitted, as well as a separately certified Anti-Condensation heater, thermostat(s) and connected to a suitably certified electrical connection box.

#### Maximum Power Dissipation – High voltage and medium voltage terminals:

Type/Model	Ambient Temperature Range	Maximum Dissipated Power (W)	T Class	Dust Surface Temperature Marking
HVJB-7	-20°C to +40°C	259	T4	T70°C
	-65°C to +55°C	129.5	T4	T70°C
	-65°C to +60°C	103.6	T4	T70°C
	-65°C to +55°C	259	T150°C	T110°C
HVJB-8 & HVJB-125	-20°C to +40°C	346	T4	T70°C
	-65°C to +55°C	173	T4	T70°C
	-65°C to +60°C	138.4	T4	T70°C
	-65°C to +55°C	246	T150°C	T110°C
NKJB-7	-20°C to +40°C	259	T4	T70°C
	-65°C to +55°C	259	T150°C	T110°C
NKJB-8	-20°C to +40°C	346	T4	T70°C
	-65°C to +55°C	346	T150°C	T110°C

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**Maximum Dissipated Power when fitted with field terminals:**

Ambient Temperature Range	Maximum Dissipated Power (W)	
	Field terminals	High Voltage terminals
-20°C to +40°C	86.5	259.5
-65°C to +55°C	43.25	129.75
-65°C to +60°C	34.6	103.8

**Maximum Dissipated Power when fitted with internal BPG junction box:**

Type	Maximum Dissipated Power and Maximum Current – Main Terminals and Wiring					
	4-Way		3-Way		2-Way	
	Power (W)	Current (A)	Power (W)	Current (A)	Power (W)	Current (A)
HVJB-7	Not permitted	Not permitted	248	938	165	624
HVJB-8	335	949	251	710	167	473

Note: BPG Junction Boxes shall not be fitted into HVJB junction boxes marked T150°C for gas or T110°C for dust.

Optionally, the enclosures may be painted.

## Marking

The equipment shall be marked with the following:

Ex eb IIB or IIC T\* Gb

Ex tb IIIC T\*°C Db

Ta = -20°C to +40°C or -65°C to +55°C\* or -65°C to +55°C\* or -65°C to +60°C\*

\* The temperature class assigned maximum surface temperature and ambient range are dependent on the model, the component enclosure used and the power rating. Refer to Description and Conditions of Manufacture.

Note: Where the 'standard' ambient range of -20°C to +40°C applies, it is not essential that this is marked.

## Conditions of Manufacture

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

- i. If the terminals are fitted with cables/wiring by the manufacturer; then a routine dielectric strength test shall be carried out on each unit in accordance with IEC 60079-7:2015, clause 7.1.

The test voltage shall be determined on the basis of the marked maximum rated voltage, with the appropriate safety factor and test duration applied in accordance with IEC 60079-7:2015, clause 6.1.

No flashover or breakdown shall occur.

- ii. The products covered by this certificate incorporate separately certified devices, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices. The manufacturer shall inform CML of any modifications of the devices that may impinge upon the explosion safety of their design.

In addition, this certificate relies on the following previously certified products. When the Junction Box is fitted with anti-condensation heater that includes a thermostat; the key attributes listed in the table below shall still be maintained by their original certificate.

Description	Certificate No.	Key Attributes
Anti-Condensation heater fitted with a thermostat	As appropriate	Suitably certified by a notified/certification body as a piece of equipment with a T6-T4 temperature class and suitable for the exposed ambient temperature.  The thermostat of the incorporated heater shall have a limiting temperature set to no higher than 35°C.

- iii. When fitted with high voltage (11 kV maximum working voltage) or medium voltage (3.3 kV maximum working voltage) terminals, the maximum dissipated power of the Junction Boxes shall be calculated in accordance with EN 60079-7:2015, Annex E.2, and shall not exceed the maximum power rating defined in the Description on this certificate.

- iv. When installed, the increased safety auxiliary “field” terminals shall have at least 12 mm creepage and 10 mm clearance between live parts and conductive metal parts.
- v. When the HVJB-8 Junction Box is fitted with field terminals, the total dissipated power for the “field” terminals and wiring shall be calculated in accordance with EN 60079-7:2015, Annex E.2 and shall not exceed the values defined the Description on this certificate.
- vi. When the HVJB Junction Boxes are fitted with internal BPG Junction Boxes, as approved under Sira99ATEX3172X, the total dissipated power and current shall not exceed the values in defined in the Description on this certificate.
- vii. Junction Boxes that are marked with the ambient range  $-50^{\circ}\text{C}$  to  $+55^{\circ}\text{C}/+60^{\circ}\text{C}$  shall only be constructed using an SX component enclosure with a minimum depth of 300 mm, without windows and fitted with silicone gaskets, as approved by CML15ATEX3078U.
- viii. The maximum ambient temperature, temperature class and assigned maximum surface temperature of the equipment are dependent on the model and maximum power dissipation/current rating. The maximum ambient, temperature class, assigned maximum surface temperature, power and voltage ratings shall be marked in accordance with the Description on this certificate and with the approved drawings listed on this certificate.
- ix. BPG Junction Boxes shall not be fitted into HVJB junction boxes marked  $T150^{\circ}\text{C}$  for gas or  $T110^{\circ}\text{C}$  for dust.

### Specific Conditions of Use

- i. Enclosure marked for  $-65^{\circ}\text{C}$  must not be opened until the temperature rises to  $-60^{\circ}\text{C}$ .