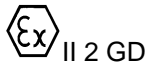




EU Type Examination Certificate CML 16ATEX3324X Issue 6

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 2 Equipment **HVJB and NKJB Junction Boxes**
- 3 Manufacturer **Abtech Limited**
- 4 Address **199 Newhall Road, Lower Don Valley, Sheffield S9 2QJ, United Kingdom**
- 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 60079-0:2018 EN IEC 60079-7:2015+A1:2018 EN 60079-31:2014

- 10 The equipment shall be marked with the following:



II 2 GD

Ex eb IIB/IIC T* Gb

Ex tb IIIC T**°C Db

Ta = -20°C to +40°C*

Ta = -50°C to +55°C*

Ta = -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 section 11, Description, and section 13, Conditions of Manufacture.*

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





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11 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/ CML 15ATEX3078U and coded Ex e IIB/IIC Gb or Ex tb IIIC Db. Alternatively, the terminal arrangements may be fitted inside a Nautilus enclosure certified under IECEx CML 14.0008X/CML 14ATEX3021X.

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

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



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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.

Variation 1

This variation introduces the following change:

- i. 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.

Variation 2

This variation introduces the following change:

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

Variation 3

This variation introduces the following changes:

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

Variation 4

This variation introduces the following changes:

- i. To transfer the CML UK ATEX Certificate to CML BV
- ii. Correction of typographical errors.

Variation 5

This variation introduces the following changes:

- i. To correct a Condition of Manufacture
- ii. To clarify that an optional internal power supply connection box for heater may be fitted. The description has been modified accordingly.



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Variation 6

This variation introduces the following changes:

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

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	05 Oct 2016	R1001A/00	Issue of Prime Certificate
1	23 Jun 2017	R2310A/00	Introduction of Variation 1
2	01 Nov 2017	R11421A/00	Introduction of Variation 2
3	04 Jan 2018	R11513A/00	Introduction of Variation 3
4	13 Sep 2019	R12524A/00	Introduction of Variation 4
5	11 Dec 2020	R13755A/00	Introduction of Variation 5
6	21 Apr 2022	R15108A/00	Introduction of Variation 6

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. 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 EN 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 EN 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.



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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°C to +55°C/+60°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°C for gas or T110°C for dust.

14 Specific Conditions of Use

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

- i. Enclosure marked for -65°C must not be opened until the temperature rises to -60°C.

Certificate Annex

Certificate Number CML 16ATEX3324X
Equipment HVJB and NKJB Junction Boxes
Manufacturer Abtech Limited



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

Issue 0

Drawing No	Sheets	Rev	Approved date	Title
ABT31183	1 of 1	A	05 Oct 2016	HVJB-8 General Arrangement
ABT31184	1 of 1	A	05 Oct 2016	HVJB-7 General Arrangement
ABT31185	1 of 1	A	05 Oct 2016	HVJB with Field Terminals
ABT31186	1 of 1	A	05 Oct 2016	HVJB-125 General Arrangement
ABT31187	1 of 1	A	05 Oct 2016	HVJB with Internal BPG
ABT31188	1 of 1	A	05 Oct 2016	HVJB-8 with Earth Points
ABT31189	1 of 1	A	05 Oct 2016	HVJB with MV Terminals
ABT31190	1 of 1	A	05 Oct 2016	NKJB Series
ABT31191	1 of 1	A	05 Oct 2016	HVJB Certification Label
ABT31306	1 of 1	A	05 Oct 2016	HVJB Phase Barrier
ABT31307	1 of 1	A	05 Oct 2016	HVJB Side Insulator
ABT31308	1 of 1	A	05 Oct 2016	HVJB Acrylic cover
ABT31306	1 of 1	A	05 Oct 2016	HVJB C/W FTs – Phase Barrier
ABT31310	1 of 1	A	05 Oct 2016	HVFB C/W Side Insulator
ABT31311	1 of 1	A	05 Oct 2016	HVJB C/W FTs Acrylic Cover
ABT31312	1 of 1	A	05 Oct 2016	NKJB Phase Barrier
ABT31313	1 of 1	A	05 Oct 2016	NKJB Rear Insulator
ABT31314	1 of 1	A	05 Oct 2016	NKJB Acrylic Cover
ABT31342	1 of 1	A	05 Oct 2016	NKJB Side Insulator

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
ABT31191	1 of 1	B	23 Jun 2017	HVJB Certification Label

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
ABT31191	1 of 1	C	01 Nov 2017	HVJB Certification Label

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Manufacturer Abtech Limited



Issue 3

Drawing No	Sheets	Rev	Approved date	Title
ABT33322	1 of 1	A	04 Jan 2018	HVNB-7x (IP68) General Arrangement
ABT33323	1 of 1	A	04 Jan 2018	HVNB-7x (IP68) with Internal BPG
ABT33324	1 of 1	A	04 Jan 2018	HVNB-7x (IP68) with MV Terminals

Issue 4

None.

Issue 5

None.

Issue 6

Drawing No	Sheets	Rev	Approved date	Title
ABT31191	1 of 1	D	21 Apr 2022	HVJB Certification Label