EU Type Examination Certificate CML 20ATEX3009X Issue 2

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

2 Equipment **BPG Range of Junction Boxes**

3 Manufacturer **ABTECH Limited**

4 Address **199/201 Newhall Rd,**
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 67386717, 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 IEC 60079-7:2015+A1:2018	EN 60079-11:2012
EN 60079-28:2015	IEC 60079-31:2022 Ed 3	

10 The equipment shall be marked with the following:

Ex II 1 G D	Ex II 2 G D	Ex II 2 G D
Ex ia ④IIC T①Ga	Ex eb ③④ IIC T①Gb	Ex ib ④ IIC T①Gb
Ex ta IIIC T②°C Da	Ex tb IIIC T②°C Db	Ex tb IIIC T②°C Db
Ta= -65°C≤Ta≤+90°C⑤	Ta= -65°C≤Ta≤+90°C⑤	Ta= -65°C≤Ta≤+90°C⑤

① Temperature Class T4, T5, T6. See product description
② Maximum Surface Temperature T85°C, T100°C. See product description
③ Marking to include db if fitted with flameproof connector
④ When fitted with fibre optic cassette, marking to include either op is, op pr, op sh. See product description
⑤ Ambient temperature range may be limited by the limitations of any utilised Ex Components

11 Description

The BPG range of enclosures are glass reinforced polyester (GRP) enclosures of cuboid shape with the primary function of electrical or optical terminal boxes or control stations.

The enclosures range in size from 80 mm x 75 mm x 55 mm (WHD) up to 600 mm x 250 mm x 120 mm (largest rectangular shape, denoted as Type B enclosures in table 1) and 400 mm x 405 mm x 201 mm (largest square shape and deepest enclosure, denoted as Type A enclosures in table 1). All sizes consist of a base and cover. The cover is attached to the base with four or six stainless steel captive screws.

The cover retains, within a square groove, a closed cell silicone sponge or solid silicone rubber tube gasket that is displaced by a raised sealing edge on the base and providing a seal between the base and cover when secured together.

The junction boxes may be provided with cable entry holes. The holes may be located either through the side walls or the rear of the enclosure base. The holes may be provided with a metric parallel thread, or without thread (clearance hole). Suitably certified blanking plugs, reducers and adapters and breather drains may be installed via threaded or clearance holes, provided they meet the minimum IP requirements marked on the enclosure. The terminal boxes may be fitted with plug and socket arrangements.

Internal or external, or internal and external threaded earth stud of a minimum size of M6 may be provided through the wall of the enclosure.

Within the base are metal inserts, on the left and right, with M4 or M6 female threads for the mounting of components such as terminal rails or mounting plates.

BPG Enclosure	Enclosure Type	Width	Height	Depth
		(mm)	(mm)	(mm)
1	B	80	75	55
2	B	110	75	55
3	B	160	75	55
4	B	190	75	55
4.5	B	190	75	75
5	A	230	75	55
6	B	122	120	90
7	B	220	120	90
8	B	160	160	90
9	B	260	160	90
10	B	360	160	90
11	A	560	160	90
12	B	255	250	120
12.5	B	205	200	120
13	B	400	250	120
13.5	B	400	250	160

BPG Enclosure	Enclosure Type	Width	Height	Depth
14	A	600	250	120
15	B	400	405	120
15.5	B	400	405	201

Table 1: BPG Enclosure Sizes

Before the junction box is installed, its total dissipated power for the particular application will be calculated in accordance with IEC 60079-7 Ed 5:2015/ EN 60079-7:2015, Annex E, E.2 and will not exceed the values given in the tables below (junction boxes of size not specified in the tables may be manufactured subject to the maximum dissipated power being based on a smaller enclosure):

EPL Ga Gb Db				
BPG Ref.	**Max. Power Dissipation (W), Temperature Class, Max. Surface Temp. & Ta Max.**			
	(*) T6/T85ºC @40ºC (*) T5/T100ºC @55ºC (*) T4/T100ºC @90ºC ΔT=+40K Max.	**(*) T6/T85ºC @55ºC (*) T5/T100ºC @70ºC ΔT=+25K Max.**	**(*) T6/T85ºC @60ºC ΔT=+20K Max.**	**(*) T6/T85ºC @65ºC ΔT=+15K Max.**
BPG1	8.39	2.23	1.73	1.45
BPG2	8.551	2.00	1.70	1.45
BPG3	8.833	2.00	1.70	1.45
BPG4	9.012	2.07	1.80	1.29
BPG4.5	9.012	2.07	1.80	1.29
BPG5	9.260	2.00	1.70	1.10
BPG6	9.378	2.00	1.70	1.45
BPG7	10.500	2.30	1.70	1.10
BPG8	10.348	2.00	1.70	1.10
BPG9	11.933	2.30	1.70	1.10
BPG10	13.793	4.50	3.29	2.10
BPG11	18.338	6.68	5.20	4.00
BPG12	15.474	2.30	1.70	1.10
BPG12.5	15.474	2.30	1.70	1.10
BPG13	20.867	5.20	4.00	3.00
BPG13.5	20.867	5.20	4.00	3.00
BPG14	30.384	7.97	6.59	4.79
BPG15	31.350	8.26	6.00	4.40
BPG15.5	31.350	8.26	6.00	4.40
Notes: The table above relate to the limiting temperature of the terminal insulation, refer to the 'Conditions of Manufacture'. *For given T ratings, the maximum ambient temperature may be reduced to allow terminals with lower limiting temperatures to be fitted.				

Table 2: BPG Range of Junction Boxes – Maximum Power Dissipation for EPL Ga Gb Db

EPL Da				
BPG Ref.	Max. Power Dissipation (W), Max. Surface Temp. & Ta Max.			
	(*) T6/T85ºC @40ºC (*) T5/T100ºC @55ºC (*) T4/T100ºC @90ºC ΔT=+40K Max.	(*) T6/T85ºC @55ºC (*) T5/T100ºC @70ºC ΔT=+25K Max.	(*) T6/T85ºC @60ºC ΔT=+20K Max.	(*) T6/T85ºC @65ºC ΔT=+15K Max.
BPG1	4.195	1.115	0.865	0.725
BPG2	4.2755	1	0.85	0.725
BPG3	4.4165	1	0.85	0.725
BPG4	4.506	1.035	0.9	0.645
BPG4.5	4.506	1.035	0.9	0.645
BPG5	4.63	1	0.85	0.55
BPG6	4.689	1	0.85	0.55
BPG7	5.25	1.15	0.85	0.55
BPG8	5.174	1	0.85	0.55
BPG9	5.9665	1.15	0.85	0.55
BPG10	6.8965	2.25	1.645	1.05
BPG11	9.169	3.34	2.6	2
BPG12	7.737	1.15	0.85	0.55
BPG12.5	7.737	1.15	0.85	0.55
BPG13	10.4335	2.6	2	1.5
BPG13.5	10.4335	2.6	2	1.5
BPG14	15.192	3.985	3.295	2.395
BPG15	15.675	4.13	3	2.2
BPG15.5	15.675	4.13	3	2.2
Notes: The table above relates to the limiting temperature of the terminal insulation, refer to the 'Conditions of Manufacture'. ***For given T ratings, the maximum ambient temperature may be reduced to allow terminals with lower limiting temperatures to be fitted.**				

Table 3: BPG Range of Junction Boxes – Maximum Power Dissipation for EPL Da

Optional fibre optic jointing facilities may be fitted within the terminal compartment; these are installed on a non-metallic, splice tray either alone or alongside the existing terminals. The jointing facilities are intended for use with fibre optic equipment supplied from a power source that is certified as compliant with IEC / EN 60079-28:2015. For "op pr" or "op sh" applications, the ABTECH fibre optic cassette type FJC under certificate CML 17ATEX9035U/ IECEx CML 17.0020U are used.

Optical Power	
'op pr' applications	**'op is' applications**
T6/T85ºC at a maximum ambient of ≤ 60ºC	T6/T85ºC at a maximum ambient of ≤ 65ºC or T4/T100ºC at a maximum ambient of ≤ 80ºC
When 'op pr' is used with or without terminals, the splice case is limited to 100mW and a -40ºC to 60ºC ambient temperature.	When 'op is' is used with or without terminals. Fibre optic source is limited for all T classes to a maximum irradiance of 5 mW/mm^2 (surface area not exceeding 400 mm^2) Signal power is limited to 15 mW @T6 and 35 mW @T4.

Table 4: BPG Range of Junction Boxes – Optical Power Limits for "op pr" and "op is" applications

Variation 1:
This variation introduces the following modifications:

i. To include another T5/T100°C and ambient option.
ii. Minor editorial change to condition of manufacture for terminal insulting material temperature limitations and removing the condition for selection of cable to specific conditions of use.
iii. Correction to certification drawings to include missing BPG size and CE/UKCA marks.

Variation 2:
This variation introduces the following modifications:

i. Introduction of an alternative sealing material
ii. Assessment of the inclusion of optional plug and socket assemblies
iii. Update to the latest version of the standards.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	11 June 2020	R11558A/00	Release of Prime Certificate
1	08 Oct 2022	R15681A/00	The issue of variation 1.
2		R16923A/00	The issue of variation 2.

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 of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

ii. When the manufacturer has equipped the junction boxes with wiring to the terminals, a routine electric strength test shall be carried out in accordance with IEC 60079-7:2015 Clause 7.1

iii. All terminals will be installed in accordance with their certificate conditions and the relevant codes of practice/wiring regulations paying particular attention to the following:

- The maximum service temperature range.
- The minimum creepage and clearance distances shall be maintained.
- The rated voltages and currents may vary if cross-connection facilities are used.
- The reduction in rating of adjacent terminals shall be observed, where applicable.

The terminals fitted into the junction boxes shall also conform to the following requirements:

Temperature class/ Dust marking	Requirement*
T6/T85°C	The terminals shall have an insulation limiting temperature of +85°C minimum.
T5/T100°C	The terminals shall have an insulation limiting temperature of +100°C minimum.
T4/T100°C	The terminals shall have an insulation limiting temperature of +130°C minimum.

iv. Suitably certified Ex e equipment such as breathing devices and blanks may be fitted to the enclosure providing the enclosure maintains compliance with IEC 60529 code IP65 or better.

v. The manufacturer will take all reasonable steps to ensure that the power dissipated by the Junction Box does not exceed the maximum value stipulated in the table detailed in the Description of Equipment, in addition, the manufacturer will supply all the relevant information that will enable the user/installer to calculate the dissipated power in Watts for each Junction Box in accordance with IEC 60079-7 Annex E, E2.

vi. When the junction boxes are used for intrinsically safe applications, a 3 mm separation distance between the enclosure is required, there shall also be a minimum of 6 mm between different intrinsically safe circuits.

vii. When trunking is fitted, it may be sited as required and the minimum creepage and clearance distances shall still be met

viii. If the enclosures are supplied fitted with blanking plugs, reducers, adapters or breather drains, the manufacturer shall ensure that the user/installer is provided with copies of the associated certificate for the fitted devices.

ix. When the optional earth bar is fitted it shall allow for a size of conductor connection in accordance with Clause 15.3 of IEC 60079-0.

x. When plug and sockets are fitted that are certified 'Ex d e', 'Ex db eb', Ex ia or Ex ib, then the junction box marking shall include the symbol 'd' or 'i' as part of the label marking code, as well as the appropriate gas/dust group marking if not 'IIC' and 'IIIC', as defined by the plug and socket approval.

xi. This certificate does not cover any plug and socket arrangements that may be fitted to the enclosure. All plug and socket arrangements fitted shall be appropriately designed to the ATEX (IECEx/UKEX) Directive for this type of apparatus_ Additionally, the plug and socket arrangements shall:

- Be suitable for the intended temperature range of the junction box
- Be suitable to maintain the required creepage and clearances in accordance with EN IEC 60079-7.
- Have a minimum ingress protection rating of IP54 (gas applications) or IP64 (if the boxes are marked for dust applications).
- Have a declared contact resistance or power dissipation rating.
- Be installed in accordance with their certificate conditions and the relevant codes of practice/wiring regulations.

14 Specific Conditions of Use (Special Conditions)

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

i. When used in an EPL ta (Da) application, the power supply to the equipment is to be rated for a prospective short circuit current of not more than 10 kA.

ii. When fitted with 'Ex op pr' splice case, the fibre cable outside the enclosure shall be installed such that mechanical damage is prevented, including where entering or exiting the increased safety enclosure.

iii. When marked 'Ex op is', the fibre optic source supplying this equipment shall be suitably certified as compliant with EN 60079-28:2007 and provide an inherently safe optical source (op is), EPL Gb, subsequently the parameters in Table 4 of the description apply.

iv. When marked 'Ex op pr', the fibre connectors contained within the increased safety enclosure must not be separated whilst energised if an explosive atmosphere may be present.

v. If not used, fibre ST connectors within the increased safety enclosure must have dust covers fitted.

vi. All optical components used with the Fibre Optic Cassette shall be suitable for the ratings and service temperature range of the cassette

vii. When marked "op sh", the fibre optic source shall be suitably certified as compliant with IEC/EN 60079-28:2015 and provide an interlocked optical source (op sh).

viii. Cable insulation shall be rated at 30°C greater than max operation ambient.

Certificate Annex

Certificate Number	**CML 20ATEX3009X**
Equipment	**BPG Range of 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
ABT 33523	1 of 1	A	11 June 2020	BPG Enclosures
ABT 33524	1 of 1	A	11 June 2020	BPG Manufacturing Specification
ABT 33526	1 of 1	A	11 June 2020	BPG Apparatus Certification Labels
ABT 33564	1 of 1	A	11 June 2020	BPG Ex op Certification Labels
ABT 37164	1 of 1	A	11 June 2020	Terminal specification

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
ABT33523	1 of 1	B	08 Oct 2022	BPG Enclosure
ABT33526	1 of 1	B	08 Oct 2022	BPG Apparatus Certification Labels
ABT33564	1 of 1	B	08 Oct 2022	BPG Ex op Certification Labels

Issue 2

Drawing No	Sheets	Rev	Approved date	Title
ABT33523	1 of 1	C	01 Dec 2023	BPG Enclosures
ABT33524	1 of 1	B	01 Dec 2023	BPG Manufacturing Specifications