



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: **IECEx SIR 06.0087** issue No.: **2**
Status: **Current**
Date of Issue: **2012-10-25** Page 1 of 4

Certificate history:
Issue No. 2 (2012-10-25)
Issue No. 1 (2010-7-27)
Issue No. 0 (2006-10-25)

Applicant: **ABTECH Limited**
A B Controls & Technology
Sanderson Street
Lower Don Valley
Sheffield S9 2UA
United Kingdom

Electrical Apparatus: **BPG Range of Junction Boxes**
Optional accessory:

Type of Protection: **Increased Safety and Dust**

Marking: Ex e IIC T6 Gb (Ta = -65°C to +40°C, +55°C, +60°C or +65°C)
Ex e IIC T4 Gb (Ta = -65°C to +90°C)
Ex ib IIC T6 Gb (Ta = -65°C to +40°C, +55°C, +60°C or +65°C)
Ex ib IIC T4 Gb (Ta = -65°C to +90°C)
Ex tb IIIC T85°C Db (Ta = -65°C to +40°C, +55°C, +60°C or +65°C)
Ex tb IIIC T100°C Db (Ta = -65°C to +90°C)
(Temperature class, marking for dust and Ta maximum depends upon the maximum power dissipation, refer to Annexe)

Approved for issue on behalf of the IECEx
Certification Body:

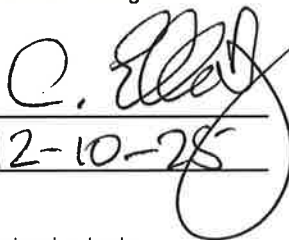
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Position:

Deputy Certification Manager

Signature:
(for printed version)

Date:


2012-10-25

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

SIRA Certification Service
Rake Lane
Eccleston
Chester
CH4 9JN
United Kingdom

sira
CERTIFICATION



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Manufacturer: **ABTECH Limited**
A B Controls & Technology
Sanderson Street
Lower Don Valley
Sheffield S9 2UA
United Kingdom

Manufacturing location(s):

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 electrical apparatus 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 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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/SIR/ExTR06.0101/01](#)

[GB/SIR/ExTR12.0245/00](#)

Quality Assessment Report:

[GB/SIR/QAR06.0046/00](#)
[GB/SIR/QAR06.0046/03](#)

[GB/SIR/QAR06.0046/01](#)
[GB/SIR/QAR06.0046/04](#)

[GB/SIR/QAR06.0046/02](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The BPG Junction Boxes comprise a polyester, BPG Enclosure, component certified as IECEx SIR 06.0086U, that is fitted with terminals. Refer to certificate Annexe for a full product description.

CONDITIONS OF CERTIFICATION: NO



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

Issue 1 – this Issue introduced the following changes:	
1	To allow GB/SIR/ExTR06.0101/01 to replace GB/SIR/ExTR06.0101/00
Issue 2 – this Issue introduced the following changes:	
1	The Description was aligned with certificate no. Sira 99ATEX3173 associated with this Junction Box, this included recognising the following changes assessed as part of that certificate. * The BPG 13.5 enclosure was added to the range. * The option to fit slotted trunking inside the enclosures, this trunking may be sited as required. The instructions were modified to recognise additional restrictions associated with this change and a new Condition of Manufacture was introduced.
2	Following appropriate re-assessment to demonstrate compliance with the requirements of the latest standards, the documents previously used for assessment were replaced by those currently listed, the markings were updated accordingly. In addition, the enclosure was allowed to be used for intrinsically safe applications and IEC 60079-11:2012 Edition 6 was included in the list of supporting standards.
4	The Condition of Certification related to static was removed; in addition the Conditions of Certification were rationalised to bring them into line with Sira 99ATEX3173.
5	It was recognised that a new procedure for selecting terminals has been adopted by the manufacturer; this allows the terminals to be chosen from an Approved Component Document, Sira 12AC087, that is issued and controlled by Sira.

Annexe to: IECEx SIR 06.0087 Issue 2
Applicant: ABTECH Limited
Apparatus: BPG Range of Junction Boxes



The BPG range of junction boxes utilises a BPG enclosure covered by certificate number Sira 99ATEX3172U and are fitted with an arrangement of suitably certified terminals.

BPG ref.	1	2	3	4	5	6	7	8	9	10	11	12	13	13.5	14	15
Length	80	110	160	190	230	122	220	160	260	360	560	255	400	400	600	400
Width	75	75	75	75	75	120	120	160	160	160	160	250	250	250	250	405
Height	55	55	55	55	55	90	90	90	90	90	90	120	120	160	120	120

(All dimensions are in mm)

Before the Junction Box is installed, its total dissipated power for the particular application will be calculated in accordance with EN 60079-7:2003, Annex E, E.2 and will not exceed the values given in the table below:

BPG ref.	Maximum Power Dissipation (W)				
	T6/T85°C Ta +40°C (max)	T6/T85°C Ta +55°C (max)	T6/T85°C Ta +60°C (max)	T6/T85°C Ta +65°C (max)	T4/T100°C Ta +90°C (max)
1	8.390	2.23	1.73	1.45	8.390
2	8.551	2.00	1.70	1.45	8.551
3	8.833	2.00	1.70	1.45	8.833
4	9.012	2.07	1.80	1.29	9.012
5	9.260	2.00	1.70	1.10	9.260
6	9.378	2.00	1.70	1.45	9.378
7	10.500	2.30	1.70	1.10	10.500
8	10.348	2.00	1.70	1.10	10.348
9	11.933	2.30	1.70	1.10	11.933
10	13.793	4.50	3.29	2.10	13.793
11	18.338	6.68	5.20	4.00	18.338
12	15.474	2.30	1.70	1.10	15.474
13	20.867	5.20	4.00	3.00	20.867
13.5	20.867	5.20	4.00	3.00	20.867
14	30.384	7.97	6.59	4.79	30.384
15	31.350	8.26	6.00	4.40	31.350

Junction boxes of size not specified in the table may be manufactured subject to the maximum dissipated power being based on a smaller enclosure.

Conditions of manufacture

The Manufacturer shall comply with the following:

- i. When the manufacturer has equipped the junction boxes with terminals, a routine electric strength test shall be carried out only if the components are wired. This test shall be carried out according to the following standards:
 - industrial control equipment: IEC 60947
 - measurement, control and laboratory use: IEC 61010
- ii. The terminals used in these Junction Boxes will be IECEx approved devices chosen from the Approved Component Document number Sira 12AC087 that is issued by Sira. 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 100°C minimum
T4/T100°C	The terminals shall be ceramic

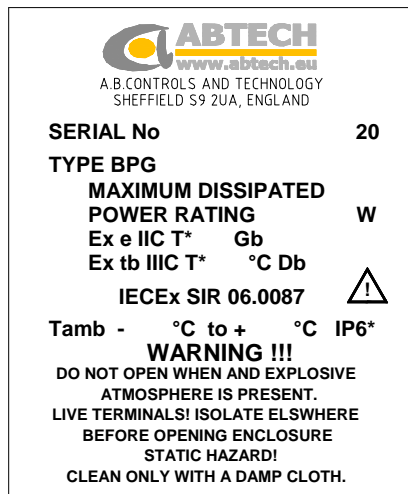
- iii. Suitably certified Ex e equipment such as breathing devices and blanks may be fitted to the enclosure providing the enclosure maintains compliance with IEC 60529 code IP64 or better.
- iv. The manufacturer will take all reasonable steps to ensure that the power dissipated by the Junction Box does 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.

Annexe to: IECEx SIR 06.0087 Issue 2
Applicant: ABTECH Limited
Apparatus: BPG Range of Junction Boxes



- v. 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.
- vi. When trunking is fitted, it may be sited as required and the minimum creepage and clearance distances shall still be met.
- vii. The products covered by this certificate incorporate previously certified devices, it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer will inform Sira of any modifications of the devices that may impinge upon the explosion safety design of their products.

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR ABTECH 'BPG' Range Enclosures – IECEx SIR 06.0087



Marking

The marking shown is for an apparatus certified terminal box.

The maximum power dissipation permitted in this terminal box is marked on the label and identified by RATING _____ WATTS.

The ambient temperature range for which this product is suitable is marked on the label and identified by Tamb _____.

The Ex e marking may be replaced by Ex ia or Ex ib. Enclosures marked Ex ia or Ex ib may only be used for terminating intrinsically safe circuits.

When the box is black it is anti-static and the 'STATIC HAZARD' warning may be missing.


Alternative markings for temperature ratings as follows.

T6 with Ta range of $-60^{\circ}\text{C} \leq \text{Ta} \leq +55^{\circ}\text{C}$ and T85°C for dust
Warning – Cable temperature can reach 85°C

T6 with Ta range of $-60^{\circ}\text{C} \leq \text{Ta} \leq +60^{\circ}\text{C}$ and T85°C for dust
Warning – Cable temperature can reach 85°C

T6 with Ta range of $-60^{\circ}\text{C} \leq \text{Ta} \leq +65^{\circ}\text{C}$ and T85°C for dust
Warning – Cable temperature can reach 85°C

T4 with Ta range of $-60^{\circ}\text{C} \leq \text{Ta} \leq +105^{\circ}\text{C}$ and T100°C for dust
Warning – Cable temperature can reach 100°C

Note: The symbol  is not always present. When it is present the installer must take particular note of these instructions.

Note:

The ambient temperature range identified on the certification label refers to the enclosure and the terminals fitted within. It does not necessarily refer to the permitted temperature range of any cable entry devices that may be fitted. The user must check that the cable entry devices fitted are suitable for the lowest ambient temperature marked on the certification label and for the maximum permitted operating temperature (T6 shown, may be T4).

The IP rating identified on the certification label refers only to the enclosure. The user must ensure that the cable entry devices fitted provide an equivalent degree of protection when installed with their manufacturer's instructions.

Installation

These instructions assume that the required cable entries have been pre-drilled. Cable entries may be threaded.

- 1) Using the mounting dimensions data provided, either in the product catalogue data sheets or on the drawings supplied, (as part of the project documentation), mark out the positions for the mounting holes on the surface where installation is required.
- 2) Drill the mounting holes for M4 fixing studs (for size BPG1 to BPG5) or for M6 fixing studs (for size BPG6 to BPG15) as applicable.
- 3) Tap thread into mounting holes if required.
- 4) Place a mounting screw through one mounting hole in the box so that the thread of the screw protrudes from the back of the box. Lift the box into place, using such assistance as may be necessary to avoid personal injury and:-
 - a) If clearance mounting holes are used, insert the protruding thread through the appropriate clearance hole and secure with a nut on the other side of the mounting surface.

Or

- b) If threaded holes are used, locate the end of the mounting screw over the threaded hole and, using an appropriate screwdriver, tighten the screw.
- 5) Rotate the box to line up the remaining mountings and repeat (4) above until all mounting screws have been fitted.
- 6) Install and secure the cable entry devices, cable glands and blanking plugs in accordance with the manufacturer's instructions. Ensure that the torque applied during the installation of these devices does not exceed 20 Nm.
- 7) Pull the cables into the box, leaving trailing leads of a length specified by site practice or the site engineer and secure any cable armour in accordance with site practice.
- 8) Where slotted trunking has been supplied (solid trunking is not permitted) ensure that it is suitable for the proposed T classification of the final certified product. Where the T6 is the proposed rating and no windows are fitted any polymeric or metallic slotted trunking may be used. For other T classifications and where a window is fitted metallic slotted trunking must be used. Trunking may be mounted in any orientation in the box, vertically, horizontally or diagonally.
- 9) When laying cables into trunking; No more than 50% of the trunking internal area shall be occupied by conductors, when instrumentation currents of 1A or less are carried. All cabling used must be capable of carrying a minimum of 3A.
- 10) For cables carrying more than 1A - No more than 25% of the trunking internal area shall be occupied by conductors, these shall be de-rated to a maximum of 4A /sq mm. All cabling used must be capable of carrying a minimum of 10% higher current than the rating required.
- 11) No more than 50% of the trunking internal area shall be occupied by conductors, when instrumentation currents of 1A or less are carried. All cabling used must be capable of carrying a minimum of 3A.
- 12) For cables carrying more than 1A - No more than 25% of the trunking internal area shall be occupied by conductors, these shall be de-rated to a maximum of 4A /sq mm. All cabling used must be capable of carrying a minimum of 10% higher current than the rating required.
- 13) Terminate the cables in the terminals provided in accordance with the requirements of BS EN 60079-14. Consideration must be given to any use limitations or special conditions detailed on the certificates for the terminals fitted.
- 14) Secure the lid by closing the lid and tightening the lid fixing screws.

NOTE: If the terminals provided with the enclosure are changed either in type or in quantity the terminal box certification may become invalid. Advice from ABTECH is recommended before any changes are made.

Earthing/Grounding

The enclosure may be provided with an external earth/ground connection. If such a connection is provided it must be connected to the appropriate earth bonding circuit before electrical power is connected to the contents of the enclosure.

When the box is provided with an internal earth continuity plate any metal cable glands must be secured using a vibration resistant washer and a locknut.

Operation

1. The lid must be secured using all of the lid screws provided in order to maintain the IP rating.
2. No attempt must be made to remove the enclosure lid whilst electrical power is connected to the contents of the enclosure.
3. If the enclosure is fitted with an external earth/ground facility it must be connected to the earth bonding circuit at all times when power is connected to the enclosure contents.

Maintenance

Routine maintenance is likely to be a requirement of local Health and Safety legislation. The laws of the applicable country must be considered and maintenance checks carried out accordingly

Additional periodic checks that are advisable to ensure the efficiency of ABTECH range enclosures are:-

<u>Activity</u>	<u>Frequency</u>
1 Check that the lid seal is in place and not damaged	Each time the enclosure is opened
2 Check that all lid fixing screws are in place and secured	Each time the enclosure is closed
3 Check that the mounting bolts are tight and free of corrosion	Every 3 years
4 Check the security of all cable glands and entry devices	Every 3 years
5 Check that all screw clamp terminals are secure	As manufacturers recommendations
6 Check enclosure for damage	Every 3 years

Chemical attack

The ABTECH BPG range of enclosures are manufactured using the following materials:-glass reinforced polyester resin, (with or without carbon loading), neoprene or silicone rubber, 316 stainless steel

Brass

Consideration should be given to the environment in which these enclosures are to be used to determine the suitability of these materials to withstand any corrosive agents that may be present.

Static hazard

Glass reinforced polyester resin has a surface resistance greater than 10E9 Ohms. They can present a hazard from static electricity and may not be cleaned except with a damp cloth.

Carbon loaded glass reinforced, identified by the suffix 'C', (e.g. BPGC9), have a surface resistance between 10E6 and 10E9 Ohms. They do not present a hazard from static electricity.

Vibration

BPG range terminal boxes are designed for use in areas subject to normal industrial levels of vibration. They are not designed for use in areas subject to intentional or extreme conditions of vibration.

Protection From Foreseeable Faults

Circuits connected in the enclosure must be externally protected using suitable circuit interruption devices to prevent overloading. Provided the enclosure is correctly installed, there should be no foreseeable faults.