



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

Certificate No.: **IECEX SIR 12.0155** issue No.: **3**

Status: **Current**

Date of Issue: **2016-03-30** Page 1 of 4

Certificate history:  
Issue No. 3 (2016-3-30)  
Issue No. 2 (2014-3-25)  
Issue No. 1 (2013-12-4)  
Issue No. 0 (2013-2-4)

Applicant: **ABTECH Limited**  
Sanderson Street  
Lower Don Valley  
Sheffield  
Yorkshire S9 2UA  
United Kingdom

Electrical Apparatus: **Bus Bar Junction Box**  
Optional accessory:


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

Marking: **Ex e IIC T\* Gb (Ta -40°C to +\*°C)**  
**Ex tb IIIC T\*°C Db (Ta -40°C to +\*°C)**  
\* These values depend on the application of the product, refer to the tables in the Certificate Annexe

Approved for issue on behalf of the IECEx **C Ellaby**  
Certification Body:

Position: **Deputy Certification Manager**

Signature:  
(for printed version)

  
2016-03-30

Date:

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.

Certificate issued by:

**SIRA Certification Service**  
CSA Group  
Unit 6, Hawarden Industrial Park  
Hawarden  
Deeside  
CH5 3US  
United Kingdom

**sira**  
CERTIFICATION





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Page 2 of 4

Manufacturer: **ABTECH Limited**  
Sanderson Street  
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Sheffield  
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**United Kingdom**

Additional 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:

<b>IEC 60079-0 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-31 : 2008</b> Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
<b>IEC 60079-7 : 2006-07</b> 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/ExTR13.0027/00

GB/SIR/ExTR13.0313/00

GB/SIR/ExTR14.0006/00

#### Quality Assessment Report:

GB/SIR/QAR06.0046/04



# IECEx Certificate of Conformity

Certificate No.: IECEx SIR 12.0155

Date of Issue: 2016-03-30

Issue No.: 3

Page 3 of 4

## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The Ex e Busbar Enclosure comprises an enclosure manufactured from 316 or 316L stainless steel with a minimum thickness of 2mm measuring a minimum of 675 mm long by 770 mm wide by 770 mm deep and a maximum of 1250 mm long by 1250 mm wide by 770 mm deep. The enclosure has openings located on three of the faces. The lid, which is hinged, is secured by a minimum of eight fixings, these consist of M6 x 20 mm slotted or slotted/hexagonal captive screws that locate to M6 cage nuts and M6 by 30 mm tank tank bush fixing screws. Sealing is provided by an adhesive backed, closed cell silicone seal as SX range to IECEx SIR 05.0046U. Two of the faces, which are adjacent to the lid, are provided with two 5mm thick stainless steel 316L or brass CZ112 removable gland plates. They are each secured by a minimum of eighteen M8 x 16 mm hexagonal headed screws, which screw into M8 welded tank bushes. Sealing is provided by a closed cell silicone gasket as SX range to IECEx SIR 05.0046U. Either an M16 or M10 x 50 mm external/internal earthing facility is located on the non-removable face opposite to the face which supports the lid hinges. An additional earthing facility may be fitted on the non-removable face which supports the lid hinges. Anti-loosening facilities are provided by appropriately sized spring and plain washers. Refer to the Annexe for additional information and Conditions of Manufacture.

### CONDITIONS OF CERTIFICATION: NO

Empty box for conditions of certification.



# IECEX Certificate of Conformity

Certificate No.: IECEx SIR 12.0155

Date of Issue: 2016-03-30

Issue No.: 3

Page 4 of 4

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

**Issue 1** – this Issue introduced the following changes:

1. It was retrospectively recognised that drawing ABT 10330 Rev. B changed the seal materials as detailed below:

- Gland Plate Gasket – Previously neoprene bonded cork now a closed cell silicone gasket as used in the SX Range of enclosures certified as IECEx SIR 05.0046U.
- Lid Seal – Previously adhesive backed, closed cell neoprene now an adhesive backed, closed cell silicone seal as used in the SX Range of enclosures certified as IECEx SIR 05.0046U.

The Description was modified accordingly.

**Issue 2** – this Issue introduced the following changes:

1. The following aspects of construction were retrospectively recognised:

- The enclosure is permitted to be manufactured from 316 or 316L Stainless Steel with a minimum thickness of 2mm.
- The enclosure measures a minimum of 675 mm long by 770 mm wide by 770 mm deep and a maximum of 1250 mm long by 1250 mm wide by 770 mm deep.
- A minimum of 8 fixing screws, dependant on size, are used to secure the hinged lid to the enclosure.
- A minimum of 18 fixing screws, dependant on size, are used to secure the gland plates to the enclosure.
- An additional earthing facility may be fitted on the non-removable face which supports the lid hinges.

The Description was modified accordingly.

**Issue 3** – this Issue introduced the following changes:

1. The necessary marking specified by this certificate was made generic thereby allowing it to cover all options that are made. This is an administrative change that required no technical assessment, therefore, an ExTR was not issued.

**Annexe to:** IECEx SIR 12.0155 Issue 3

**Applicant:** ABTECH Limited

**Apparatus:** Bus Bar Junction Box



Inside the enclosure, there are four 12.5 mm thick, 100 mm wide, copper busbars. Each busbar comprises two identical copper bars, one on top of the other with a space between. The busbars are designed to be drilled to suit the users requirements with respect to the securing of crimped cables. When drilled for crimp lugs, the securing bolt passes through a copper spacer, which is positioned between the two busbars. The busbars are supported by an insulating frame manufactured from 20 mm and 12 mm thick Glastic® grade UTR laminate part N° 1494. In all cases, the interfaces are sealed with cement to guarantee the maintenance of the appropriate creepage and clearance distances.

The enclosure has a maximum rating of 11 kV and 3000 A.

The temperature classification is dependent upon the power dissipation and the ambient range as per the table below:

Ambient range	Power dissipation	T Class	Temp. marking for dust
-40°C to +60°C	74.7 W	T6	T65°C
-40°C to +40°C	74.7 W	T6	T55°C
-40°C to +40°C	167.5 W	T5	T55°C

When three cables are connected per phase (i.e. six lugs per busbar) the following maximum ratings apply:

Ambient range	T class	No of cables	Maximum enclosure surface temp.	Maximum current per busbar	Max power dissipation (I <sup>2</sup> R losses)
-40°C to +40°C	T5	Three	T63°C	2439 A	192.0 W
-40°C to +40°C	T6	Three	T51°C	2022 A	132.0 W
-40°C to +60°C	T6	Three	T65°C	1509 A	73.6 W
-40°C to +45°C	T5	Three	T56°C	2124 A	145.8 W

When four cables are connected per phase (i.e. eight lugs per busbar, 3200 A) the following maximum ratings apply:

Ambient range	T class	No of cables	Maximum enclosure surface temp.	Maximum current per busbar	Max power dissipation (I <sup>2</sup> R losses)
-40°C to +40°C	T5	Four	T55°C	1847.5 A	245 W

**Date:** 30 March 2016

Page 1 of 2

**Form 9530 Issue 1**

## Sira Certification Service

Unit 6, Hawarden Industrial Park,  
Hawarden, CH5 3US, United Kingdom

Tel: +44 (0) 1244 670 900  
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Email: [ukinfo@csagroup.org](mailto:ukinfo@csagroup.org)  
Web: [www.csagroupuk.org](http://www.csagroupuk.org)

**Annexe to:** IECEx SIR 12.0155 Issue 3  
**Applicant:** ABTECH Limited  
**Apparatus:** Bus Bar Junction Box

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### Conditions of Manufacture

- i. The power dissipation of the enclosure shall be calculated in accordance with Appendix E.2 of IEC 60079-7:2008. The calculation shall take into account the contact resistance of any connection as well as the cable resistance. The power shall be dissipated evenly throughout the enclosure.
- ii. This certificate relies on the following previously certified products. When used as part of an SX Junction Box that 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 number	Key attributes
Anti-condensation heater fitted with a thermostat	As appropriate	Suitably certified by a notified body as a piece of equipment with a T6 temperature classification.

The manufacturer shall ensure that the previously certified heater that includes a thermostat is being used within the scope, the ratings and any special conditions for safe use that are specified in its associated certificate.

- iii. An electric strength test shall be carried out only when the terminals are fitted with cable. This test shall be carried out according to IEC 60079-7:2007 clause 7.1.
- iv. The Busbar Junction Box approved by this certificate is rated for use at 11 kV unless the bus-bar mounting frame does not have any adhesive fitted, in which case, the maximum voltage is limited to 8.8 kV.

**Date:** 30 March 2016

Page 2 of 2

Form 9530 Issue 1

### Sira Certification Service

Unit 6, Hawarden Industrial Park,  
Hawarden, CH5 3US, United Kingdom

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