UK Type Examination Certificate CML 22UKEX3187X Issue 1

United Kingdom Conformity Assessment

1 Product or Protective System Intended for use in Potentially Explosive Atmospheres UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

2 Equipment **Bus Bar Junction Box**

3 Manufacturer **Abtech Ltd**

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 Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port, CH65 4LZ, United Kingdom, Approved Body Number 2503, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

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 specific conditions of use (affecting correct installation or safe use). These are specified in Section 14.

8 This UK Type Examination certificate relates only to the design and construction of the specified equipment. Further requirements of the Regulations apply to the manufacturing process and supply of the product. These are not covered by this certificate.

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 60079-31:2014

10 The equipment shall be marked with the following:

Ex II 2 G D

Ex eb IIC T* Gb

Ex tb IIIC T*°C Db

Ta= -40°C to +**°C

* values depend on the application of the equipment, refer to the table in the description for details.

11 Description

The Increased Safety BusBar Box enclosure comprises an enclosure of 316L (EN1.4404) stainless steel of minimum thickness 2mm, with minimum external dimensions 770mm wide by 770mm deep by 675mm high, maximum size 1250mm wide x 770mm deep x 1250mm high, in normal orientation, manufactured in accordance with the SX Range manufacturing specification detailed in certificate CML15ATEX3078U and IECEx CML 15.0039U.

The enclosure provides openings located on three of its faces. One of these openings is the front aperture covered by the removable hinged lid. The lid is secured in position with a minimum of eight slotted or slotted/hexagonal captive screws, seven M6 x 20mm each locating into M6 cage nuts, and one M6 x 30mm locating into a tank bush. Lid sealing is provided by an adhesive backed closed cell silicone rubber strip or single piece, or solid silicone rubber in strip form or single piece.

Two of the faces which are adjacent to the lid are each provided with two removable gland plates of minimum thickness 5mm, either of 316L (EN1.4404) stainless steel or CZ112 brass. Each are secured using a minimum of eighteen M8 hexagonal headed screws of minimum length 16mm into M8 welded tank bushes. Sealing is provided by closed cell silicone rubber strip or single piece, or solid silicone rubber in strip form or single piece.

An external/internal earth stud on minimum thread size M10 and minimum length 40mm is provided either on the side face which supports the lid hinge, or the opposite face, or both. Anti-loosening facility is provided by appropriately sized spring washers and plain washers.

Inside the enclosure are four copper bars of width 100mm (4”) nominal, minimum thickness 10mm, maximum thickness 40mm, each secured in places with two removable collars of insulating material, themselves secured to the insulating bus bar support inserts using M3 socket head screws. The bus bars are designed to be drilled to the user’s requirements for the securing of cable lugs crimped to the incoming cable conductors. The cable lug securing bolt, minimum size M10, maximum size M20, passes through the bus bar and is secured on the other side using a nut. The bus bars are supported using a frame of insulating material manufactured by Glastic® UTR Laminate, part No.1494.

The BusBar Box product has a maximum operating voltage of 11kV. The maximum operating current is dependent on bus bar thickness and cable conductor size, with due consideration of the required T rating and maximum ambient temperature of the intended location. The maximum permitted power dissipation is detailed in Table 1 below and applications are verified using Table 2 and client provided cable data or BS 60228.

Table 1:

Box	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Height (m)	0.675	1.250	0.675	1.250	0.675	1.250
Width (m)	0.770	0.770	1.000	1.000	1.250	1.250
Depth (m)	0.770	0.770	0.770	0.770	0.770	0.770
Maximum Dissipated Power (W)	245	377	294	448	350	524

Table 2

Standard mm Busbar Size (A x B)	Permitted US equivalent thickness	Maximum Current ΔT 30K	Maximum Current ΔT 40K	Maximum Current ΔT 50K	Maximum Current ΔT 60K	Maximum Current ΔT 70K	Maximum Current ΔT 80K
100 x 10	½”	1440	1700	1930	2160	2370	2550
100 x 15	5/8”	1720	2040	2320	2590	2840	3060
100 x 20	1”	1950	2300	2620	2930	3210	3460
100 x 25	1”	2130	2520	2870	3200	3490	3790
100 x 30	1 ¼”	2280	2700	3070	3430	3740	4030
100 x 40		2500	2960	3370	3760	4100	4430
Max. allowable ambient		Up to 90°C	Up to 80°C	Up to 70°C	Up to 60°C	Up to 50°C	40°C
Temperature Class and Max. ambient		T4@90°C T5@60°C T6@50°C	T4@80°C T5@50°C T6@40°C	T4@70°C T5@40°C	T4@60°C	T4@50°C	T4@40°C
Temperature Class and Maximum Surface Temperature		T4/135°C T5/100°C T6/85°C	T4/135°C T5/100°C T6/85°C	T4/135°C T5/100°C	T4/135°C	T4/135°C	T4/135°C

Variation 1

This variation introduces the following modifications:

i. Modification to busbar manufacturing detail drawings.
ii. Modification to condition of manufacture
iii. Editorial change to product description.
iv. Extension to busbar width from 100mm to 200mm

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	28 Apr 2022	R15189B/00	Issue of Prime Certification
1	23 Mar 2023	R16249A/00	Introduction of Variation 1

Note: Drawings that describe the equipment are listed in the Annex.

13 Conditions of Manufacture

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

i. Any anti-condensation heater, certified under ATEX to EN IEC 60079-7:2015+A1:2018 or later, with a Temperature Class to match that of the enclosure, and a thermostat set to 5K lower than the busbar box enclosure upper ambient temperature, may be fitted to the face opposite the lid.

ii. An electric strength test shall be carried out only when the terminals are fitted with cable. This test shall be carried out according to EN 60079-7, clause 7.1.

14 Specific Conditions of Use

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

i. Cable entry points may reach up to 46°C above marked ambient, therefore correctly rated cables shall be selected; refer to user's instructions manual.

Certificate Annex

Certificate Number	**CML 22UKEX3187X**
Equipment	**Bus Bar Junction Box**
Manufacturer	**Abtech Ltd**

The following documents describe the equipment defined in this certificate:

Issue 0

For all drawings, refer to attached certificate CML 20ATEX3085X.

Issue 1

Drawing No	Sheets	Rev	Approved date	Title
ABT36699	1 of 1	C		BusBar Box
ABT36032	1 of 1	B		BusBar support insert
ABT36033	1 of 1	C		BusBar Collar
ABT36034	1 of 1	B		Removable High Current Busbar