



1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 01ATEX3081X** Issue: **5**

4 Equipment: **LR Joint Box**

5 Applicant: **ABTECH Limited**

6 Address: Sanderson Street
Sheffield
S9 2UA
UK

7 This equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, 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 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0: 2006

EN 61241-0: 2006

EN 60079-7: 2003

EN 61241-1: 2004

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC type-examination certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 2GD

Ex e II T4

Ex tD A21 IP66 T65°C

Ta = -20°C to +40°C or

Ta = -45°C to +40°C or

Ta = -50°C to +40°C (only to be applied when fitted with the Menzolit insulators)

Project Number 25439


C Ellaby
Deputy Certification Officer

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira 01ATEX3081X
Issue 5

13 DESCRIPTION OF EQUIPMENT

The LR Joint Box is a junction box that is rated at 3.3 kV, 1250 A continuous, but also has a permitted overload current of 1845 A for 10 seconds in every 60 minutes. The LR Joint Box is intended for use with supply cables size 646MCM.

The enclosure of the LR Joint Box is covered by Sira 99ATEX3170U and coded EEx e II. Inside this enclosure, the LR Joint Box utilises an arrangement of three copper busbars to provide connection facilities. These busbars are supported on insulators and are arranged to permit the supply cables to enter and exit the enclosure at 90° to each other.

Variation 1 - This variation introduced the following changes:

- i. The LR Joint Box was permitted to be manufactured using a smaller enclosure with two bus bar assemblies that have a maximum current per bus bar identical to the original schedule.

Variation 2 - This variation introduced the following changes:

- i. The LR Joint Box was permitted to be manufactured using an enclosure with two bus bar assemblies that have a maximum current per busbar identical to the original schedule and incorporating a partition within the enclosure, housing ATEX certified, increased safety, rail mounted terminals. The total dissipated power for the field terminals shall be calculated in accordance with EN 60079-7:2003, Annex E, E.2 and shall not exceed 30 W.
- ii. Modification of drawings to clarify the specification of the stand off insulators

Variation 3 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 and the EN 61241 series of standards, the documents originally listed in section 9, EN 50014:1997 (amendments A1 to A2), EN 50019:2000 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly.

Variation 4 - This variation introduced the following changes to Joint Boxes that are not fitted with a closed cell polychloroprene gasket:

- i. An alternative lower ambient temperature, -45°C, was recognised.
- ii. The Joint Boxes were allowed to be fitted with Menzolit type 45LS1200 insulators, when these are used the lower ambient temperature of the Joint Box can be -50°C.

Variation 5 - This variation introduced the following changes:

- i. The introduction of an alternative, five-way, outlet cable arrangement. This includes an increase in the size and rearrangement of, the terminal current bars to accommodate multiple smaller output cables, and the fitting of insulated cable clamps.



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14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report No.	Comment
0	18 June 2001	R53A7777A	The release of the prime certificate.
1	30 December 2002	R53A9714A	The introduction of Variation 1.
2	21 June 2004	R53A10304A	The introduction of Variation 2 (This document was re-issued 2 November 2004 to permit report number V53A10304B to replace R53A10304A).
3	26 February 2008	R51A17090D	This Issue covers the following changes: <ul style="list-style-type: none">All previously issued certification was rationalised into a single certificate, Issue 3, Issues 0 to 2 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.The introduction of Variation 3.The change of the company name from AB Controls and Technology, first recognised 31 January 2007.
4	10 May 2011	R24503A/00	The introduction of Variation 4.
5	06 October 2011	R25439A/00	The introduction of Variation 5.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

15.1 The continuous current rating of the LR Joint Box is 1250 A, however, the rating can be increased up to a maximum of 1845 A but exposure to this current shall not exceed more than 10 seconds in every 60 minutes.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 CONDITIONS OF CERTIFICATION

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 The rail mounted terminals shall not to be rated at more than 2200 V.

17.4 The total dissipated power for the field terminals shall be calculated in accordance with EN 60079-7:2003, Annex E, E.2 and shall not exceed 30 W.

17.5 Joint Boxes that are marked with either a lower ambient of either -45°C or -50°C shall not be fitted with a closed cell polychloroprene gasket.

17.6 Only Joint Boxes that are fitted with the Menzolit type 45LS1200 insulators are allowed to be marked with a -50°C lower ambient temperature.

17.7 Joint Boxes that are marked with -45°C shall not be fitted with insulated cable clamps

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Sira Certification Service

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Certificate Annexe

Certificate Number: Sira 01ATEX3081X

Equipment: LR Joint Box

Applicant: ABTECH Limited



Issue 0

Drawing No.	Sheet	Rev.	Date	Description
ABT11246	1 of 1	A	09 May 01	LR Joint Box Certification Label
ABT11128	1 of 1	A	09 May 01	Reversible High Current JB Type LR Connection Box
ABT 10336	1 of 1	A	06 Dec 99	Machining of Stand Off Insulator

Issue 1

Drawing No.	Sheet	Rev.	Date	Description
ABT12429	1 of 1	A	12 Nov 02	Reversible High Current LR Joint Box – SX5

Issue 2

Drawing No.	Sheet	Rev.	Date	Description
ABT 12995	1 of 1	A	29 Apr 03	LR Joint Box Variation
ABT 10336	1 of 1	B	29 Aug 01	Machining of Stand Off Insulator

Issue 3

Drawing No.	Sheet	Rev.	Date	Description
ABT 11128	1 of 1	B	06 Dec 07	General Assembly
ABT 12995	1 of 1	B	06 Dec 07	General Assembly Variation
ABT 11246	1 of 1	B	06 Dec 07	Certification Label

Issue 4



Drawing No.	Sheets	Rev.	Date (Sira stamp)	Description
ABT 11128	1 of 1	C	06 May 11	General Assembly
ABT 11246	1 of 1	C	26 Apr 11	Certification Label
ABT12429	1 of 1	B	06 May 11	Reversible High Current LR Joint Box – SX5
ABT 12995	1 of 1	C	06 May 11	General Assembly Variation

Issue 5

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Description
ABT 22564	1 of 1	A	04 October 11	General Assembly - alternative outlet cable arrangement

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INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR ABTECH 'LR JOINT BOX' – SIRA01ATEX3081X

 <p>??</p> <p>ABTECH www.abtech.eu</p> <p>A B CONTROLS & TECHNOLOGY SHEFFIELD S9 2UA ENGLAND</p> <p>LR JOINT BOX 1250A 3,3kV 77777</p> <p>SERIAL No. S***** / 20**</p> <p>II 2 GD Ex e II T4</p> <p>Ex tD A21 IP66 T 65°C</p> <p>SIRA01ATEX3081X</p> <p>CABLE AT ENTRY POINT EXCEEDS 70 deg C</p>	<p>Marking</p> <p>The maximum voltage and current permitted in this terminal box are marked on the label and identified as 1250A and 3,3kV. The ambient temperature range for which this product is suitable is -20 to +40°C</p>
 <p>??</p> <p>ABTECH www.abtech.eu</p> <p>A B CONTROLS & TECHNOLOGY SHEFFIELD S9 2UA ENGLAND</p> <p>LR JOINT BOX 1250A 3,3kV ?????</p> <p>SERIAL No. S***** / 20**</p> <p>II 2 GD Ex e II T4 Ta -45°C to +40°C</p> <p>Ex tD A21 IP66 T 65°C</p> <p>SIRA01ATEX3081</p> <p>WARNING! ISOLATE ELSEWHERE BEFORE OPENING CABLE AT ENTRY POINT EXCEEDS 70 deg C</p>	<p>Alternative marking, shown left, includes the optional ambient temperature range of -45°C to +40°C. The same maximum voltage and current applies.</p> <p>L R Joint Boxes with this marking must be fitted with silicone rubber lid seals and gland plate gaskets.</p>

Installation

- 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 either M8 or M9 fixing studs.
- 3) Insert the top two studs leaving 8 to 10mm protruding and lift the enclosure into position using such assistance as may be necessary to avoid injury and hang the top fixing brackets of the box onto the studs. Ensuring that the box is secure, insert and tighten the bottom two studs. Now complete tightening the top two studs.
- 4) Unfasten the lid securing screws and remove the enclosure lid. Put the lid in a safe place.
- 5) Install and secure the cable glands in accordance with the manufacturers instructions.
- 6) Remove the top half on each cable clamp and put safely aside.
- 7) Pull the cables into the box leaving trailing leads long enough to reach their respective couplers after routing through the cable clamps.
- 8) Trim each cable core so that the conductor end will reach the inside stop of the crimp lug on which it is to be terminated.
- 9) Strip each cable core insulation by the length of the crimping barrel plus 2mm.
- 10) Remove each crimping lug in turn from the terminal post and place the securing nuts to one side.
- 11) Crimp each lug onto the respective conductor using Cembre die sets or equivalent. Ensure that the crimp die set used is suitable for the conductor size and is not damaged or excessively worn. The crimp die set may produce either a hexagon type crimp or an indent type crimp. With hexagon die sets execute at least two crimps on each lug.
- 12) Route the cable through the appropriate cable clamp and place the hole in the palm of the now attached cable lug on to its respective terminal post. Secure it in place with the flat washer, spring washer and two locknuts provided. Ensure that the spring washer is fully compressed by the first locknut then apply a further 1/8 to 1/4 turn. Secure the fitting with the second locknut.
- 13) When all the cable lugs have been attached and correctly tightened replace the top halves of the cable clamps and tighten each one to secure the cables.

- 14) Replace the lid and secure it by closing the lid and tightening the lid fixing screws. Ensure that all gland plate securing screws are tightened.

Earthing/Grounding

The LR JOINT BOX is provided with an internal and external earthing/grounding facility. This must be connected to the appropriate earth bonding circuit before electrical power is connected to the contents of the enclosure. Any earth/ground conductor brought into the enclosure must be terminated onto the enclosure internal earth/ground stud.

Operation

1. The lid must be secured using all 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. The earthing/grounding facility must be connected to the earth bonding circuit at all times when electrical power is connected to the enclosure.

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 checks that are advisable to ensure the efficiency of ABTECH 'S' range enclosures on which the LR JOINT BOX is based are:-

Activity	Frequency
1 Check that the lid seal is not damaged and is in place	Each time the enclosure is opened
2 Check that all lid fixing screws are in place and secured	Each time the enclosure is opened
3 Check that all gland plate fixing screws are in place and secured	Each time the enclosure is opened
4 Check that the mounting bolts are tight and free of corrosion	Annually
5 Check the security of all cable glands	Annually
6 Check the enclosure for damage	Annually

Chemical Attack

The ABTECH LR JOINT BOX manufacture from 316 stainless steel. The following additional material are also used :-

Neoprene or silicone rubber,
Brass,
Cast epoxy resin.

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

The LR JOINT BOX does not present a hazard from static electricity.

Vibration

The LR JOINT BOX is 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.