

CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

Series SXa. Junction Box.

a = Enclosure Size 0, 0.5, 1, 1.5, 2, 3, 4, 5, 6, 7, or 8.

Series ZAGa. Junction Box.

a = Enclosure Size 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 15, or 16.

Equipment Ratings: Increased Safety for Class I, Zone 1, AEx e II T6
Enclosure Type 4 / 4X

Manufactured by: AB Controls & Technology Ltd
Sanderson Street
Sheffield, UK

This certifies that the equipment described has been found to comply with the following Factory Mutual Research Corporation Approval Standards:

Approval Standard Class 3600 - 1998
Approval Standards Class 3810 - 1989

Approval Job Identification: 0D6A6.AE Approval Granted : September 29, 1998

Subsequent Revision Reports / Date Approval Amended

None

Factory Mutual Research Corporation



Roger P. Lutfy
Electrical Section Manager
Approvals Division

09/29/98
Date

0D6A6.AE
(3619)

September 29, 1998

**SERIES SX & ZAG
TERMINAL BOXES
FOR
HAZARDOUS (CLASSIFIED) LOCATIONS**

from

**A. B. Controls and Technology Ltd.
Sanderson Street
Sheffield, S9 2UA
United Kingdom**

I INTRODUCTION

1.1 A.B. Controls and Technology Ltd. (manufacturer) requested Factory Mutual Research Corporation (FMRC) Approval of their Series SX & ZAG Junction Boxes as Increased Safety, AEx e II T6, for use in Class I, Zone 1; indoor and outdoor (Type 4, 4X) hazardous (classified) locations.

1.2 The specific models described by this report are identified as follows:

Series SXa. Junction Box.

a = Enclosure Size 0, 0.5, 1, 1.5, 2, 3, 4, 5, 6, 7, or 8.

Series ZAGa. Junction Box.

a = Enclosure Size 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 15, or 16.

1.3 FMRC Approval of these pressurizing systems was based on the applicable requirements of the following standards:

Title	Author-Number	Date
Electrical Equipment for Use in Hazardous (Classified) Locations - General Requirements	FM-3600	1998
Electrical Apparatus for Use in Class I, Zones 0 & 1 Locations - General Requirements	ISA S12.0.01	1998
Electrical Equipment for Use In Class I, Zone 1 Hazardous (Classified) Locations: Type of Protection Increased Safety 'e'	ISA S12.16.01	1998
Enclosures for Electrical Equipment	ANSI/UL 50	1992

1.4 FMRC Approval of hazardous (classified) location equipment is based on examination and tests of production model equipment and follow-up audit inspections of manufacturing facilities and quality control procedures.

1.5 As described by this report, the design and construction of these junction boxes provide for the degree of protection against electrical shock, fire, and injury required for hazardous (classified) location applications.

II DESCRIPTION

2.1 The SX Series of enclosure is manufactured from 304 stainless steel, 316 stainless steel, or mild steel painted per specification ABT 030791/405. The enclosure consists of a main body and a cover secured using at least 4 captive machine screws. The body-to-cover joint is sealed by a closed-cell neoprene gasket, Type 72212 manufactured by Scott Pyrell. Tack-welded straps on the back of the enclosure are used to provide a means of external mounting.

2.2 The ZAG Series of enclosure is manufactured from aluminum alloy (Type AlSi12). The enclosure consists of a main body and a cover secured using at least 4 captive machine screws. The body-to-cover joint is sealed by a closed-cell silicone rubber gasket, Type ABTE3816 manufactured by Primasil Ltd. Mounting is provided by through-holes in the main body that are external to the enclosure cavity.

2.3 Conduit and cable entries may be through the back or sides of the enclosures. Conduit hubs or cable glands shall have environmental protection of Type 4X and IP 54 (minimum) to maintain the environmental and hazardous location ratings of the enclosure.

2.4 Groups of FM Approved AEx e terminals may be factory-installed in the junction boxes in accordance with the power dissipation limits described in the attached Sira report. Terminal rails are either directly mounted using through-bolts, studs, or fastened to threaded bosses. The same mountings may also be used to mount internal chassis plates to which the terminal rails may be secured.

2.5 Both internal and external grounding studs are provided with a minimum size of M6.

2.6 For additional descriptive information, please refer to the attached sales brochures.

III MARKING

3.1 When the Series SX is sold as an empty terminal enclosure (without terminals installed), a stainless steel label is attached to the cover by either M3 screws and nuts or by tack-welding. Label drawing ABT 180298\9017, Revision A is included as an attachment to this report. The markings include:

Manufacturer's Name and Address
Type number
Serial number
Hazardous location rating: Class I, Zone 1, AEx II T6
Environmental rating: Type 4, 4X
FM Approval mark

3.2 When the Series SX is sold as a junction box (with terminals installed), a stainless steel label is attached to the cover by either M3 screws and nuts or by tack-welding. Label drawing ABT 180298\9015, Revision A is included as an attachment to this report. The markings include:

Manufacturer's Name and Address
Type number
Serial number
Power dissipation rating
Maximum voltage rating
Maximum current rating
Hazardous location rating: Class I, Zone 1, AEx II T6
Environmental rating: Type 4, 4X
FM Approval mark

3.3 When the Series ZAG is sold as an empty terminal enclosure (without terminals installed), a stainless steel label is attached to the cover by either M3 screws and nuts or by tack-

welding. Label drawing ABT 180298\9018, Revision A is included as an attachment to this report. The markings include:

Manufacturer's Name and Address
Type number
Serial number
Hazardous location rating: Class I, Zone 1, AEx II T6
Environmental rating: Type 4, 4X
FM Approval mark

3.4 When the Series ZAG is sold as a junction box (with terminals installed), a stainless steel label is attached to the cover by either M3 screws and nuts or by tack-welding. Label drawing ABT 180298\9016, Revision A is included as an attachment to this report. The markings include:

Manufacturer's Name and Address
Type number
Serial number
Power dissipation rating
Maximum voltage rating
Maximum current rating
Hazardous location rating: Class I, Zone 1, AEx II T6
Environmental rating: Type 4, 4X
FM Approval mark

IV EXAMINATION AND TESTS

4.1 Except as noted below, examination and testing of the subject equipment was conducted by Sira Test and Certification Limited (ST&C) in conjunction with FMRC. The results are detailed in the attached Sira Report R51A4400A. Copies of the original test data are on file at FMRC along with other documents and correspondence applicable to this program.

4.2 Both the SX and ZAG Series are currently Listed by UL and Certified by CSA as Type 4X enclosures. The test data was reviewed and no additional testing was considered necessary to qualify environmental ratings of Type 4 or Type 4X for these increased safety enclosures.

4.3 The manufacturer's installation instructions, ABTF-90 and ABTF-91 were reviewed. The instructions for the use of conduit hubs or cable glands with environmental ratings of Type 4X and minimum of IP54 were found to be satisfactory to maintain both the environmental and hazardous location ratings of the enclosure upon installation.

V REMARKS

5.1 Installation shall be completed in accordance with the current issue of the National Electrical Code; ANSI/NFPA-70.

5.2 Installation shall be in accordance with the current issue of the manufacturer's instructions, ABTF-90 or ABTF-91, as applicable.

VI FACILITIES AND PROCEDURES AUDIT

The design and manufacturing facilities in Sheffield, United Kingdom were visited as part of this Approval program and are subject to routine follow-up inspections. The facilities and quality control procedures in place have been found to be sufficient to manufacture product identical to that tested and Approved.

VII MANUFACTURER'S RESPONSIBILITIES

7.1 The manufacturer shall provide Installation Instructions ABTF-90 or ABTF-91, as appropriate, with the SX and ZAG junction boxes.

7.2 The manufacturer shall advise FMRC of all proposed changes to the documents listed in Section IX via form 797, Approved Product Revision Report.

7.3 Routine dielectric tests of junction boxes with installed terminals are not required as the terminals are not modified or wired when installed into the enclosure. The dielectric test conducted on the terminal at the time of manufacture is considered adequate in this case.

VIII CONCLUSION

The A.B. Controls and Technology Ltd. Series SX & ZAG Junction Boxes, as herein described, meets FMRC Approval requirements. Approval is effective when the Approval Agreement is signed and received by FMRC.

IX CRITICAL DOCUMENT LIST

DRAWING	REVISION	TITLE
ABT 030791\405	A	PAINT SPECIFICATION
ABT 180298\9015	A	LABEL, SX JUNCTION BOX
ABT 180298\9016	A	LABEL, ZAG JUNCTION BOX
ABT 180298\9017	A	LABEL, SX ENCLOSURE

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JOB IDENTIFICATION 0D6A6.AE

ABT 180298\9018	A	LABEL, ZAG ENCLOSURE
ABT 180298\9019	A	ZAG MANUFACTURING SPECIFICATION
ABT 180298\9020	A	SX ENCLOSURES
ABT 180298\9021	A	ZAG ENCLOSURES
ABT 180298\9022	A	SX MANUFACTURING SPECIFICATION
ABTF-90	A	SX INSTALLATION INSTRUCTIONS
ABTF-91	A	ZAG INSTALLATION INSTRUCTIONS

ATTACHMENTS: Label Drawing ABT 180298\9017, Revision A
Label Drawing ABT 180298\9015, Revision A
Label Drawing ABT 180298\9018, Revision A
Label Drawing ABT 180298\9016, Revision A
Report R51A4400A from Sira Test & Certification Limited
Sales Brochure SX Range
Sales Brochure ZAG Range

COPIES OF ORIGINAL DATA: See Blueprint File 0D6A6.AE

ORIGINAL FMRC DATA: See Blueprint File 0D6A6.AE

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