sira
Certification Service

1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: Sira99ATEX3171

4 Equipment: SX Range of Junction Boxes

5 Applicant: AB Controls & Technology

6 Address: Sanderson Street
Lower Don Valley
Sheffield
S9 2UA

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 confidential report number R51X6055C.

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 50 014:1997
EN 50 019:1994
EN 50281-1-1:1998

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment or protective system 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 2 G D or II 2 G
EEx e II T6 (Ta = –50°C to +60°C as applicable)

Project Number 51X6055
Date 24 February 2000
C. Index 04

M D Shearman
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Sira Certification Service is a service of Sira Test & Certification Ltd

SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE Sira99ATEX3171

13 **DESCRIPTION OF EQUIPMENT**

The SX range of Junction Boxes utilises an SX Enclosure to Sira99ATEX3170U fitted with an arrangement of suitably certified terminals.

The total dissipated power for the junction box shall be calculated in accordance with EN 50 019:1994, Annex C,C.2 and shall not exceed the values given in the table below:

SX Ref.	Group and Category	Length (mm)	Width (mm)	Height (mm)		Max Power Dissipation (W)	
				Min.	Max.	Ta = +40°C	Ta = +60°C
SX0	II 2 G D	229	152	140	500	19	Not Applicable
SX0.5	II 2 G D	274	184	140	500	22	Not Applicable
SX1	II 2 G D	324	234	140	500	29	Not Applicable
SX1.5	II 2 G D	306	306	140	500	32	Not Applicable
SX2	II 2 G D	324	372	140	500	36	Not Applicable
SX3	II 2 G D	448	372	140	500	42	Not Applicable
SX4	II 2 G D	510	372	140	500	44	Not Applicable
SX5	II 2 G D	510	510	140	500	50	Not Applicable
SX6	II 2 G D	780	510	140	500	57	Not Applicable
SX7	II 2 G D	950	650	140	500	68	Not Applicable
SX8	II 2 G D	1250	800	140	500	119	Not Applicable
SX225	II 2 G	2000	2000	140	500	359	103
SX45	II 2 G D	114	114	51 (Nominal)		8	Not Applicable
SX64	II 2 G D	152	102	63 (Nominal)		10	Not Applicable
SX66	II 2 G D	152	152	102 (Nominal)		14	Not Applicable

Junction boxes may also be manufactured to sizes not specified in this table. This assumes that any given dimension is not larger than the respective dimension of the largest enclosure or smaller than the respective dimension of the smallest enclosure. The power rating applied to a junction box of intermediate size is that of the next smallest enclosure.

The enclosure joints are sealed by closed cell polychloroprene, neoprene bonded cork or closed cell silicone rubber gaskets. The ambient temperature range of the junction boxes is extended to –50°C when closed cell silicone rubber gaskets are used on the lid and neoprene bonded cork gaskets on the gland plates.

Junction boxes larger than SX8 have an ingress protection rating of IP54 and are not marked as suitable for use in the presence of combustible dust.

Cable entries may be provided either through gland plates or directly into the box and threaded bosses for cable entries may be provided welded, brazed or soldered into position.

Internal and external earthing facilities are provided.

Date 24 February 2000

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE

Sira99ATEX3171

14 **DESCRIPTIVE DOCUMENTS**

14.1

Drawing No.	Rev.	Sheet	Date	Title
ABT 10258	1 of 1	A	21 Dec 99	External label (SX) Maximum Box Size S8
ABT 10302	1 of 1	A	16 Nov 99	SX Manufacturing specification

14.2 Report No. R51X6055C

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

None

16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSR'S)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in Report No. R51X6055C.

17 **CONDITIONS OF CERTIFICATION**

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

17.2 When the junction boxes are equipped with terminals by the manufacturer, 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: EN 60947
- measurement, control and laboratory use: EN 61010

17.3 The marking of the ambient temperature range and the power rating on the certification label shall be allocated in accordance with the table of values detailed in section 13 of this certificate.

17.4 This certificate does not cover terminals that may be fitted to the enclosure. All terminals fitted must be suitably certified and installed in accordance with their certificate conditions and the relevant codes of practice/wiring regulations. The limiting temperature of the terminal insulation shall be at least 100°C.

17.5 Suitably certified Ex e equipment such as breathing devices and blanks may be fitted to the enclosure providing the enclosure maintains compliance with BS EN 60529:1992 code IP64 or better.

Date 24 February 2000

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated	24 February 2000
VARIATION NUMBER	1 (ONE)	Dated	10 April 2001

VARIATION TO EQUIPMENT

To permit:

1 The maximum ambient temperature to be raised with a corresponding reduction in power dissipation, in addition, the range of temperature options has also been increased as shown below:

SX Ref.	Group and Category	Length (mm)	Width (mm)	Height (mm)		Max Power Dissipation (W)			
				Min.	Max.	Ta = +40°C	Ta = +55°C	Ta = +60°C	Ta = +65°C
SX0	II 2 G D	229	152	140	500	19	3.34	2.23	1.84
SX0.5	II 2 G D	274	184	140	500	22	3.9	2.8	2.1
SX1	II 2 G D	324	234	140	500	29	4.97	3.86	2.7
SX1.5	II 2 G D	306	306	140	500	32	5	4	2.8
SX2	II 2 G D	324	372	140	500	36	5.64	4.23	2.88
SX3	II 2 G D	448	372	140	500	42	5.9	4.1	3
SX4	II 2 G D	510	372	140	500	44	6.1	4.36	3.19
SX5	II 2 G D	510	510	140	500	50	9.35	6.19	4.2
SX6	II 2 G D	780	510	140	500	57	10.1	7.97	5.6
SX7	II 2 G D	950	650	140	500	68	17.14	9.36	6.67
SX8	II 2 G D	1250	800	140	500	119	15.95	15.17	10.74
SX225	II 2 G	2000	2000	140	500	359	NA	103	NA
SX45	II 2 G D	114	114	51 (Nominal)		8	1.65	1.28	1.57
SX64	II 2 G D	152	102	63 (Nominal)		10	0.7	0.5	0.3
SX66	II 2 G D	152	152	102 (Nominal)		14	2	1.9	1.5

DESCRIPTIVE DOCUMENTS

None

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No 53A6747

Report No. R53A6747A

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated Re-issued	24 February 2000 1 February 2005
VARIATION NUMBER	2 (TWO)	Dated	29 August 2001

VARIATION TO EQUIPMENT

To permit:

1 The range of junction boxes to include a high temperature version that has the certification code EEx e II T3 (Ta = -40°C to +175°C); this version is fitted with silicone rubber gaskets and incorporates Phoenix Type SSK 0525 Ker-Ex ceramic terminals that are covered by certificate number BAS Ex 90C3200U.

The following maximum power dissipation figures apply to the high temperature version (Note - the total dissipated power for the high temperature junction box shall be calculated in accordance with EN 50 019:1994, Annex C,C.2 and shall not exceed the values given in the table below):

SX Ref.	Group and Category	Length (mm)	Width (mm)	Height (mm)		Max Power Dissipation (W)
				Min.	Max.	Ta = +175°C
SX0	II 2 G D	229	152	140	500	1.84
SX0.5	II 2 G D	274	184	140	500	2.1
SX1	II 2 G D	324	234	140	500	2.7
SX1.5	II 2 G D	306	306	140	500	2.8
SX2	II 2 G D	324	372	140	500	2.88
SX3	II 2 G D	448	372	140	500	3
SX4	II 2 G D	510	372	140	500	3.19
SX5	II 2 G D	510	510	140	500	4.2
SX6	II 2 G D	780	510	140	500	5.6
SX7	II 2 G D	950	650	140	500	6.67
SX8	II 2 G D	1250	800	140	500	10.74
SX225	II 2 G	2000	2000	140	500	Not applicable
SX45	II 2 G D	114	114	51 (Nominal)		1.57
SX64	II 2 G D	152	102	63 (Nominal)		0.3
SX66	II 2 G D	152	152	102 (Nominal)		1.5

2 The option to add an 8mm minimum thickness glass window fitted to the inside wall of the enclosure.

3 The option to fit flameproof plugs and sockets, coded EEx de, through the walls of the enclosure on any of the range of junction boxes.

4 The modification and addition of the conditions of certification.

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated Re-issued	24 February 2000 1 February 2005
VARIATION NUMBER	2 (TWO)	Dated	29 August 2001

DESCRIPTIVE DOCUMENTS

Drawing No	Sheet	Rev	Date	Description
ABT 11319	1 of 1	A	04 Jul 01	External Label (SX) High Temperature Boxes
ABT 10302	1 of 1	B	05 Aug 01	SX Manufacturing Specification

CONDITIONS OF CERTIFICATION

The following conditions are modified:

17.3 The marking of the ambient temperature range and the power rating on the certification label shall be allocated in accordance with the table of values detailed in relevant data included in this variation or variation one.

17.4 This certificate does not cover terminals that may be fitted to the enclosure. All terminals fitted shall be either suitably certified to the ATEX Directive 94/9/EC or certified as BAS Ex 90C3200U. In addition, all terminals shall be installed in accordance with their certificate conditions and the relevant codes of practice/wiring regulations. The limiting temperature of the terminal insulation shall be at least either 100°C or 200°C in the case of the high temperature versions.

The following conditions are added:

17.6 The glass window shall not be fitted in the junction boxes that have a maximum service temperature in excess of 80°C.

17.7 This certificate relies on the following previously certified products. When used as part of the SX Range of Junction Boxes, the key attributes listed in the table below shall still be maintained by their original certificate.

Description	Certificate No	Key attributes
Phoenix Type SSK 0525 Ker-Ex Terminals	BAS Ex 90C3200U	The creepage and clearance distances defined by its EEx e II certification coding

17.8 When the junction boxes are fitted with Phoenix Type SSK 0525 Ker-Ex Terminals, then a dielectric strength test at 1836 V shall be applied between each adjacent terminal and between each terminal and earth in accordance with clause 6.1 of EN 50019:1994.

17.9 When plugs and sockets are fitted that are certified as EEx de, then the marking of the junction boxes shall include the symbol d and the gas group IIA, IIB or IIC as defined by the plug and socket.

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated Re-issued	24 February 2000 1 February 2005
VARIATION NUMBER	2 (TWO)	Dated	29 August 2001

17.10 This certificate does not cover plugs and sockets that may be fitted to the enclosure. All plugs and sockets fitted shall be appropriately designed and certified to the ATEX Directive 94/9/EC for this type of apparatus. In addition, they shall:

- be suitable for the intended temperature range of the junction box
- have a minimum Ingress Protection of IP54 or IP64 if the boxes are marked with the symbol D indicating that they are suitable for use in the presence of combustible dust
- have a declared power dissipation rating or contact resistance
- be installed in accordance with their certificate conditions and the relevant codes of practice/wiring regulations

When plugs and sockets are fitted the creepage and clearance distances shall maintain compliance with EN 50019: 1994: Table 1 requirements.

Re-issued 1 February 2005 to correct a typographical error

File No 51V12987

Report No. R53A7998A

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated	24 February 2000
VARIATION NUMBER	3 (THREE)	Dated	28 September 2001

VARIATION TO EQUIPMENT

To permit:

1 A minor revision of the information marked on the label.

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
ABT 10258	1 of 1	B	20 July 01	External Label (SX) Maximum Box Size S8

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No 53V7936

Report No. NA

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated	24 February 2000
VARIATION NUMBER	4 (FOUR)	Dated Latest Issue	6 August 2004 18 July 2006

VARIATION TO EQUIPMENT

To permit:

1 The introduction of an alternative assembly that comprises an SX6/200 enclosure fitted with an arrangement of Weidmuller terminals and Raychem BTV trace heating cable that is used as an anti-condensation heater and is self-limiting at 85°C. The terminals are as follows:

- Three pairs of linked Weidmuller SAKG 32 11 terminal that are rated at 108 A per pair.
- One pair of Weidmuller SAKG 32 11 terminals for neutral connections.
- One pair of Weidmuller SAK 2..5 terminals for heater connections
- A Weidmuller EK 4 earth terminal

All the terminals are suitably certified in accordance with clause 17.11 in the conditions of certification.

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
ABT 12713	1 of 1	A	28 Feb 03	SX6 with T6 Anti-Condensation Heater

CONDITION OF CERTIFICATION

The following condition is added:

17.11 This certificate relies on the following previously certified products. When used as part of the SX6/200 with anti-condensation heater, the key attributes listed in the table below shall still be maintained by their original certificate.

Description	Certificate No	Key attributes
Weidmuller SAK terminal	BAS Ex 813092U	EEx e II
Weidmuller SAKg terminal	BAS Ex 813093U	EEx e II
Raychem BTV	BAS 99ATEX2338X	EEx e II T6

Re-issued 18 July 2006 to correct the number of the condition of certification.

File No 53V9717

Report No. NA

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated	24 February 2000
VARIATION NUMBER	5 (FIVE)	Dated	23 September 2004

VARIATION TO EQUIPMENT

To permit:

1 The recognition of a change of issue of a drawing that was amended in variation 2 of Sira 99ATEX3170U.

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
ABT 10302	1 of 1	C	04 Jul 02	SX Manufacturing Specification

ADDITIONAL CONDITIONS OF CERTIFICATION

None

File No. 53V11576

Report No. V53V11576A

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated	24 February 2000
VARIATION NUMBER	6 (SIX)	Dated Latest Issue	30 March 2005 18 July 2006

VARIATION TO EQUIPMENT

To permit:

1 The introduction of alternative marking that allows component certified, intrinsically safe terminals, the following, additional marking being applicable:

EEx ia IIC T6 (Ta = -50°C to +40°C)	EEx ib IIC T6 (Ta = -50°C to +40°C)
EEx ia IIC T6 (Ta = -50°C to +55°C)	EEx ib IIC T6 (Ta = -50°C to +55°C)
EEx ia IIC T6 (Ta = -50°C to +60°C)	EEx ib IIC T6 (Ta = -50°C to +60°C)
EEx ia IIC T6 (Ta = -50°C to +65°C)	EEx ib IIC T6 (Ta = -50°C to +65°C)
EEx ia IIC T3 (Ta = -50°C to +175°C)	EEx ib IIC T3 (Ta = -50°C to +175°C)

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date	Description
ABT 14841	1 of 1	-	01 Feb 05	SX Range EEx ia Label
ABT 14844	1 of 1	-	01 Feb 05	SX Range EEx ib Label

ADDITIONAL CONDITIONS OF CERTIFICATION

17.12 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.

Re-issued 18 July 2006 to correct the number of the condition of certification.

File No. 53V10438

Report No. R53V10438A

Form 9206 Issue 3

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EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated	24 February 2000
VARIATION NUMBER	7 (SEVEN)	Dated	16 March 2006

VARIATION TO EQUIPMENT/COMPONENT

To permit:

1 The inclusion of reinforcement, as required, to the inside or outside of the enclosure to withstand possible submersion pressures.

DESCRIPTIVE DOCUMENTS

Number	Sheet	Rev	Date (Sira stamp)	Description
ABT 10302	1 of 1	D	16 Mar 06	SX Manufacturing Specification
ABT 10371	1 of 1	B	16 Mar 06	SX Range of Enclosures

ADDITIONAL CONDITIONS OF CERTIFICATION

None.

File No. 51V14842

Report No. R51V14842A

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Form 9206 Issue 3

EC TYPE-EXAMINATION CERTIFICATE VARIATION

CERTIFICATE NUMBER	Sira 99ATEX3171	Dated	24 February 2000
VARIATION NUMBER	8 (EIGHT)	Dated	15 August 2006

VARIATION TO EQUIPMENT

To permit:

1 A suitably certified and dimensioned heater to be fitted, this heater is defined as "Any suitably certified and dimensioned heater that is fitted with a thermostat set to a maximum of 25°C".

DESCRIPTIVE DOCUMENTS

Drawing	Sheet	Rev.	Date (Sira Stamp)	Description
ABT10302	1 of 1	D	11 July 2006	Manufacturing Specifications

ADDITIONAL CONDITIONS OF CERTIFICATION

17.13 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.

File No. 51A15308A

Report No. R51A15308A

Form 9206 Issue 3

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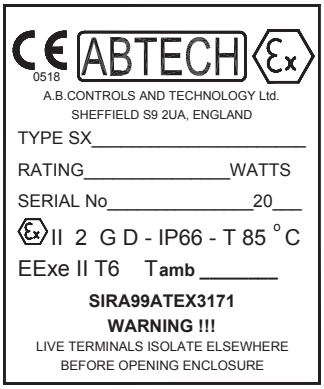
, OPERATION & MAINTENANCE INSTRUCTIONS FOR ABTECH 'SX' RANGE TERMINAL BOXES – SIRA99ATEX3171



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____.

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 (for size S64 upwards) or for M6 fixing studs for size S45.
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) Install and secure the cable glands in accordance with the manufacturers instructions.
5) 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.
6) Terminate the cables in the terminals provided in accordance with the requirements of BS EN 60079-14:1997. Consideration must be given to any use limitations or special conditions detailed on the certificates for the terminals fitted.
7) Secure the lid by closing the lid and tightening the lid fixing screws and ensure that all gland plate securing screws are tightened.
8) For additional security a padlock may be fitted to all box sizes larger than and including size S0.

Earthing/Grounding

All S range enclosures are 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.

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.

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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 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	Every 3 years
5	Check the security of all cable glands	Every 3 years
6	Check the enclosure for damage	Every 3 years
7	Check that all screw clamp terminals are secure	As manufacturers recommendation

Chemical attack
The ABTECH S range enclosures are available in mild steel or 316 stainless steel. The following additional material are also used :-

Neoprene or silicone rubber,
Brass.

If the enclosure is of mild steel it may be zinc plated prior to painting. The standard paint finish is epoxy polyester grey hammer.

Stainless steel enclosures are not painted except to customer specifications.

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
S range enclosures do not present a hazard from static electricity.

Vibration
SX 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.

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