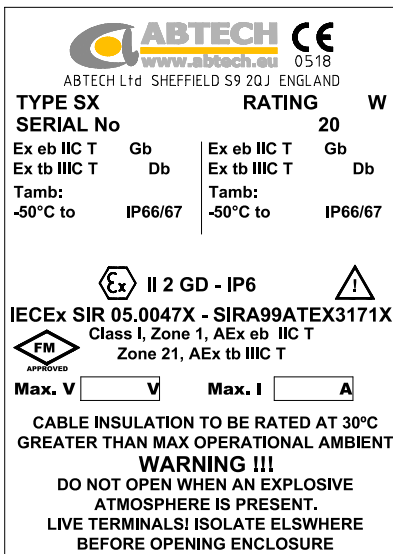


# INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR ABTECH 'SX' RANGE TERMINAL BOXES

IECEX SIR 05.0047X

Sira 99ATEX3171X

FM 3049212




## 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 \_\_\_\_\_ W.

The ambient temperature range for which this product is suitable is marked on the label and identified by Tamb ..... (°C)

The T rating is variable depending on ambient temperature range and power dissipation. See page 2/3 of these instructions for details.

Enclosures with windows are limited to a maximum operating temperature of +80°C and a minimum ambient temperature of -40°C.

**Note:** The symbol  is not always present. When it is present the installer must take particular note of these instructions.

## Alternative markings for temperature ratings:

'T' rating	Ambient temperature range	T??°C for dust	'T' rating	Ambient temperature range	T??°C for dust
T6	-50°C ≤ Ta ≤ +40°C	T85°C	T6	-50°C ≤ Ta ≤ +65°C	T85°C
T6	-50°C ≤ Ta ≤ +55°C	T85°C	T3	-50°C ≤ Ta ≤ +80°C	T200°C
T6	-50°C ≤ Ta ≤ +60°C	T85°C	T3	-50°C ≤ Ta ≤ +175°C	T200°C

## Note

The ambient temperature range identified on the certification label refers to the enclosure and the terminals fitted within. It does not necessarily refer to the permitted temperature range of any cable entry devices that may be fitted. The user must check that the cable entry devices fitted are suitable for the lowest ambient temperature marked on the certification label and for the maximum permitted operating temperature ('T' rating). When the box is marked T3 the cable insulation must be suitable for a minimum of +190°C. Windows and plugs and sockets are not permitted in boxes marked T3.

The IP rating identified on the certification label refers only to the enclosure. The user must ensure that the cable entry devices fitted provide an equivalent degree of protection when installed in accordance with their manufacturer's instructions.

## Installation

These instructions assume that the required cable entries have been pre-drilled. Cable entries may be threaded. Entries may be provided on site by a competent person. Clearance entries must not exceed the major thread diameter by more than 0.5mm.

**Before installation** check the permitted operating temperature range of the terminals against the minimum ambient temperature of the box and the T rating of the box. Unsuitable terminals must be replaced prior to cable termination.

- 1) Using the mounting dimensions 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 M10 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 manufacturer's 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) Where slotted trunking has been supplied (solid trunking is not permitted) ensure that it is suitable for the proposed T classification of the final certified product. Where the T6 is the proposed rating and no windows are fitted any polymeric or metallic slotted trunking may be used. For other T classifications and where a window is fitted metallic slotted trunking must be used. Trunking may be mounted in any orientation in the box, vertically, horizontally or diagonally.
- 7) When laying cables into trunking; No more than 50% of the trunking internal area shall be occupied by conductors, when instrumentation currents of 1A or less are carried. All cabling used must be capable of carrying a minimum of 3A.
- 8) For cables carrying more than 1A - No more than 25% of the trunking internal area shall be occupied by conductors, these shall be de-rated to a maximum of 4A /sq mm. All cabling used must be capable of carrying a minimum of 10% higher current than the rating required
- 9) Terminate the cables in the terminals provided in accordance with the requirements of BS EN 60079-14. Consideration must be given to any use limitations or special conditions detailed on the certificates for the terminals fitted.
- 10) Secure the lid by closing the lid and tightening the lid fixing screws and ensure that all gland plate securing screws are tightened.
- 11) For additional security a padlock may be fitted to all box sizes larger than and including size S0.

**NOTE:** If the terminals provided with the enclosure are changed either in type or in quantity the terminal box certification may become invalid. Advice from ABTECH is recommended before any changes are made.

### **Earthing/Grounding**

- 12) All SX range enclosures are provided with an internal and external earthing/grounding facility. This must be connected to the appropriate earth/ground bonding circuit before electrical power is connected to the contents of the enclosure.
- 13) An equipotential bonding connection is provided between the lid and the box. Care must be taken to ensure this is not damaged during installation or maintenance. It must be disconnected if the lid is to be lifted from its hinges. For lids without hinges the weight of the lid must not be supported by this connection.
- 14) An equipotential bonding connection is provided between the box any removable gland plates. Care must be taken to ensure this is not damaged during installation or maintenance. It must be disconnected if the gland plate it to be removed. The weight of the gland plate must not be supported by this connection.

### **Operation**

- 15) The lid must be secured using all the lid screws provided in order to maintain the IP rating.
- 16) No attempt must be made to remove the enclosure lid securing screws whilst electrical power is connected to the contents of the enclosure.
- 17) The earthing/grounding facility must be connected to the earth bonding circuit at all times when electrical power is connected to the enclosure.

### **Maintenance**

- 18) 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.
- 19) 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 lid earth strap is not frayed or damaged and is secure at both ends	Each time the enclosure is opened
5	Check lid earth strap continuity (hot work permit may be required)	Every 3 years
6	Check that the mounting bolts are tight and free of corrosion	Every 3 years
7	Check the security of all cable glands	Every 3 years
8	Check the enclosure for damage	Every 3 years
9	Check that all screw clamp terminals are secure	As manufacturers recommendation

### **Chemical attack**

The ABTECH SX range enclosures are available in EN1.444 (316L) stainless steel. The following additional materials are also used:

Silicone rubber (seals and gaskets)

316 (A4) stainless steel (fasteners and earth/ground stud)

Brass (alternative material for the fasteners and earth/ground stud)

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**

SX 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.

### **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.

### **Specific Conditions of Use:**

- 1) Only Certified Suitably Rated NRTL Listed AEx terminals may be used.
- 2) The SX range of Junction boxes utilize a SX Enclosure fitted with suitably rated NRTL Listed AEx terminals. The total dissipated power for the particular application will be calculated in accordance with ANSI/ISA 60079-7:2013 Appendix E and will not exceed the values given in the table below.

SX Ref	Max Power Dissipation (W) Temperature Class, Max Surface Temperature for Gas and Dust and Ta Max.							
	T6 & T85°C				T5 & T100°C			
*Maximum Surface Temperature	+40°C	55°C	60°C	65°C	+55°C	70°C	75°C	80°C
**Maximum Ambient								
SX0	19	3.34	2.23	1.84	19	3.34	2.23	1.84
SX0.5	22	3.9	2.8	2.1	22	3.9	2.8	2.1
SX1	29	4.97	3.86	2.7	29	4.97	3.86	2.7
SX1.5	32	5	4	2.8	32	5	4	2.8
SX2	36	5.64	4.23	2.88	36	5.64	4.23	2.88
SX3	42	5.9	4.1	3	42	5.9	4.1	3
SX4	44	6.1	4.36	3.19	44	6.1	4.36	3.19
SX5	50	9.35	6.19	4.2	50	9.35	6.19	4.2
SX6	57	10.1	7.97	5.6	57	10.1	7.97	5.6

SX Ref (cont.)	Max Power Dissipation (W) Temperature Class, Max Surface Temperature for Gas and Dust and Ta Max.							
*Maximum Surface Temperature	T6 & T85°C				T5 & T100°C			
**Maximum Ambient	+40°C	55°C	60°C	65°C	+55°C	70°C	75°C	80°C
SX7	68	17.14	9.36	6.67	68	17.14	9.36	6.67
SX8	119	15.95	15.17	10.74	119	15.95	15.17	10.74
SX225	359	NA	103	NA	359	NA	103	NA
SX45	8	1.65	1.28	1.57	8	1.65	1.28	1.57
SX64	10	0.7	0.5	0.3	10	0.7	0.5	0.3
SX66	14	2	1.9	1.5	14	2	1.9	1.5

SX Ref	Max Power Dissipation (W) Temperature Class, Max Surface Temperature for Gas and Dust and Ta Max.						
*Maximum Surface Temperature	T4 & T135°C				T3 & T200°C		
**Maximum Ambient	+80°C	60°C	80°C	60°C	80°C	80°C	175°C
SX0	19	3.34	2.23	1.84	3.34	2.23	1.84
SX0.5	22	3.9	2.8	2.1	3.9	2.8	2.1
SX1	29	4.97	3.86	2.7	4.97	3.86	2.7
SX1.5	32	5	4	2.8	5	4	2.8
SX2	36	5.64	4.23	2.88	5.64	4.23	2.88
SX3	42	5.9	4.1	3	5.9	4.1	3
SX4	44	6.1	4.36	3.19	6.1	4.36	3.19
SX5	50	9.35	6.19	4.2	9.35	6.19	4.2
SX6	57	10.1	7.97	5.6	10.1	7.97	5.6
SX7	68	17.14	9.36	6.67	17.14	9.36	6.67
SX8	119	15.95	15.17	10.74	15.95	15.17	10.74
SX225	359	NA	103	NA	NA	103	NA
SX45	8	1.65	1.28	1.57	1.65	1.28	1.57
SX64	10	0.7	0.5	0.3	0.7	0.5	0.3
SX66	14	2	1.9	1.5	2	1.9	1.5