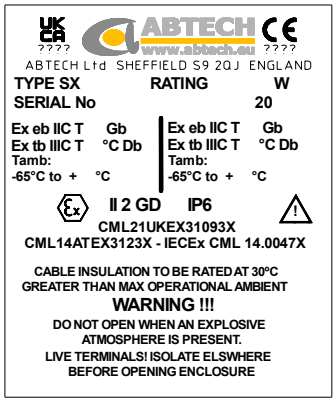
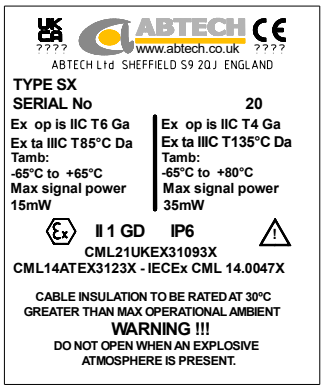
Installation, Operation & Maintenance Instructions For Abtech 'SX' Range Terminal Boxes to CML 21UKEX31093X, CML14ATEX3123X and IECEx CML 14.0047X





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 ……. (°C). (Markings shown left are examples only).
The 'T' rating is variable depending on ambient temperature range and power dissipation. This rating must be equal to or better than the 'T' rating assigned to the hazardous area in which it is installed.

The Ex eb marking may be replaced by Ex ia or Ex ib. Enclosures marked Ex ia or Ex ib may only be used for terminating appropriate intrinsically safe circuits. None-IS electrical circuits are not permitted in boxes marked Ex ia or Ex ib.

Boxes marked Ex eb may be used to terminate Ex ib and none-IS circuits, subject to a minimum circuit separation of 50mm.

Additional or alternative marking may be present relating to the connection of optical fibres.
Where the marking includes Ex op is (see left) the optical signal strength must not exceed the following maximums:
For a box marked T6 the maximum optical signal strength is 15mW.
For a box marked T4 the maximum optical signal strength is 35mW.
For marking including Ex op pr the maximum optical signal strength is 100mW and the ambient temperature range in limited from -40°C to +60°C.

The marking 'op is' or 'op pr' may be preceded by 'eb', 'ia' or ib' or stand alone.
When 'op is' is preceded by 'ia' the EPL for gas will be Ga and for dust Da. See Special Conditions for Safe Use.
When 'op pr' is preceded by 'ia' the EPL for gas will be Gb and for dust Db. See Special Conditions for Safe Use.

Enclosures with windows are limited to a maximum operating temperature of +80°C (i.e. rated T6 only) and a minimum ambient temperature of -40°C.

The gas group IIC marking may be replaced by IIB marking. When marked IIC the maximum coating thickness is 200 microns. When marked IIB the maximum coating thickness is 2.0mm. If the coating is conductive these thickness limitations do not apply.

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

Special condition of safe use

When used in an EPL ta (Da) application the power supply to the equipment is to be rated for a prospective short circuit current of not more than 10kA.
When the protection concept Ex op is is included, the optical signal source supplying the fibre in this equipment shall be suitably certified as compliant with EN60079-28:2006 or later and provide an inherently safe optical source (op is), EPL Gb, subsequently following the parameters listed below:

T6 & T85°C (Ta = +65°C max.)
The 'op is' is used with or without terminals.
The optical source maximum signal strength is limited to 15mW and a maximum irradiance of 5mW/mm² (surface area not exceeding 400mm²).

T4 & T135°C (Ta = +80°C max.)
The 'op is' is used without terminals.
The optical source maximum signal strength is limited to 35mW and a maximum irradiance of 5mW/mm² (surface area not exceeding 400mm²).

When the protection concept Ex op pr is included the only permitted connection method is a fused connection secured in an Ex op pr certified cassette to prevent damage.

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Alternative markings for temperature ratings (when fitted with terminals):

T6 with Tamb range of -50°C ≤ Ta ≤ +40°C and T85°C for dust Warning – Cable temperature can reach 85oC	T6 with Tamb range of -50°C ≤ Ta ≤ +65°C and T85°C for dust Warning – Cable temperature can reach 135°C
T6 with Tamb range of -50°C ≤ Ta ≤ +55°C and T85°C for dust Warning – Cable temperature can reach 100oC	T3 with Tamb range of -50°C ≤ Ta ≤ +80°C and T200°C for dust Warning – Cable temperature can reach +200°C
T6 with Tamb range of -50°C ≤ Ta ≤ +60°C and T85°C for dust Warning – Cable temperature can reach 135°C	T3 with Tamb range of -50°C ≤ Ta ≤ +175°C and T200°C for dust Warning – Cable temperature can reach 200°C

The marked minimum ambient temperature may be extended below -50°C to match the minimum operating temperature detailed on the 'Ex' certificate for the terminals installed. The minimum permitted for the enclosure is -65°C

WARNING!
If the marking is extended below -60°C, no work may be performed on the junction box until the ambient temperature is at least -60°C.

NOTE:
All cable, cable entry devices and terminals used must be suitable for the minimum ambient temperature expected and the maximum operational temperature expected. Where high ambient temperature is expected the cable insulation must be suitable for a minimum of +190°C.
Windows and plugs and sockets are not permitted in boxes so marked.
All cable glands must be Ex e or Ex d certified and rated IP66 as a minimum to provide adequate resistance against cable pulling and adequate protection against the ingress of dust.

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.

   NOTE:
   If the weight of the box at this point of the installation process exceeds 18kg assistance must be sought.

   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. Ensure that all cable glands are tightened in accordance with the manufacturer's instructions.
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.

   NOTE:
   Where an anti-condensation heater is fitted, the thermostat setting does not exceed +35°C to prevent the effective ambient temperature rising above +35°C. If the 'T' rating of the heater exceeds the 'T rating marked on the terminal box label the heater thermostat must be mounted vertically higher than the heater but not higher than the lowest terminal. If terminals are to be added for whatever reason they must be mounted higher than the thermostat or have a certified maximum operating temperature equal to or higher than the 'T' rating of the heater.

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10) Optical fibres carrying op is signals may be joined using bulkhead connectors and/or fused joints installed in cassettes. Optical fibres carrying signals which do not meet the op is limitations must be joined by fusing and the fused joints then secured in the Ex op pr certified cassette. The attention of the installer is drawn to the installation, operation and maintenance instructions provided by the manufacturer of the Ex op pr certified fibre cassette. When such a cassette is provided by ABTECH a copy of the relevant instructions will append, and form part of, this document.

11) Secure the lid by closing the lid and tightening the lid fixing screws and ensure that all gland plate securing screws are tightened.

12) For additional security a padlock may be fitted to all box sizes larger than and including size S0.

N**OTE: 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

13) 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.

14) An earth connection between the lid and the box is provided. Care must be taken to ensure this is not damaged during installation or maintenance.

Operation

15) The lid must be secured using all the lid screws provided to maintain the IP rating.

16) No attempt must be made to remove the enclosure lid whilst electrical power is connected to the contents of the enclosure.

17) The earthing/grounding facility must be connected to the earth bonding circuit 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
10	When the enclosure contains Ex op pr connections, check that the incoming fibre is not under any tensile stress, that the fibres are not damaged and that no escape of optical radiation can be detected inside the enclosure.	After one year initially, then every 3 years and each time the enclosure is opened.

Chemical Attack

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

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.

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 are no foreseeable faults.

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