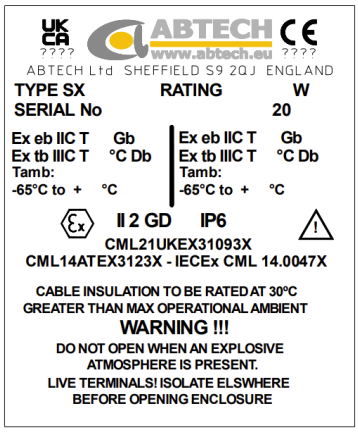
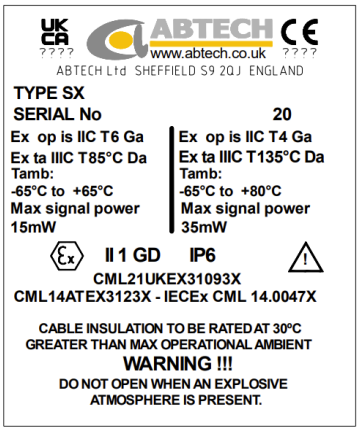
Installation, Operation, Maintenance:
SX RANGE (APPARATUS)

Certification Details			
ATEX:	ABTECH Ltd.	Ⓔx II 2 GD	CML 14ATEX3123X
UKEX:	ABTECH Ltd.	Ⓔx II 2 GD	CML 21UKEX31093X
IECEx:	ABTECH Ltd.	Ex eb IIC Gb	IECEx CML 14.0047X





Marking
The marking shown is for an equipment 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 (refer to Table 1 of the certificate). 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. Non-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 non-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
The following conditions relate to safe installation and/or use of the equipment.

i. When the equipment ambient temperature is lower than -60°C, the equipment shall not be opened or worked on.

ii. When used for Ex ia, Ex ib and Ex ta applications, over-power fault protection shall be provided and shall take into account the 'EPL' fault requirements necessary: Ex ia - Two countable faults is to be applied to the current and/or voltage limiter. Ex ib or Ex ta - Gb and Da applications - One countable fault is to be applied to the current and/or volt age limiter.

iii. When used for Ex ia or Ex ib applications an anti-condensation heater may only be fitted when space permits the separation of the heater power conductors from the Ex ia or Ex ib conductors by a minimum of 50 mm.

iv. When fitted with 'op pr' splice case, the fibre cable outside the enclosure shall be installed such, that mechanical damage is prevented.

v. When marked 'Ex op is', the fibre optic source supplying this equipment shall be suitably certified as compliant with EN 60079-28:2015 and provide an inherently safe optical source (op is), EPL Gb, subsequently the parameters in Table 2 of the certificate description apply.

vi. When marked 'Ex eb op pr', the fibre connectors contained within the increased safety enclosure must not be separated whilst energised if an explosive atmosphere may be present.

vii. If not used, fibre connectors within the increased safety enclosure must have dust covers fitted.

viii. The fibre cables entering or exiting the increased safety enclosure must be suitably protected from breakages and satisfy the requirements of EN 60079-28 'op pr'.

ix. When the enclosure is provided with busbar arrangements, they shall be installed in accordance with the user instructions only.

x. Wave Division Multiplexer can only be fitted in T6 rated terminal boxes.

Notes:
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.
Cable insulation is to be rated at 30°C greater than the maximum operational ambient temperature.
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.
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 with their manufacturer's instructions.

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Installation
These instructions assume that the required cable entries have been pre-drilled.

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 M10 fixing studs (for size SX64 upwards) or for M6 fixing studs for size SX45.

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 service temperature of the enclosure. 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 / mm^2. 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 and therefore does not impact the maximum power dissipation rating of the enclosure.

10) Optical fibres carrying Ex 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 screws. Ensure that all gland plate securing screws are tightened. The lid myst be secured using all of the fixing screws to the define torque rating. Threads for all fixing screws should be greased with EP2 Lithium Grease, or equivalent, to prevent galling.

Torque Ratings for Lid Fixings and Gland Plates	
1.5Nm Minimum	2.0Nm Maximum

12) For additional security a padlock may be fitted to all hinged box sizes larger than and including size SX0.

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

13) All SX 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 of 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 SX 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 reccomendation
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 intially, then every 3 years and each time the enclosure is opened.

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Chemical Attack

The ABTECH SX 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

The SX range do not normally present a hazard from static discharge. Ensure that the marking is appropriate to the gas group as this may be affected by a client specified coating thickness.

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.