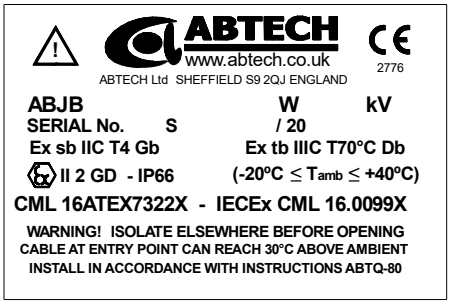
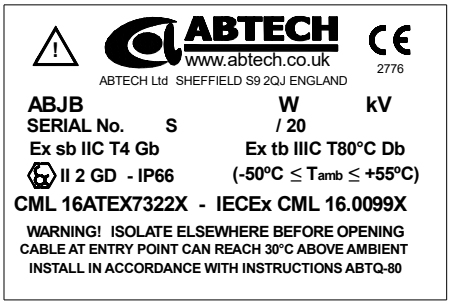
INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR ABTECH 'ABJB' series – CML16ATEX7322X and IECEx CML 16.0099X These instructions must be read in conjunction with these certificates.



Marking (standard temperature)

The maximum power dissipation and voltage permitted in this terminal box are marked on the label and identified as __W and __kV. The ambient temperature range for which this product is suitable is –20˚C to +40˚C and the marking need not be included.

The IP66 rating is an example and may read IP66, IP67 or IP68.



Marking (high operating temperature)

When the extended ambient temperature range applicable the ambient temperature marking is –50ºC to +55°C

In either case, 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.

ABJB125 Side Compartment Marking

Where the marking includes Ex op is (see left) the optical signal strength must not exceed 35mW. Where the marking is T4 / T70°C the maximum ambient temperature range is -50 to 40ºC, and for T4 / T80°C is -50 to 55ºC.

Where the marking includes Ex op pr the maximum optical signal strength is 100mW. Where the marking is T4 / T70°C the maximum ambient range is -40 to 40ºC, and for T4 / T80°C is -40 to 55ºC.

The marking 'op is' or 'op pr' may be preceded by 'eb' if the compartment also contains Ex eb terminals.

Installation

Note: When this product is to be used in high operating temperature mode the cable insulation material must be suitable for that operating temperature.

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.
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: *When lifting eyebolts are provided note the limits given on the instruction document ABTQ-231.*

   Ensuring that the box is secure, insert and tighten the bottom two studs. Now complete tightening the top two studs.
4) Unfasten the lid securing screws and remove the enclosure lid. Put the lid in a safe place.
5) Install and secure the cable glands in accordance with the manufacturer's instructions.

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Main Power Cable Connections

6) Remove the top half on each power core cable clamp and put safely aside.
7) Remove the terminal post lock nuts, washers and the upper current bars and put safely aside.
8) Pull the cables into the box leaving trailing leads long enough to reach their respective crimp lugs after routing through the cable clamps.
9) Trim each cable core so that the conductor end will reach the inside stop of the crimp lug on which it is to be terminated.
10) Strip the insulation of each cable core by the length of the crimping barrel plus 2mm.
11) Remove each crimping lug in turn from the terminal post and place the securing nuts to one side.
12) Insert the conductor into the crimp lug barrel, ensuring that all strands of the conductor enter the barrel. This will ensure that minimum clearance distances are not compromised by stray strands.
13) Crimp each lug onto the respective conductor using Cembre die sets or equivalent. Ensure that the crimp die set used is suitable for the conductor size and is not damaged or excessively worn. The crimp die set may produce either a hexagon type crimp or an indent type crimp. With hexagon die sets execute at least two crimps on each lug.

    NOTE: *If the crimp lug is damaged during installation a replacement should be purchased from either ABTECH, Cembre (+44 (0)1675 470440, or one of their stockists). If the site engineer requires to source from a local supplier, then that engineer will be responsible for ensuring that the crimp lug and its associated crimping tool comply with BS EN 31238-1:2003.*
14) Route the cable core through the appropriate cable clamp and place the hole in the palm of the now attached cable lug on to its respective terminal post, on top of the lower current bar.
15) Where the conductors to be connected are of different sizes the lugs will be of different thickness. Bring the thinner lug to the same thickness as the thicker lug buy using tinned or freshly cleaned copper washers.
16) Replace the upper current bar.
17) Apply a small amount of high temperature grease to the stud thread, just sufficient to wet the surface then secure the current bar and cable clamp assembly in place with the flat washer, spring washer and two locknuts provided. Ensure that the spring washer is fully compressed by the first lock nut then, using a spanner***** to secure the locknut under the lower current bar, apply the torque detailed in the following table, applicable to the stud size being used:

Crimp lug Screw Size	Torque (Nm)	
	Minimum	Maximum
M10	17.5	19.5
M12	30	34
M16	73	83
M20	142	162

*** The spanner is to prevent the tightening torque being transmitted through the insulating pillar.**

Now tighten the second locknut to 50% of the above torque.

18) Check each cable lug to ensure that there are no stray strands from the conductor which might compromise the minimum clearance distances. If any are identified they must be cut off back to the conductor insulation.
19) When all the cable lugs have been attached and correctly tightened replace the top halves of the power core cable clamps and tighten each one to secure the cables. Finger tight + ⅛ to ¼ turn is usually adequate.
20) Replace the flat acrylic cover and secure in position using the nylon studs and washers provided.
21) If the enclosure is not an ABJB 125 proceed to point 26.

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Fibre Optic & Instrument cables

The ABJB 125 includes a separate compartment for fibre optic and / or instrument connections:

22) Install and secure the cable entry devices, cable glands and blanking plugs in accordance with the manufacturer's instructions.
23) 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.
24) 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 Ex 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.
25) If applicable, terminate any additional instrument 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.

26) Replace the lid and secure it by closing the lid and tightening the lid fixing screws. Ensure that all gland plate securing screws are tightened.
27) Test the installation.

Earthing/Grounding

The ABJB unit is 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. Any earth/ground conductor brought into the enclosure must be terminated onto the enclosure internal earth/ground stud.

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.

The earthing/grounding facility must be connected to the earth bonding circuit at all times when electrical power is connected to the enclosure.

Maintenance

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 'SX' range enclosures on which the ABJB is based 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 connections are clean, free of moisture, dust & contaminants	Each time the enclosure is opened
5	Check that the mounting bolts are tight and free of corrosion	Annually
6	Check the security of all cable glands	Annually
7	Check the enclosure for damage	Annually

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Chemical Attack

The ABTECH ABJB is manufactured from 316 stainless steel. The following additional materials are also used:

Silicone rubber, Copper, Brass, Cast epoxy resin, Glass reinforced polyester, Nylon (polyamide), Acrylic (polymethylmethacrylate).

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 ABJB does not present a hazard from static electricity 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.

Vibration

The ABJB is 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.

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