



EC Type Examination Certificate CML 14ATEX3123X Issue 0

- 1 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC
- 2 Equipment **SX Range of Junction Boxes**
- 3 Manufacturer **Abtech Limited**
- 4 Address 199 Newhall Road,
Lower Don Valley,
Sheffield, S9 2QJ,
UK
- 5 The equipment is specified in the schedule of this certificate and the documents to which it refers.
- 6 Certification Management Limited, Unit 1 Newport Business Park, New Port Road, Ellesmere Port CH65 4LZ, UK, Notified Body Number 2503, in accordance with Article 9 of Directive 94/9/EC, 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 the confidential reports listed in Section 12.
- 7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.
- 8 This EC Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 94/9/EC Article 8 apply to the manufacture of the equipment or component and are separately certified.
- 9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

EN 60079-0:2012: A11, Corr 3:2014

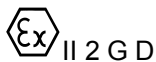
EN 60079-7:2007

EN 60079-11:2012

EN 60079-31:2014

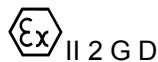
EN 60079-28:2007

- 10 The equipment shall be marked with the following:



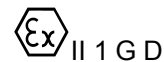
Ex e IIC T# Gb
Ex ib IIC T# Gb
Ex e op is IIC T# Gb
Ex ib op is IIC T# Gb
Ex tb IIIC T#°C Db

Ta = -#°C to +#°C



Ex e op pr IIC T# Gb
Ex ib op pr IIC T# Gb
Ex ia op pr IIC T# Gb
Ex op pr IIC T# Gb
Ex tb IIIC T#°C Db

Ta = -40°C to +#°C



Ex ia IIC T# Ga
Ex ia op is IIC T# Ga
Ex op is IIC T# Ga
Ex ta IIIC T#°C Da

Ta = -#°C to +#°C



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– The temperature classes and associated ambient temperature allowable is related to the type of terminal fitted and EPL and power as indicated in Table 1 in the equipment description. See Table 2 for Optical power applications

11 Description

The SX range of junction boxes are fitted with an arrangement of suitably certified terminals. Before the junction box is installed, its total power for particular application will be calculated in accordance with EN 60079-7, Annex E, E.2 and will not exceed the values given in the table below:

Table 1. Ratings for all Junction Boxes options					
SX Ref.	EPL	Max. Power Dissipation (W), Temperature Class, Max. Surface Temp. & Ta Max. (See Table 2 below for power limits applied to equipment marked 'op is').			
		(a) T6/T85°C @40°C (b) T5/T100°C @55°C (c) T4/T135°C @80°C	(a) T6/T85°C @55°C (b) T5/T100°C @70°C (a) T4/T135°C @60°C (e) T3/T200°C @80°C	(a) T6/T85°C @60°C (b) T5/T100°C @75°C (b) T4/T135°C @80°C (b) T3/T200°C @80°C	(a) T6/T185°C @65°C (b) T5/T100°C @80°C (a) T4/T135°C @60°C (d) T3/T200°C @175°C
SX0	Ga, Gb, Db	19	3.34	2.23	1.84
	Da	9.5	1.67	1.115	0.92
SX0.5	Ga, Gb, Db	22	3.9	2.8	2.1
	Da	11	1.95	1.4	1.05
SX1	Ga, Gb, Db	29	4.97	3.86	2.7
	Da	14.5	2.485	1.93	1.35
SX1.5	Ga, Gb, Db	32	5	4	2.8
	Da	16	2.5	2	1.4
SX2	Ga, Gb, Db	36	5.64	4.23	2.88
	Da	18	2.82	2.115	1.44
SX3	Ga, Gb, Db	42	5.9	4.1	3
	Da	21	2.95	2.05	1.5
SX4	Ga, Gb, Db	44	6.1	4.36	3.19
	Da	22	3.05	2.18	1.595
SX5	Ga, Gb, Db	50	9.35	6.19	4.2
	Da	25	4.675	3.095	2.1
SX6	Ga, Gb, Db	57	10.1	7.97	5.6
	Da	28.5	5.05	3.985	2.8
SX7	Ga, Gb, Db	68	17.14	9.36	6.67
	Da	34	8.57	4.68	3.335
SX8	Ga, Gb, Db	119	15.95	15.17	10.74
	Da	59.5	7.975	7.585	5.37
SX225*	Ga, Gb, Db	359	-	103	-
	Da	179.5	-	51.5	-
SX45	Ga, Gb, Db	8	1.65	1.57	1.28
	Da	4	0.825	0.785	0.64



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Table 1. Ratings for all Junction Boxes options					
SX Ref.	EPL	Max. Power Dissipation (W), Temperature Class, Max. Surface Temp. & Ta Max. (See Table 2 below for power limits applied to equipment marked 'op is').			
		(a) T6/T85°C @40°C (b) T5/T100°C @55°C (c) T4/T135°C @80°C	(a) T6/T85°C @55°C (b) T5/T100°C @70°C (a) T4/T135°C @60°C (e) T3/T200°C @80°C	(a) T6/T85°C @60°C (b) T5/T100°C @75°C (b) T4/T135°C @80°C (b) T3/T200°C @80°C	(a) T6/T185°C @65°C (b) T5/T100°C @80°C (a) T4/T135°C @60°C (d) T3/T200°C @175°C
SX64	Ga, Gb, Db	10	0.7	0.5	0.3
	Da	5	0.35	0.25	0.15
SX66	Ga, Gb, Db	14	2	1.9	1.5
	Da	7	1	0.95	0.75

Table 2 – Optical Power	
'op pr' applications	'op is' applications
T6/T85°C at a maximum ambient of $\leq 60^{\circ}\text{C}$	T6/T85°C at a maximum ambient of $\leq 65^{\circ}\text{C}$ or T4/T100°C at a maximum ambient of $\leq 80^{\circ}\text{C}$
When 'op pr' is used with or without terminals, the splice case is limited to 100mW and a -40°C to 60°C ambient temperature.	When 'op is' is used with or without terminals. Fibre optic source is limited for all T classes to a maximum irradiance of 5 mW/mm^2 (surface area not exceeding 400mm^2) Signal power is limited to 15 mW@T6 and 35 mW@T4 .

Notes: (a), (b), (c), (d) & (e) indicated in the table above relate to the limiting temperature of the terminal insulation, refer of the 'Conditions of Manufacture'.

The enclosures may also be manufactured to sizes not specified in the above table. This assumes that any given dimension is not larger than the respective dimension of the largest 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.

Cable entries may be provided on the base, top, sides or back of the enclosure and alternatively, threaded bosses may be provided. An external and optional internal earth stud of minimum size M6 is provided on all enclosures.

The terminal boxes may be fitted with slotted trunking, a suitably approved anti-condensation heater, 'op pr' fibre optical splice cases and other 'op is' cable jointing facilities.

Optionally, the T6/T85°C junction boxes may be provided with a glass window.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	27/07/2015	R406A/00	Issue of prime certificate

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of manufacture

The following conditions are required of the manufacturing process for compliance with the certification.



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- 13.1 Where the product incorporates certified parts or safety critical components the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.
- 13.2 Where the equipment is marked with both 'Ga' and 'Da', the maximum allowable power indicated on the label shall be either the lower of the two or both shall be included.
- 13.3 When the equipment is marked for 'op pr' the maximum ambient temperature that can be marked is -40°C to +60°C.
- 13.4 When trunking is fitted, it may be sited as required and the minimum creepage and clearance distances shall still be met.
- 13.5 When marked for 'Ex ta', if terminals fitted are not suitable for a SCCA of 10kA or above, then max short circuit current is to be marked on the label.



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- 13.7 When terminals are supplied with the enclosure, they shall be ATEX approved components, chosen from the Abtech 'Approved Component Document – Sira 12AAC087 and having a maximum insulation temperature as below. All terminals shall be installed in accordance with their Conditions of Safe Use/Schedule of Limitations/Conditions of Certification and the relevant codes of practice/wiring regulations, specifically to the minimum creepage and clearance requirements and to any limitations to ratings that may be observed due to method of installation.

The letter in the brackets next to the Temperature class and associated upper ambient relates to the following maximum operating temperatures required of the terminals fitted.				
(a)	(b)	(c)	(d)	(e)
≥85°C	≥100°C	≥120°C	≥190°C	≥105°C
Note: All terminals fitted shall be suitable for the lower operating temperature marked on the certification label.				

- 13.6 The product may be fitted with an anti-condensation heater. The heater shall be ATEX approved for an ambient temperature range that matches or exceeds that for the terminal box and shall be complete with a thermostat which prevents the operation of the heater at temperatures above +30°C.

14 Special Conditions for Safe Use (Conditions of Certification)

The following conditions relate to safe installation and/or use of the equipment.

- 14.1 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 voltage limiter.
- 14.2 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 50mm.
- 14.3 When fitted with 'op pr' splice case, the fibre cable outside the enclosure shall be installed such, that mechanical damage is prevented.
- 14.4 When marked 'Ex op is', the fibre optic source supplying this equipment shall be suitably certified as compliant with EN 60079-28:2007 and provide an inherently safe optical source (op is), EPL Gb, subsequently the parameters in Table 2 of the description apply.
- 14.5 When marked 'Ex e op pr', the fibre ST connectors contained within the increased safety enclosure must not be separated whilst energised if an explosive atmosphere may be present.
- 14.6 If not used fibre ST connectors within the increased safety enclosure must have dust covers fitted.
- 14.7 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'.

Certificate Annex



Certificate Number CML 14ATEX3123X
Equipment SX Range of Junction Boxes
Manufacturer Abtech Limited

The following documents describe the equipment or component defined in this certificate:

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Drawing No	Sheets	Rev	Approved date	Title
ATB28780	1 of 1	A	27/07/2015	SX Manufacturing Specification
ATB28781	1 of 1	A	27/07/2015	SX Range of Enclosures
ATB28782	1 of 1	A	27/07/2015	SX Range Large Window
ATB29301	1 of 1	A	27/07/2015	External ATEX Label SX Range
ATB29308	1 of 1	A	27/07/2015	External IECEx Label SX Range
ATB2913	1 of 1	A	27/07/2015	ATEX Ex op pr Label SX Range
ATB2914	1 of 1	A	27/07/2015	IECEx Ex op pr Label SX Range