IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx SIR 12.0114 issue No.:0	Certificate history:
Status:	Current	
Date of Issue:	2012-10-15	Page 1 of 3

Applicant: **ABTECH Limited**
Sanderson Street
Lower Don Valley
Sheffield S9 2UA
United Kingdom

Electrical Apparatus: **ZAG Range of Junction Boxes**
Optional accessory:

Type of Protection: **Increased safety, intrinsically safe and dust**

Marking:
Ex e II T* Gb or Ex ib IIC T* Gb
Ex tb IIIC T*°C Db
(Ta = -*°C up to +*°C)
Temperature class: T6, T5, T4 or T3
Max. surface temperature for dust: T85°C, T100°C, T135°C or T180°C
Min. ambient temperature: -60°C or -65°C
Max. ambient temperature: +40°C, +55°C, +70°C, +90°C, +105°C, +135°C or +150°C

Approved for issue on behalf of the IECEx Certification Body: C Ellaby

Position: Deputy Certification Manager

Signature:
(for printed version)

Date: 2012-10-15

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:
SIRA Certification Service
Rake Lane
Eccleston
Chester
CH4 9JN
United Kingdom

sira CERTIFICATION

Sira Certification Service
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Date of Issue: **2012-10-15** Issue No.: **0**

Manufacturer: **ABTECH Limited**
Sanderson Street
Lower Don Valley
Sheffield S9 2UA
United Kingdom

Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011-06 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-31 : 2008 Edition: 1	Explosive atmospheres – Part 31: Equipment dust ignition protection by enclosure 't'
IEC 60079-7 : 2006-07 Edition: 4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
GB/SIR/ExTR12.0245/00

Quality Assessment Report:

GB/SIR/QAR06.0046/04

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Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

The ZAG Range of Junction Boxes are manufactured from aluminium alloy and are fitted with an arrangement of suitably certified terminals. The enclosures, which have the option to fit slotted trunking, are covered by certificate number IECEx SIR 12.0116U and the terminals are defined by Approved Component Document number Sira 12AC087. The total dissipated power for the enclosure is to be calculated in accordance with IEC 60079-7:2003, Annex E, E.2. and shall not exceed the figures given in the Table 1 in the certificate annexe.

CONDITIONS OF CERTIFICATION: NO

Annexe: IECEx SIR 12.0114 Issue 0 Annexe.pdf

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Annexe to: **IECEx SIR 12.0114 Issue 0**

Applicant: **ABTECH Limited**

Apparatus: **ZAG Range of Junction Boxes**

Applicable Max. Power Dissipations, Ambient Temperature Ranges, Temperature Classes and Max. Surface Temperatures for Dust

ZAG Box Ref.	Ta Min. with or without window		Max. Power Dissipation for T6/T85°C (W)		Max. Power Dissipation for T5/T100°C (W)		Max. Power Dissipation for T4/T135°C (W)		Max. Power Dissipation for T3/T180°C (W)	
	With	Without	Ta +40°C	Ta +55°C	Ta +55°C	Ta +70°C	Ta +90°C	Ta +105°C	Ta +135°C	Ta +150°C
2	-60°C	-65°C	0.9	0.45	0.9	0.45	0.9	0.45	0.9	0.45
3	-60°C	-65°C	1.2	0.6	1.2	0.6	1.2	0.6	1.2	0.6
4	-60°C	-65°C	1.7	0.85	1.7	0.85	1.7	0.85	1.7	0.85
5	-60°C	-65°C	1.5	0.75	1.5	0.75	1.5	0.75	1.5	0.75
6	-60°C	-65°C	2.2	1.1	2.2	1.1	2.2	1.1	2.2	1.1
7	-60°C	-65°C	2.9	1.45	2.9	1.45	2.9	1.45	2.9	1.45
9	-60°C	-65°C	3.4	1.7	3.4	1.7	3.4	1.7	3.4	1.7
10	-60°C	-65°C	5.4	2.7	5.4	2.7	5.4	2.7	5.4	2.7
10/9	-60°C	-65°C	5.4	2.7	5.4	2.7	5.4	2.7	5.4	2.7
11	-60°C	-65°C	5.4	2.7	5.4	2.7	5.4	2.7	5.4	2.7
12	-60°C	-65°C	8.0	4.0	8.0	4.0	8.0	4.0	8.0	4.0
13	-60°C	-65°C	10.4	5.2	10.4	5.2	10.4	5.2	10.4	5.2
15	-60°C	-65°C	9.5	4.75	9.5	4.75	9.5	4.75	9.5	4.75
16	-60°C	-65°C	14.0	7.0	14.0	7.0	14.0	7.0	14.0	7.0

Junction boxes of size not specified in the table may be manufactured subject to the maximum dissipated power being based on a smaller enclosure.

Conditions of manufacture

The Manufacturer shall comply with the following:

1. When the manufacturer has equipped the junction boxes with terminals, a routine electric strength test shall be carried out only if the components are wired, this test shall be carried out according to the following standards:
   - industrial control equipment: IEC 60947
   - measurement, control and laboratory use: IEC 6101
2. The terminals used in these junction boxes shall be IECEx approved devices chosen from the Approved Component Document number Sira 12AC087 that is issued by Sira. All terminals must be installed in accordance with their certificate conditions and the relevant codes of practice/wiring regulations. The limiting temperature of the terminal insulation shall be at least equal to the minimum temperature range exposed and the upper operating temperature shall be at least equal to or above, 85°C for T6 junction boxes, 100°C for T5 junction boxes, 135°C for T4 junction boxes and 180°C for T3 junction boxes.
3. Suitably certified Ex e equipment such as breathing devices and blanks may be fitted to the enclosure providing the enclosure maintains compliance with EN 60529 code IP64 or better.
4. The manufacturer will take all reasonable steps to ensure that the power dissipated by the Junction Box does not exceed the maximum value stipulated the table detailed in the Description of Equipment, in addition, the manufacturer will supply all the relevant information that will enable the user/installer to calculate the dissipated power in Watts for each Junction Box in accordance with EN 60079-7:2007 Annex E, E2.
5. When the junction boxes are used for intrinsically safe applications, a 3 mm separation distance between the enclosure is required, there shall also be a minimum of 6 mm between different intrinsically safe circuits.
6. When trunking is fitted, it may be sited as required and the minimum creepage and clearance distances shall still be met.

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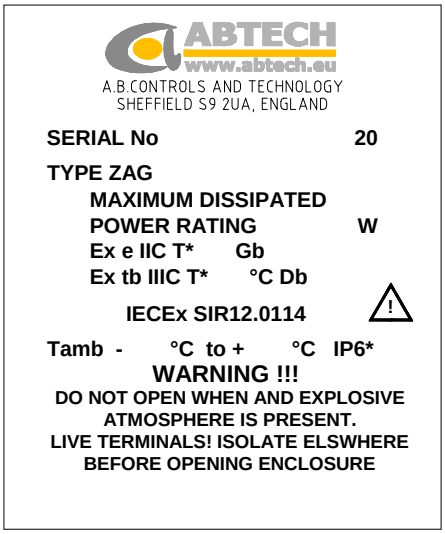
INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS FOR ABTECH 'ZAG' Range Enclosures – IECEx SIR 12.0114



Marking

The marking shown is for an apparatus certified Ex e (increased safety) terminal box rated T6.

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 Ta____.

When no Tamb is marked the permitted ambient temperature range is -20°C to +40°C.

The Ex e marking may be replaced by Ex ia or Ex ib. Enclosures marked Ex ia or Ex ib may only be used for terminating intrinsically safe circuits.

Alternative markings for temperature ratings as follows.

T6 with Ta range of -60°C ≤ Ta ≤ +55°C and T85°C for dust
Warning – Cable temperature can reach 85°C

T5 with Ta range of -60°C ≤ Ta ≤ +70°C and T100°C for dust
Warning – Cable temperature can reach 100°C

T4 with Ta range of -60°C ≤ Ta ≤ +105°C and T135°C for dust
Warning – Cable temperature can reach 135°C

T3 with Ta range of -60°C ≤ Ta ≤ +150°C and T180°C for dust
Warning – Cable temperature can reach 180°C

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

Installation

These instructions assume that the required cable entries have been pre-drilled. Cable entries may be threaded. Entries may be drilled on site by a competent person.

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 replace prior to cable termination.

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 M4 fixing studs (for size ZAG1 to ZAG8) or for M6 fixing studs (for size ZAG9 to ZAG16) as applicable.
3) Tap thread into mounting holes if required.
4) Place a mounting screw through one mounting hole in the box so that the thread of the screw protrudes from the back of the box. Lift the enclosure into position using such assistance as may be necessary to avoid injury and:-
   a) If clearance mounting holes are used, insert the protruding thread through the appropriate clearance hole and secure with a nut on the other side of the mounting surface.
   Or
   b) If threaded holes are used, locate the end of the mounting screw over the thread hole and, using an appropriate screwdriver tighten the screw.
5) Rotate the box to line up the remaining mountings and repeat (4) above fro remaining mounting screws.
6) Install and secure the cable glands in accordance with the manufacturers instructions.

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7) 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.
8) 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.
9) 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.
10) 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.
11) Terminate the cables in the terminals provided in accordance with the requirements of BS EN 60079-14:1997. Consideration must be given to any limitations or special conditions detailed on the certificates for the terminals fitted
12) Secure the lid by closing the lid and tightening the lid fixing screws.

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

The enclosure is provided with an external earth/ground connection. This must be connected to the appropriate earth bonding circuit before electrical power is connected to the contents of the enclosure.

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

1. The lid must be secured using all of the lid screws provided in order to maintain the IP rating. Use a securing torque of 1Nm minimum, 2 Nm maximum (M4) or 3 Nm maximum (M6).
2. No attempt must be made to remove the enclosure lid whilst electrical power is connected to the contents of the enclosure.
3. The enclosure earth/ground facility must be connected to the earth bonding circuit at all times when power is connected to the enclosure.

Maintenance

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.
Additional periodic checks that are advisable to ensure the efficiency of ABTECH range enclosures are:-

Activity		**Frequency**
1	Check that the lid seal is in place and not damaged	Each time the enclosure is opened
2	Check that all lid fixing screws are in place and secured	Each time the enclosure is closed
3	Check that the lid earth strap is not frayed or damaged and is secure at both ends	Each time the enclosure is opened
4	Check lid earth strap continuity (hot work permit may be required)	Every 3 years
5	Check that the mounting bolts are tight and free of corrosion	Annually
6	Check the security of all cable glands	Annually
7	Check that all screw clamp terminals are secure	As manufacturers recommendation
8	Check for corrosion of the enclosure	Annually, Every 3 months in corrosive atmospheres

If lid seals are replaced they must be replaced by gaskets matching those originally fitted. Black foam lid seals are poly-chloroprene, pink foam seals are silicone. Black solid rubber lid seals are silicone.

Chemical Attack

The ABTECH ZAG range of enclosures is manufactured using the following materials:

Aluminium – AlSi 12;
Neoprene or silicone rubber;
316 stainless steel.

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.

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Static Hazard
The ZAG range enclosures do not present a hazard from static electricity.

Vibration
ZAG 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.

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