



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 MSC 14.0020X

Issue No: 1

Certificate history:

Status: **Current**

Issue No. 1 (2017-12-05)

Issue No. 0 (2015-08-05)

Date of Issue: **2017-12-05**

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Applicant: **AUSTDAC PTY LTD**
Unit 1/ 42 Carrington Road,
Castle Hill NSW 2154
Australia

Equipment: **Display Trip Amplifier Type ABBD2-L and Type ABBD2-H**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking:

Ex ia I Ma

Approved for issue on behalf of the IECEx
Certification Body:


Geoff Slater

Position:

Manager

Signature:
(for printed version)

Date:



4/12/2017

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](http://www.iecex.com).

Certificate issued by:

MSTC Mine Safety Technology Centre
8 Hartley Drive
Thornton NSW 2322
PO Box 343
Hunter Region Mall Centre NSW 2310
Australia



**Planning &
Environment**
Resources Regulator



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Manufacturer: **AUSTDAC PTY LTD**
Unit 1/ 42 Carrington Road,
Castle Hill NSW 2154
Australia

Additional Manufacturing location(s):

Dongguan Hubbell Electrical Products Company Limited (DGHAL)

Xincheng Industrial Zone
Hengli Town, Dongguan City
523460, Guangdong,
China

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 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*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:

[AU/MSC/ExTR14.0014/00](#)

Quality Assessment Report:

[AU/ITA/QAR06.0001/09](#)

[AU/ITA/QAR15.0002/00](#)

[AU/ITA/QAR15.0002/02](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Display Trip Amplifier Type ABBD2 consists of four PCB boards. They are mounted on to the ABBD2 HOUSING using spacers and screws and then a REAR COVER is mounted. The five blocks of screw terminals are plugged on to the PCB0333 Part A and protrude out of the REAR COVER. The Display Trip Amplifier Type ABBD2 may be used as a trip amplifier for locally or remotely generated signal levels. A gas level signal or any other signal level can be displayed and may be used to activate four RELAY CONTACT outputs, which are potential free. The DEPUTY Key input is used to unlatch the relays when tripped. This unit has a SILBUS port, a MODBUS port and a POWER port. There are two ANALOGUE INPUTs, which can be either voltage, or current inputs. The connections are made to the five screw terminal blocks situated at the back of the REAR COVER. The connection label is provided. The Display Trip Amplifier Type ABBD2 when mounted on to the HOST ENCLOSURE was tested for level of ingress protection IP66. Type ABBD2-H has higher input parameters than ABBD2-L at the Relay output port. The Display Trip Amplifier contains a backup battery module which is certified in IECEx MSC 14.0010X.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Conditions of certification refer the annex.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Change to the applicant and manufacturer address.

Annex:

[Annex of IECEx MSC 14.0020X-01doc.pdf](#)



IECEX Certificate of Conformity Annex

Annex for Certificate No.: IECEx MSC 14.0020X Issue No: 1

Conditions of certification pertaining to Issue 1 of this Certificate

It is a condition of safe use that the ABBD2 must be mounted onto a suitable host enclosure with minimum level of ingress of IP54. The enclosure detailed on drawing No. 13-368-15 meets the requirements.

It is a condition of safe use that earth terminals 3, 4, 5, are infallibly connected to Intrinsically Safe earth.

It is a condition of safe use that the following parameters are taken into account during any installation:

SILBUS (1 COM, 2 SIG):

Um = 250 V

When the apparatus is located in a non-hazardous (safe) area

OR

Ui = 16.5 V

Ii = 3.3 A

Uo = 0V

Io = 0A

POWER (10 -VE, 11 +VE):

Ui = 16.5 V

Ii = 3.3 A

Ci = 0 µF

Li = 30 µH

RELAY 1 CONTACTS (20, 21, 22), RELAY 2 CONTACTS (23, 24, 25):

RELAY 3 CONTACTS (26, 27, 28), RELAY 4 CONTACTS (29, 30, 31):

Type ABBD2-L				
Pi	Ui	Ii	Ci	Li
25 W	30 V	0.470 A	0 µF	0 µH
Po	Uo	Io	Co	Lo
0 W	0 V	0 A	N/A	N/A
Alternatively				
25 W	16.5 V	1 A	0 µF	0 µH
Po	Uo	Io	Co	Lo
0 W	0 V	0 A	N/A	N/A
Type ABBD2-H				
Pi	Ui	Ii	Ci	Li
70 W	30 V	0.470 A	0 µF	0 µH
Po	Uo	Io	Co	Lo
0 W	0 V	0 A	N/A	N/A
Alternatively				
70 W	16.5 V	2.8 A	0 µF	0 µH
Po	Uo	Io	Co	Lo
0 W	0 V	0 A	N/A	N/A

CONSOLE Port X6,:

Ui = 5.88 V

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 NSW <small>GOVERNMENT</small>	Trade & Investment Mine Safety	Mine Safety Technology Centre
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$I_i = 3.3 \text{ A}$
 $L_i = 30 \mu\text{H}$
 $U_o = 5.88 \text{ V}$
 $I_o = 188 \text{ mA}$
 $L_o = 72 \text{ mH}$

MODBUS (6 Screen, 7 B, 8 A):

$U_m = 250 \text{ VAC}$

When the apparatus is located in a non-hazardous (safe) area

OR

$U_i = 16.5 \text{ V}$
 $I_i = 3.3 \text{ A}$
 $C_i = 0 \mu\text{F}$
 $L_i = 0.75 \text{ mH}$
 $U_o = 5.88 \text{ V}$
 $I_o = 103 \text{ mA}$
 $L_o/R_o = 3.0 \text{ mH/Ohm}$

ANALOGUE INPUT 1 (12, 13, 14)

ANALOGUE INPUT 2 (15, 16, 17):

$U_i = 16.5 \text{ V}$
 $I_i = 3.3 \text{ A}$
 $C_i = 0 \mu\text{F}$
 $L_i = 0 \mu\text{H}$
 $U_o = 5.88 \text{ V}$
 $I_o = 65 \text{ mA}$
 $L_o/R_o = 3.0 \text{ mH/Ohm}$

DEPUTY KEY (Switch) (18, 19):

$U_i = 0 \text{ V}$
 $I_i = 0 \text{ A}$
 $C_i = 0 \mu\text{F}$
 $L_i = 1 \text{ mH}$
 $U_o = 5.88 \text{ V}$
 $I_o = 36 \text{ mA}$
 $L_o/R_o = 8.9 \text{ mH/Ohm}$

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Manufacturer's documents pertaining to Issue 1 of this Certificate

Drawing/Document Numbers:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
13-331-03	4	Display Trip Amplifier Type ABBD2 PCB0333A Schematic Diagram	01	2015-07-15
13-332-21	5	Display Trip Amplifier Type ABBD2 PCB0333A Artwork Details	01	2015-05-14
120-333-07	4	Display Trip Amplifier Type ABBD2 PCB0333A Component Loading Diagram	01	2015-05-21
13-334-14	4	Display Trip Amplifier Type ABBD2 PCB0333A Bill of Materials	01	2015-07-15
Assembly Drawings				
13-335-14	2	Display Trip Amplifier Type ABBD2 General Assembly Bill of Materials	01	2014-11-19
13-336-04	2	Display Trip AMP Type ABBD2 General Assembly Details	01	2014-11-19
13-351-15	1	Display Trip AMP Type ABBD2 General Arrangement	01	2014-11-19
13-352-06	1	Display Trip AMP Type ABBD2 Housing Mechanical Details	01	2014-10-23
13-353-06	1	Display Trip AMP Type ABBD2 BEZEL Mechanical Details	01	2014-11-19
13-354-13	2	Display Trip AMP Type ABBD2 LABEL Label Details	01	2015-05-22
13-355-06	1	Display Trip AMP Type ABBD2 Window Mechanical Details	01	2014-11-19

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Drawing/Document Numbers:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
13-356-06	1	Display Trip AMP Type ABBD2 Mounting Gasket Mechanical Details	01	2013-07-01
13-357-06	1	Display Trip AMP Type ABBD2 Mounting Flange Mechanical Details	01	2014-06-12
13-358-06	1	Display Trip AMP Type ABBD2 REAR COVER Mechanical Details	01	2014-11-19
13-361-06	2	Display Trip AMP Type ABBD2 Host Enclosure Mechanical Details	01	2014-06-12
13-362-06	1	Display Trip AMP Type ABBD2 Host Enclosure Gasket Mechanical Details	01	2014-06-12
13-363-14	2	Display Trip Amplifier Type ABBD2 With Host Enclosure Bill of Materials	01	2014-11-19
13-364-13	1	Display Trip Amplifier Type ABBD2 Connection Label Details	01	2014-05-21
13-366-13	2	Display Trip Amplifier Type ABBD2 Certification Label Details	01	2014-07-15
13-368-04	1	Display Trip AMP Type ABBD2 Host Enclosure Assembly Details	01	2014-11-19
13-369-15	1	Display Trip AMP Type ABBD2 Host Enclosure General Arrangement	01	2014-11-19
90-369-04	1	ENCAPSULATED BARRIER NETWORK FUSE Type EBNF1	03	2015-07-15
13-371-06	1	Display Trip Amp Type ABBD2 Window Seal Mechanical Details	01	2014-10-23

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Drawing/Document Numbers:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
I.S.Relay Module Type ARWP5				
56-102-03	1	I.S. Relay Module Type ARWP5 PCB0339A Schematic Diagram	02	2015-05-21
56-103-21	3	I.S. Relay Module Type ARWP5 PCB0339A Artwork Details	01	2013-07-10
56-104-14	2	I.S. Relay Module Type ARWP5 PCB0339A Bill of Materials	02	2013-05-21
56-105-07	3	I.S. Relay Module Type ARWP5 PCB0339A Component Loading Diagram	02	2015-05-21
56-106-04	2	I.S. Relay Module Type ARWP5 Bill of materials	01	2013-07-10
56-107-04	1	I.S. Relay Module Type ARWP5 Assembly Diagram	02	2015-05-21
56-109-13	1	I.S. Relay Module Type ARWP5 Label Details	02	2015-05-21
56-110-06	1	I.S. Relay Module Type ARWP5 Reed Switch Relay Bobbin Mechanical Details	01	2013-07-10
56-111-04	1	I.S. Relay Module Type ARWP5 Reed Switch Relay Coil Winding Assembly Details	01	2013-07-10

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Drawing/Document Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
13-337-12	36	Display Trip Amplifier Type ABBD2 User's Manual	02	2015-05-22
1N533B/D	8	1N5333B ON Semiconductor	7	2006-05-**
85595	4	BZG05C..	6	1999-04-01
PD-20708	6	10BQ030	D	2002-02-**
----	10	BAT54 Series Schottky barrier diodes	3	2012-10-09
----	15	6N139 HCPL-0701 HCNW139	-	----
----	1	HSR-630R	B	----
----	1	HSR-834W	G	----
----	8	PDZ-B series Voltage regulator diodes	-	2004-03-22
----	2	Special Application fuses 250 Series Safo T-plus Fusco	-	2013-12-19
CNS001	1	Encapsulated Fuse	01	2014-06-26

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