



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 TSA 07.0021X

Issue No: 7

Certificate history:

Issue No. 7 (2017-05-11)

Issue No. 6 (2016-05-02)

Issue No. 5 (2015-07-31)

Issue No. 4 (2013-04-05)

Issue No. 3 (2013-03-22)

Issue No. 2 (2010-02-12)

Issue No. 1 (2007-12-05)

Issue No. 0 (2007-05-14)

Status: **Current**

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Date of Issue: **2017-05-11**

Applicant: **Austdac Pty Ltd**
Unit 1, 42 Carrington Road
Castle Hill NSW 2154
Australia

Equipment: **Communication & Signalling System type PSACS1-A, PSACS1-B**

Optional accessory:

Type of Protection: **PSACS1-A: Ex Ia, PSACS1-B: Ex Ib**

Marking:
PSACS1-A: Ex Ia I IP55
PSACS1-B: Ex Ib I IP55
IECEX TSA 07.0021X
Austdac Pty Ltd
Serial No.

*Approved for issue on behalf of the IECEX
Certification Body:*

Debbie Wouters

Position:

Acting Quality & Certification Manager

*Signature:
(for printed version)*

Date:

11 MAY 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.

Certificate issued by:

TestSafe Australia
919 Londonderry Road
Londonderry NSW 2753
Australia





IECEX Certificate of Conformity

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Date of Issue: 2017-05-11 Page 2 of 4
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, Donggaun 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 : 2000 Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
Edition:3.1
IEC 60079-11 : 1999 Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'
Edition:4

*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/TSA/ExTR13.0016/01 AU/TSA/ExTR13.0016/02

Quality Assessment Report:

AU/ITA/QAR15.0002/01 AU/ITA/QAR06.0001/11



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The system comprises of up to four separate segments for underground and a surface facility. These are all isolated from one another and may be considered as separate intrinsically safe subsystems.

Each powered segment contains its own independent IS certified power supply. The power supplies are installed only in safe area.

The system type PSACS1-A uses [Ex ia] certified power supplies. The system type PSACS1-B uses [Ex ib] certified power supplies which is required to be de-energized in case of Zone 0 conditions.

A segment may comprise:

1. Up to forty IS Intercom type ABMA3, ABMA3-1 or ABMA4.
2. Up to forty DTMF Keyboard type AKB1.
3. An Intersystem Coupler type ISC2, if the system has more than one segment. This provides isolation between any two adjacent segments.
4. A Pre-start Alarm System type APSA2 for the initial segment.
5. A Coupler type ASCU for the initial segment. This provides isolation between the surface facility and the initial segment.
6. A Tail End Unit type TEU100 or TEU2 for the end segment.
7. A separately certified IS Power Supply.
8. Up to 4500 metres of segment cable.

The surface facility is composed of:

1. A separately certified IS barrier providing isolation between the surface facility and the safe area.
2. Up to 10000 metres of surface pair cable.

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to Annexe of the certificate.



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

Issue 7:

Change of both Applicant address and Manufacturer address from
"1 / 4 Packard Avenue, Castle Hill, NSW 2154, Australia"

To

"Unit 1, 42 Carrington Road, Castle Hill, NSW 2154, Australia"

Annex:

[Annexe_IECEX TSA 07 0021X-7.pdf](#)



IECEX Certificate of Conformity Annexe

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Conditions of Certification pertaining to Issue 0 of this Certificate:

Conditions of Manufacture:

1. ASCU and ISC2 transformers are subject to a 1500 V r.m.s. routine test in accordance with Clause 11.2 of the IEC 60079.11:1999 standard.
2. Each portable TEU must be subject to a 500 V r.m.s. insulation test according to the requirements of Clause 6.4.12 of the IEC 60079.11:1999 standard.

Conditions of Safe Use:

1. The Pre-start Alarm System type APSA2 shall be housed in an enclosure that has a minimum IP55 ingress protection rating.
2. The R, V, S and M lines comprise the power and data bus throughout the system. They may be connected to components throughout the system, but only on the R, V, S and M connection terminals of the components being connected.
3. No more than one power supply per segment shall be used in the system.
4. The system and its interconnecting cables shall be connected only according to drawing number 20-035-19 issue 12 dated 2007/05/03.
5. Only intrinsically safe, category [ia] certified barriers with parameters in agreement with the following maximum output parameters shall be used:

OUTPUT PARAMETERS OF IS CERTIFIED BARRIER	
Maximum Output Voltage U_o	$\leq 10.1 \text{ V}$
Maximum Output Current I_o	$\leq 0.33 \text{ A}$
Maximum Output Capacitance C_o	$\geq 0.5 \mu\text{F}$
Maximum Output Inductance to Resistance Ratio L_o/R_o	$\geq 40 \mu\text{H}/\Omega$

6. Only intrinsically safe, category [ia] certified (for PSACS1-A) or category [ib] (for PSACS1-B) certified power supplies with parameters in agreement with the following maximum output parameters shall be used:

OUTPUT PARAMETERS OF IS POWER SUPPLY	
Maximum Output Voltage U_o	$\leq 12.6 \text{ V}$
Maximum Output Current I_o	$\leq 2.35 \text{ A}$
Minimum Output Resistance R_o	$\geq 5.35 \Omega$
Maximum Output Capacitance C_o	$\geq 12 \mu\text{F}$
Maximum Output Inductance to Resistance Ratio L_o/R_o	$\geq 60 \mu\text{H}/\Omega$

7. The system type PSACS1-B using [Ex ib] certified power supplies is required to be de-energized in case of Zone 0 conditions.

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Drawing list pertaining to Issue 0 of this Certificate:

Drawing/Doc ument Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
20-035-19	sheet 01 of 02	Communication And Signalling System Type PSACS1-A Ex ia System Details	12	2007-05-03
20-035-19	sheet 02 of 02	Communication And Signalling System Type PSACS1-B Ex ib System Details	12	2007-05-03
20-224-13	1	Communications and Signalling System Type PSACS1-A Or PSACS1-B Label Details	03	2007-04-16
20-135-13	1	Type ABMA3 I.S. Intercom S/S Housing Label Details	07	2002-01-22
20-135-13	1	Type ABMA3-1 I.S. Intercom Label Details	11	2007-04-16
20-208-13	1	APSA2 PSA Controller Label Details	04	2007-04-16
20-226-13	1	Intersystems Coupler Type ISC2 Enclosure Label Details	03	2007-04-16
20-263-21	2	PCB0157A Label For Intersystem Coupler Type ISC2 Artwork Details	02	2007-04-16
20-268-13	1	DTMF Keyboard Type AKB1 Label Details	03	2007-04-16
20-012-13	1	TEU100 Tail End Unit Label Drawing	07	2007-04-16
57-006-13	1	Safety Coupling Unit Type ASCU Austdac P/No. BARR007 Label Details	05	2007-04-16
20-240-13	sheet 01 of 04	Type ABMA4 I.S. Intercom Graphic Detail Label Details	08	2007-03-01
20-240-13	sheet 02 of 04	Type ABMA4 I.S. Intercom Switch PCB Label Details	08	2007-03-01
20-240-13	sheet 03 of 04	Type ABMA4 I.S. Intercom Switch PCB Label Details	08	2007-03-01
20-240-13	sheet 04 of 04	Type ABMA4 I.S. Intercom Switch Schematic Label Details	08	2007-03-01


Variations permitted by Issue 1 of this certificate:

Minor changes to the label for the ABMA4 I.S. Intercom. These changes have been addressed in report 29690 (AU/TSA/ExTR07.0061/00)

Conditions of Certification pertaining to Issue 1 of this Certificate:

1. Previous conditions of certification remain unchanged.
2. The optional Handset when connected to the interior module of the IS Intercom Type ABMA4, the host enclosure must provide a minimum level of ingress protection of IP55.

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Drawing list pertaining to Issue 1 of this Certificate:

Drawing/ Document Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
		System Drawings		
20-240-13	1 of 4	Type ABMA4 I.S. Intercom Graphic Detail Label Details	10	2007-10-24
20-240-13	2 of 4	Type ABMA4 I.S. Intercom Switch PCB Label Details	10	2007-10-24
20-240-13	3 of 4	Type ABMA4 I.S. Intercom Switch PCB Label Details	10	2007-10-24
20-240-13	4 of 4	Type ABMA4 I.S. Intercom Switch Schematic Label Details	10	2007-10-24
		ABMA4 Drawings		
20-230-21	3	I.S. Intercom Type ABMA4 PCB0161A Artwork Details	05	2007-04-10
20-231-21	3	I.S. Intercom Type ABMA4 PCB0159A Artwork Details	05	2007-02-28
20-233-06	1	Type ABMA4 I.S. Intercom S/S Housing Mechanical Details	06	2007-01-08
20-235-03	3	I.S. Intercom Type ABMA4 Schematic Diagram	12	2007-04-10
20-236-03	1	I.S. Intercom Type ABMA4 LC Display PCB0159 Schematic Diagram	07	2007-02-28
20-275-14	2	I.S. Intercom Type ABMA4 Interior Bill Of Materials	06	2007-01-18
20-245-14	3	I.S. Intercom Type ABMA4 PCB0161 Bill of Materials	13	2007-04-11
20-246-14	2	I.S. Intercom ABMA4 LC Display PCB0159 Bill of Materials	09	2007-02-28
20-247-07	2	I.S. Intercom Type ABMA4 PCB0161A Component Loading Diagram	09	2007-04-11
20-248-07	1	BMA LCD Display Type ABMA4 PCB0159 Component Loading Diagram	05	2007-02-28
20-276-04	2	I.S. Intercom Type ABMA4 Interior Assembly Details	07	2007-02-28
20-291-05	1	I.S. Intercom Type ABMA4 Handset Wiring Details	01	2007-04-12
90-268-05	1	Handset Type 032-02-0005-001 Internal Wiring Diagram	02	2007-04-11
90-274-06	1	Besson MIC Gasket Mechanical Details	01	2007-01-08
90-275-06	1	Besson MIC Melinex Seal	02	2007-02-05
90-280-05	1	I.S. Intercom BMA Connection Cable With Ferrite Core Detail Diagram	01	2007-01-24
90-295-06	1	Handset Type 032-02-0005-001 Details	01	2007-04-11

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Variations permitted by Issue 2 of this certificate:

Optional use of tail end unit type TEU2. These changes have been addressed in report 32117 (AU/TSA/ExTR09.0070/00)

Conditions of Certification pertaining to Issue 2 of this Certificate:

Previous conditions of certification remain unchanged.

Drawing list pertaining to Issue 2 of this Certificate:

Drawing/ Document Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
20-035-19	Sheet 01 of 02	Communication And Signalling System Type PSACS1-A Ex ia System Details	14	2010-01-27
20-035-19	Sheet 02 of 02	Communication And Signalling System Type PSACS1-B Ex ib System Details	14	2010-01-27

Variations permitted by Issue 3 of this certificate:

To allow for a revised set of parameters for the ASCU unit contained in the system, and to allow for a revised set of parameters and barriers connected to the surface pair of the ASCU. These changes have been addressed in report 34114 (AU/TSA/ExTR13.0016/00)

Conditions of Certification pertaining to Issue 3 of this Certificate:

The following set of conditions now apply to the certificate:

Conditions of manufacture:

1. ASCU and ISC2 transformers are subjected to a 1500 V r.m.s. routine test in accordance with Clause 11.2 of the IEC 60079.11:1999 Standard.
2. Each portable TEU must be subjected to a 500 V r.m.s. insulation test according to the requirements of clause 6.4.12 of IEC 60079.11:1999.

Conditions of Safe Use

1. The Pre-start Alarm System Type APSA2 shall be housed in an enclosure that has a minimum IP55 ingress protection rating.
2. The R, V, S and M lines comprise the power and data bus throughout the system. They may be connected to components throughout the system, but only on the R, V, S and M connection terminals of the components being connected.
3. No more than one power supply per segment shall be used in the system.
4. The system and its interconnecting cables shall be connected only according to drawing number 20-035-19 issue 15.

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5. Only intrinsically safe, category [ia] (for PSACS1-A) or category [ib] (for PSACS1-B) certified power supplies with the following maximum output parameters shall be used:

OUTPUT PARAMETERS OF IS POWER SUPPLY	
Maximum Output Voltage U_o	$\leq 12.6 \text{ V}$
Maximum Output Current I_o	$\leq 2.35 \text{ A}$
Minimum Output Resistance R_o	$\geq 5.35 \Omega$
Maximum Output Capacitance C_o	$\geq 12 \mu\text{F}$
Maximum Output Inductance to Resistance Ratio L_o/R_o	$\geq 60 \mu\text{H}/\Omega$

6. For the ASCU surface pair connection, only intrinsically safe, category [ia] certified barriers with parameters in agreement with the following maximum output parameters shall be used:

OUTPUT PARAMETERS OF IS CERTIFIED BARRIER	
Maximum Output Voltage U_o	$\leq 21.0\text{V}$
Maximum Output Current I_o	$\leq 0.422\text{A}$
Maximum Output Power P_o	$\leq 2.0\text{W}$
Maximum Output Capacitance C_o	$\geq 0.6 \mu\text{F}$
Maximum Output Inductance to Resistance Ratio L_o/R_o	$\geq 40 \mu\text{H}/\Omega$

Pepperl+Fuchs barriers Z960 and Z961 certified in IECEx SIM 06.0012X-0 are considered suitable.

7. The system type PSACS1-B using [Ex ib] certified power supplies is required to be de-energized in case of Zone 0 conditions.

Drawing list pertaining to Issue 3 of this Certificate:

Drawing/ Document Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
20-035-19	Sheet 01 of 02	Communication And Signalling System Type PSACS1-A Ex ia System Details	15	2013-01-15
20-035-19	Sheet 02 of 02	Communication And Signalling System Type PSACS1-B Ex ib System Details	15	2013-01-15
20-224-13	1	Communications and Signalling System Type PSACS1-A or PSACS1-B Label Details	05	2010-03-09
57-006-13	1	Safety Coupling Unit Type ASCU Austdac P/No. BARR007 Label Details	10	2013-02-08

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Variations permitted by Issue 4 of this certificate:

To allow for a correction to the set of parameters for the IS Power Supply listed in Issue 3 of this certificate. (the Lo/Ro should have read $\geq 60 \mu\text{H}/\Omega$, but in error was typed in as $\geq 62 \mu\text{H}/\Omega$. The corresponding report 34114A has been issued to replace 34114 to correct the same typographic error).

No other variation in the certificate or drawing list was necessary.

Variations permitted by Issue 5 of this Certificate:

Dongguan Hubbell Electrical Products Company Limited is added as a new manufacturing site.

Conditions of Certification pertaining to Issue 5 of this Certificate:

No changes. The previous conditions still apply.

Variations permitted by Issue 6 of this certificate:

1. APSA2 Test Report 22713A Change Request – The APSA2 PSA Request port added output parameters – $U_o = 16.5 \text{ V}$, $I_o = 3.5 \text{ mA}$, $C_o = 7 \mu\text{F}$, $L_o = 50 \text{ mH}$.
2. Safety Coupling Unit Type ASCU Label Details – Added parameters.
3. ABMA4 Label / Keyboard Details – Added MSHA approval and removed AUSEx approval.
4. ABMA4 PCB0161A Artwork – Enlarged some pad holes and changed some foot prints.
5. ABMA4 INTERCOM INTERIOR BOM – Alternative parts added.
6. PCB0161 (INTERCOM) BOM and PCB0159 (DISPLAY) BOM – Numerous changes mainly related to identifying brand manufacturers, adding part numbers, updating part numbers and adding alternative parts.
7. PCB0161 (INTERCOM) Component Loading Diagram - PCB revision change.
8. PCB0159 (DISPLAY) Component Loading Diagram - PCB revision change and add sealing details.
9. ABMA4 INTERCOM Interior Assembly – Some position value removed.
10. Type ABMA3-1 I.S Intercom Label Details – Added ATEX approval.
11. APSA2 PSA Controller Label Details - Add ATEX approval. Add alternative material. Remove AUS Ex approval.
12. Intersystems Coupler Type ISC2 Enclosure Label Details – Add ATEX approval.
13. PCB0157A Label For Intersystem Coupler Type ISC2 Artwork Details – Add ATEX approval.
14. DTMF Keyboard Type AKB1 Label Details – Add ATEX approval.
15. TEU100 Tail End Unit Label Drawing – Add ATEX approval.

These changes have been addressed in report 35552 (AU/TSA/ExTR13.0016/02)

Conditions of Certification pertaining to Issue 6 of this Certificate:

No changes. The previous conditions still apply.

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Drawing list pertaining to Issue 6 of this Certificate:

Drawing/ Document Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
20-012-13	1	TEU100 Tail End Unit Label Drawing	10	2016-04-21
20-135-13	1	Type ABMA3-1 I.S. Intercom Label Details	15	2014-12-17
20-200-03	2	Type APSA2 PSA Controller PCB0117A Schematic Diagram	08	2016-04-14
20-208-13	1	APSA2 Label PSA Controller Label Details	08	2015-08-24
20-226-13	1	Intersystems Coupler Type ISC2 Enclosure Label Details	06	2016-04-21
20-230-21	3	I.S. Intercom Type ABMA4 PCB0161A Artwork Details	06	2015-03-25
20-240-13	1 of 4	Type ABMA4 I.S. Intercom Graphic Detail Label Details	13	2014-11-03
20-245-14	4	I.S. Intercom Type ABMA4 PCB0161 Bill of Materials	16	2015-01-13
20-246-14	2	I.S. Intercom ABMA4 LC Display PCB0159 Bill of Materials	13	2015-01-12
20-247-07	2	I.S. Intercom Type ABMA4 PCB0161A Component Loading Diagram	11	2015-04-20
20-248-07	2	BMA LCD Display Type ABMA4 PCB0159 Component Loading Diagram	07	2008-02-14
20-263-21	2	PCB0157A Label for Intersystem Coupler Type ISC2 Artwork Details	03	2007-05-16
20-268-13	1	DTMF Keyboard Type AKB1 Label Details	06	2016-04-21
20-275-14	2	I.S. Intercom Type ABMA4 Interior Bill of Materials	08	2015-02-09
20-276-04	1	I.S. Intercom Type ABMA4 Interior Assembly Details	08	2008-02-13
57-006-13	1	Safety Coupling Unit Type ASCU Austdac P/No. BARR007 Label Details	11	2014-01-07

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IECEX Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEX TSA 07.0021X	Issue No.:	7
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Variation permitted by Issue 7:

- Change of both Applicant address and Manufacturer address from
 "1 / 4 Packard Avenue, Castle Hill, NSW 2154, Australia"
To
 "Unit 1, 42 Carrington Road, Castle Hill, NSW 2154, Australia"

Conditions of Certification pertaining to Issue 7 of this Certificate:

No changes. The previous conditions still apply.

Certificate issued by:

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