



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 ITA 08.0016X

Issue No: 2

Certificate history:

Issue No. 2 (2016-11-30)

Issue No. 1 (2014-12-23)

Issue No. 0 (2012-08-09)

Status: **Current**

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Date of Issue: **2016-11-30**

Applicant: **IOT Group Australia Pty Ltd**
640 Karel Ave, Jandakot,
Perth, Western Australia, 6164
Australia

Equipment: **Ex p Controller Model ExPC**

Optional accessory:

Type of Protection: **Ex mb [ia] I/IIC T4 (Tamb = -20C to +60C)**

Marking:

Ex mb [ia] I/IIC T4

-20 °C < Ta < +60 °C

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

Ajay Maira

Position:

Certification Authority

*Signature:
(for printed version)*

Date:

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:

TUV Rheinland Australia Pty. Ltd
1/30 Kennington Drive
Tomago NSW 2322
Australia





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Manufacturer: **IOT Group Australia Pty Ltd**
640 Karel Ave, Jandakot,
Perth, Western Australia, 6164
Australia

Additional 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 : 2004 Edition:4.0 | Electrical apparatus for explosive gas atmospheres - Part 0: General requirements |
| IEC 60079-11 : 2006 Edition:5 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" |
| IEC 60079-18 : 2004 Edition:2.0 | Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus |

*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/ITA/ExTR16.0020/00](#)

[AU/ITA/ExTR12.0027/00](#)

[AU/ITA/ExTR12.0027/01](#)

Quality Assessment Report:

[AU/ITA/QAR12.0001/02](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Model ExPC-X-XXXX is an encapsulated electronic product designed to provide an interface between non-intrinsically safe circuits and intrinsically safe circuits, which is intended to be located within a separate "Ex p" enclosure located in hazardous areas.

Refer to Annex for further details

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to Annex for Conditions of Certification



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EQUIPMENT (continued):

Refer to Annex for Equipment Description



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

Refer to Annex

Annex:

[IECEX ITA 08.0016X_2 Annex.pdf](#)

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Annexe



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Description:

The Model ExPC-X-XXXX is an encapsulated electronic product designed to provide an interface between non-intrinsically safe circuits and intrinsically safe circuits, which is intended to be located within a separate “Ex p” enclosure located in hazardous areas. The controller monitors the status of the equipment with the Ex p enclosure by virtue of one or two intrinsically safe interlock circuits. The controller utilizes 4 cable terminations (non intrinsically safe input power cable and output power cable plus two intrinsically safe circuits namely primary interlock cable and secondary interlock cable). The controller can be mounted within the hazardous area apart from within the “Ex p” equipment.

The unit consists of a stainless steel enclosure with the electronics fully encapsulated inside. The light from four intrinsically safe status LED's protrude through the wall of the enclosure via light rods. Connection to other circuits is achieved via flying leads located in glands on the side of the enclosure. The glands form an integral part of the assembly and may not be removed.

Model ExPC-X-XXXX nomenclature:

1. The first X is either A when the apparatus is fitted with a primary interlock only and model B is fitted with both primary & secondary interlocks.
2. The next four XXXX is a value between 30 and 86400 representing the time delay in seconds

Conditions of Certification pertaining to Issue 0 of this Certificate:

Conditions of Use

1. The following parameters are to be taken into account in the installation

Ex P controller PSU Input Cable

Um = 240 V

Ex P controller PSU Output Cable

Um = 240 V

I_{max} = 5 A Resistive load

I_{max} = 3 A Inductive load

Primary interlock and secondary interlock

intrinsically safe parameters

U_o = 5.36 V

I_o = 54 mA

P_o = 72 mW

C_i = negligible μF

L_i = negligible μH

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load connected to either the Primary or secondary interlock may not exceed the following values:

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| Group | Capacitance(μ F) | Inductance (mH) or | L/R Ratio (μ H/ Ω) |
|-------|-----------------------|--------------------|---------------------------------|
| IIC | 65 | 12 | 494 |
| IIB | 1,000 | 48 | 1978 |
| IIA | 1,000 | 97 | 3956 |
| I | 1,000 | 160 | 6490 |

Note: The above load parameters apply where:

- The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values. or
- The inductance and capacitance are distributed as in a cable. or
- The external circuit contains only lumped inductance or only lumped capacitance in combination with a cable.

In all other situations, e.g. the external circuit contains combined lumped inductance and capacitance, up to 50% of each of the inductance and capacitance values is allowed.

- The integral leads are to be suitably terminated and housed in accordance with a recognized protection technique and that at least 50 mm of separation is maintained between the intrinsically safe circuits (Primary and secondary interlocks) and the non-intrinsically safe circuits.
- The glands form an integral part of the enclosure and may not be removed.
- The multiple earths associated with J4 must be infallibly connected to an IS earth.
- The apparatus contains no serviceable parts and must be returned to the manufacturer for repair

Conditions of Manufacture

- Each encapsulated unit shall be visually inspected to ensure that there is no damage to the encapsulation such as cracks, flaking, inadmissible shrinkage, swelling, decomposition, failure in adhesion or softening.
- It is a condition of manufacturer that each encapsulated unit shall be capable of withstanding a di-electric strength test of either not less than 1,500Vac at 48 Hz to 62 Hz or 1,800Vac may be applied and maintained for a period not less than 100 ms

Drawing list pertaining to Issue 0 of this Certificate:

| Manufacturer's Documents | | | |
|---|--------------|-------------|------------|
| Title: | Drawing No.: | Rev. Level: | Date: |
| "ExPC Assembly" Bill of Materials | PCS-4900.1 | 1 | 2012/03/07 |
| ExPC Encapsulation Detail | PCS-4900.2 | 0.0 | 2011/07/01 |
| ExPC General Assembly | PCS-4900.3 | 2.0 | 2012/07/24 |
| "ExPC PSU Assembly" BoM | PCS-4900.4 | 0.0 | 2011/07/01 |
| Ex P Controller PSU | PCS-4900.5 | 1.0 | 2012/06/19 |
| ExPC PSU PCB Details | PCS-4900.6 | 1.0 | 2011/06/27 |
| "ExPC Timer Assembly" Bill of Materials | PCS-4900.7 | 1 | 2011/12/19 |

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| Title: | Drawing No.: | Rev. Level: | Date: |
|--|----------------------|-------------|------------|
| ExP Controller Timer | PCS-4900.8 | 1.0 | 2012/06/27 |
| ExPC Timer PCB Details | PCS-4900.9 | 0.0 | 2011/07/01 |
| ExPC Zener Barrier BoM | PCS-4900.10 | 0.0 | 2011/07/01 |
| ExPC Zener Barrier | PCS-4900.11 | 0.0 | 2011/07/11 |
| ExPC Zener Barrier PCB Details | PCS-4900.12 | 0.0 | 2011/07/01 |
| Ex P Controller Enclosure Main Enclosure | PCS-4900.13 Sheets 1 | 0.0 | 2011/07/01 |
| Ex P Controller Enclosure Rear Panel | PCS-4900.14 Sheets 2 | 0.0 | 2011/07/01 |
| ExPC Label Details | PCS-4900.15 | 2.0 | 2012/07/25 |
| ExPC Gland Modifications | PCS-4900.16 | 0.0 | 2011/07/01 |

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Annexe for Certificate No.:

IECEX ITA 08.0016X

Issue No.:

2

Variations permitted by Issue 1 of this certificate:

This issue of the certificate covers the revision of drawings to include a new company logo on the drawings and marking label and to include a replacement cable gland.

Conditions pertaining to Issue 1 of this certificate:

There are no changes to conditions as a result of this issue of the certificate. Conditions from Issue 0 of this certificate apply.

Drawings Associated with the Issue 1 of this Certificate:

| Manufacturer's Documents | | | |
|--|-------------------------|-------------|------------|
| Title: | Drawing No.: | Rev. Level: | Date: |
| "ExPC Assembly" Bill of Materials | PCS-4900.1 | 2 | 2014/07/30 |
| ExPC Encapsulation Detail | PCS-4900.2 | 1 | 2014/7/30 |
| ExPC General Assembly | PCS-4900.3 | 3 | 2014/7/30 |
| "ExPC PSU Assembly" BoM | PCS-4900.4 | 1 | 2014/7/30 |
| Ex P Controller PSU | PCS-4900.5 | 1.0 | 2012/6/19 |
| ExPC PSU PCB Details | PCS-4900.6 | 2 | 2014/7/30 |
| "ExPC Timer Assembly" Bill of Materials | PCS-4900.7 | 2 | 2014/7/30 |
| ExP Controller Timer | PCS-4900.8 | 1.0 | 2012/6/27 |
| ExPC Timer PCB Details | PCS-4900.9 | 1 | 2014/7/30 |
| ExPC Zener Barrier BoM | PCS-4900.10 | 1 | 2014/7/30 |
| ExPC Zener Barrier | PCS-4900.11 | 0.0 | 2011/7/11 |
| ExPC Zener Barrier PCB Details | PCS-4900.12 | 1 | 2014/7/30 |
| Ex P Controller Enclosure Main Enclosure | PCS-4900.13 Sheets 1 | 1 | 2014/7/30 |
| Ex P Controller Enclosure Rear Panel | PCS-4900.14 Sheets 2 | 1 | 2014/7/30 |
| ExPC Label Details | PCS-4900.15 | 3 | 2014/7/30 |
| ExPC Gland Modifications | PCS-4900.16 | 2 | 2014/7/30 |

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Issue No.:

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Variations permitted by Issue 2 of this certificate:

This issue of the certificate covers the revision of drawings to include a new company name and logo on the drawing borders and marking label.

Conditions pertaining to Issue 2 of this certificate:

Conditions from Issue 0 of this certificate apply.

Drawings Associated with the Issue 1 of this Certificate:

| Manufacturer's Documents | | | | |
|---|---------------------|--------------|--------------------|--------------|
| Title: | Drawing No.: | Pages | Rev. Level: | Date: |
| ExPC Assembly Bill of Materials | PCS-4900.1 | 1 | 3 | 2016-08-23 |
| ExPC Encapsulation Detail | PCS-4900.2 | 1 | 2 | 2016-08-23 |
| ExPC General Assembly | PCS-4900.3 | 1 | 4 | 2016-08-23 |
| ExPC PSU Assembly Bill of Materials | PCS-4900.4 | 1 | 2 | 2016-08-23 |
| ExPC PSU PCB Details | PCS-4900.6 | 1 | 3 | 2016-08-23 |
| ExPC Timer Assembly Bill of Materials | PCS-4900.7 | 1 | 3 | 2016-08-23 |
| ExPC Timer PCB Details | PCS-4900.9 | 1 | 2 | 2016-08-23 |
| ExPC Zener Barrier Assembly Bill of Materials | PCS-4900.10 | 1 | 2 | 2016-08-23 |
| ExPC Zener Barrier PCB Details | PCS-4900.12 | 1 | 2 | 2016-08-23 |
| Ex P Controller Enclosure Main Enclosure | PCS-4900.13 | 1 | 2 | 2016-08-23 |
| Ex P Controller Enclosure Rear Panel | PCS-4900.14 | 1 | 2 | 2016-08-23 |
| ExPC Label Details | PCS-4900.15 | 1 | 4 | 2016-08-23 |
| ExPC Gland Modifications | PCS-4900.16 | 1 | 3 | 2016-08-23 |