# 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 12.0016X issue No.:3 | Certificate history: Issue No. 3 (2014-9-18) Issue No. 2 (2013-1-30) Issue No. 1 (2012-6-7) Issue No. 0 (2012-3-14) |
| Status: | **Current** | |
| Date of Issue: | **2014-09-18** Page 1 of 4 | |

Applicant: **EX Innovations Ltd., Trading as Redapt**
Jepson Court
Tancred Close
Queensway
Royal Leamington Spa
Warwickshire CV31 3RZ
**United Kingdom**

Electrical Apparatus: **Adaptors, Reducers and Stopping Plugs**
*Optional accessory:*

Type of Protection: **Flameproof, Increased Safety and Dust Protection**

Marking: Ex d or
Ex e
Ex tb
Refer to the Annexe for full marking

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

*Position:* Deputy Certification Manager

*Signature:*
*(for printed version)*

*Date:* 2014-09-18

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

# IECEx Certificate of Conformity

Certificate No.: IECEx SIR 12.0016X

Date of Issue: **2014-09-18** Issue No.: **3**



Manufacturer: **EX Innovations Ltd., Trading as Redapt**
Unit 1
1 Kingsway South
Aldridge
Walsall WS9 8FS
**United Kingdom**

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 : 2007-10** Edition: 5 | Explosive atmospheres - Part 0:Equipment - General requirements |
| **IEC 60079-1 : 2007-04** Edition: 6 | Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d" |
| **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/ExTR12.0060/00 GB/SIR/ExTR12.0083/00 GB/SIR/ExTR13.0011/00
GB/SIR/ExTR14.0226/00

Quality Assessment Report:

GB/SIR/QAR06.0014/04 GB/SIR/QAR07.0016/03

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**Schedule**

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

Refer to the Annexe

**CONDITIONS OF CERTIFICATION: YES as shown below:**

Refer to the Annexe

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Date of Issue: **2014-09-18** Issue No.: **3**



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

| | |
|---|---|
| **Issue 1** – this Issue introduced the following change: | |
| 1 | The applicant has advised us that their address has been changed from Units 46 & 47, Darlaston Central Trading Estate, Salisbury Street, Darlaston, West Midlands WS10 8XB to that currently shown. |
| **Issue 2** – this Issue introduced the following change: | |
| 1. | The recognition that the company name and address has changed from Redapt Ltd, Westgate, Aldridge, West Midlands WS9 8FS to EX Innovations Ltd., Trading as Redapt at Jepson Court, Tancred Close, Queensway, Royal Leamington Spa, Warwickshire CV31 3RZ. |
| **Issue 3** – this Issue introduced the following changes: | |
| 1. | The inclusion of the "2-step" AD-U Adapters from IECEx SIR 07.0010X was approved. |
| 2. | The introduction of Aluminium as a material option for AD-U, RD-U, PD-U, AE-E, AM-D, AF-U, PA-D & PB-D product ranges The Conditions of Certification and Manufacture were amended accordingly. |

**Annex:** IECEx SIR 12.0016X Issue 3 Annexe.pdf

### Adaptors and Reducers

The ranges of thread adaptors and reducers each comprise a hollow body with an external male thread and an internal female thread. The devices are used to convert an existing cable entry aperture thread to a different thread form and / or size. The adaptors and reducers may optionally be machined with a groove to fit an 'O' ring seal.

Variants:

AD-U Series - Metallic hexagonal bodied adaptors
Coded: Ex d I/IIC Mb/Gb, Ex e I/IIC Mb/Gb
Ex tb IIIC Db IP6X

RD-U Series - Metallic hexagonal bodied reducers
Coded: Ex d I/IIC Mb/Gb, Ex e I/IIC Mb/Gb
Ex tb IIIC Db IP6X

### Earth Lead Adaptors and Reducers

The AE-E Series Range of Earth Lead Adaptors and Reducers each comprise a hexagon body with a male thread at one end and a female thread machined into the other. The devices are designed to provide a connection from a cable gland or termination to earth via a 300 mm long earth lead cable riveted and soldered to the body and additionally may be used to convert an existing cable entry aperture thread to a different thread form and/or size.

Coded: Ex e IIC Gb
Ex tb IIIC Db IP6X

### Male to Male Adapters

The AM-D Series Range of thread adaptors each comprises a hexagon body with a male thread form at each end. The devices are used to convert an existing cable entry aperture thread to a different thread form and/or size.

Coded: Ex d IIC Gb
Ex tb IIIC Db IP6X

### Female to Female Adaptors and Reducers

The AF-U Series range Range of thread adaptors each comprises a hexagon body with a female thread form at each end. The devices are used to convert an existing cable entry aperture thread to a different thread form and/or size. Thread forms are between M20 and M75.

Coded: Ex d IIC Gb
Ex tb IIIC Db IP6X



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**Stopping Plugs**

A range of threaded plugs used to fill unused cable entries in the associated apparatus.

Variants:

PD-U Series - Metallic round bodied devices with a dome head and having a hexagonal key-way recess for tightening. They may optionally be machined with a groove to fit an ' 0 ' ring seal.

Coded: Ex d I/IIC Mb/Gb, Ex e I/IIC Mb/Gb
Ex tb IIIC Db IP6X

PA-D & PB-D Series - Metallic round bodied devices with a thread run out to shoulder having a hexagonal key-way recess for internal or external tightening

Coded: Ex d I/IIC Mb/Gb
Ex tb IIIC Db IP6X

**Design Options** (The adapters reducers and Plugs listed above may utilise the following design options)

Threadforms:

All products may be machined with the following typical thread forms of the nearest equivalent recognised thread size. Thread combinations are such that minimum wall thickness are maintained.

ISO Metric (to BS3463)
PG to DIN40430
NPT (ANSI/ASME Bl.20.1)
NPS (ANSI/ASME Bl.20.1)
ISO Pipe Thread (BS21) BSPP/BSPT
Imperial conduit ET BS31
BSP to BS21

In addition any other thread form that also complies with the requirements of IEC 60079-1 tables 3 or 4 and clause C.2.2 (as applicable) are also permitted.

Material:

The following materials are used as appropriate:

Brass BS 2874 (CZI 21)
Mild Steel to BS970 (EN1A)
Stainless Steel to BS970 (316)

Surface coating:

The products may additional be surface coated with:

Nickel
Zinc
Electroless nickel.



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**PD-E-4 nylon Stopping Plugs**

The PD-E-4 Series is a range of 'Ex e' Durathon BKV 30 N1 30% Glass Filled Nylon 6 threaded stopping plugs each comprising a threaded body with a hexagonal socket for tightening. The devices are used to close unused apertures in associated component.

Design Options

Threadforms Options:
ISO Metric (to BS3463)
PG to DIN40430
NPT (ANSI/ASME Bl.20.1)
NPS (ANSI/ASME Bl.20.1)
ISO Pipe Thread (BS21) BSPP/BSPT
Imperial conduit ET BS31
BSP to BS21
Any threadform conforming to Table 3 of IEC 60079-1

**T Line Swivel Adapters**

The Range of Inline Swivel Adapters are designed to convert cable gland entries into different thread forms and/or sizes between M20 and M75. Each device comprises two, threaded parts and an internal, retaining key, when these are assembled, a flamepath is formed between the thread parts and the components are able to spin about each other, such that connection at both ends may be achieved without twisting the cable.

When installed in accordance with the manufacturer's instructions, these Adaptors are capable of providing an ingress protection rating of IP 66.

Inline:

Male/Female: FA
Female/Female: FC
Male/Male: FD

Material Options:

Brass to BS 2874:1985 & CZ 121
Stainless Steel to BS 970 Part 4:1970 & 316
Mild Steel to BS 970 Part 1:1983 & 220 MO7
Aluminium to BS 1474:1987 & 6082T6
Aluminium Bronze to BS 1400:AB2



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**Conditions of Certification**

**AD-U Adaptors, RD-U Reducers and PD-U Stopping Plugs**

i. Only one adaptor or reducer shall be used with any single cable entry on the associated equipment.
ii. The interfaces between these devices and the associated enclosure cannot be defined; therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
iii. The stopping plugs shall not be used with any form of adaptors or reducers.
iv. When installed in group I applications, the ADU M16 (M) to M20 (F) adaptors manufactured in brass shall only be installed where the risk of mechanical impact is low.
v. At their point of mounting, these devices are suitable for use at the following temperatures dependant on the type of 'O' ring:

| 'O'-ring Material | Limiting temperature |
|---|---|
| None | -50°Cto+180°C* |
| Nitrile | -20°C to +80°C |
| EPDM | -30°C to +125°C |
| Neoprene | -20°Cto+100°C |
| Viton | -5°Cto+180°C* |
| Silicone | -30°Cto+180°C* |
| Fluorosilicone | -50°C to +150°C |

* The maximum temperature is limited to 1 SOX for Group I applications.

**AE-E Earth Lead Adaptors and Reducers**

i. Only one adaptor or reducer shall be used with any single cable entry on the associated equipment.
ii. The interfaces between these devices and the associated enclosure cannot be defined; therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
iii. These devices are suitable for use at -20°C to 40°C at their point of mounting.

**AR-D 90° Thread Adaptors and Reducers**

i. Only one adaptor or reducer shall be used with any single cable entry on the associated equipment.
ii. The interfaces between these devices and the associated enclosure cannot be defined; therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
iii. At their point of mounting, these devices are suitable for use at -50°C to 180°C.

**AM-D Thread Adaptors**

i. Only one adaptor shall be used with any single cable entry on the associated equipment.
ii. The interfaces between these devices and the associated enclosure cannot be defined; therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
iii. These adaptors shall not be used for the direct inter-connection of enclosures.
iv. At their point of mounting, these devices are suitable for use at -50°C to +180°C.



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### AF-U Thread Adaptors

i. Only one adaptor shall be used with any single cable entry on the associated equipment.
ii. The interfaces between these devices and the associated enclosure cannot be defined; therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
iii. At their point of mounting, these devices are suitable for use at -50°C to 180°C.

### PA-D and PB-D Stopping Plugs

i. The interfaces between these devices and the associated enclosure cannot be defined; therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
ii. These stopping plugs shall not be used with any form of adaptors or reducers.
iii. At their point of mounting, these devices are suitable for use at -50°C to +180°C for Group II applications and -50°C to +150°C for Group I applications.

### PD-E-4 nylon Stopping Plugs

i. The stopping plugs shall not be used with any form of adaptors or reducers.
The interfaces between these devices and the associated enclosure cannot be defined; therefore, it is the user's responsibility to ensure that the appropriate ingress protection level is maintained at these interfaces.
At their point of mounting, these devices are suitable for use at either -20°C to +40°C or -5°C to +40°C when using Viton seals.
The clearance holes for metric male threaded products, suitable for clearance hole applications of Increased safety enclosures are to have a diameter of 0.3 to 0.5 mm larger than the major diameter of the male thread.
PD-E-4 stopping plugs employing parallel threads without seals, shall have at least eight full threads of engagement, with a minimum tolerance according to ISO 965-1 and ISO 965-3.

### T Line Swivel Adapters

i. These Adaptors shall not be used for an application where the following service temperature range limitations would be exceeded:

| Type of protection | Service Temperature |
|---|---|
| Ex d I Mb | -20°C to +60°C* |
| Ex e I Mb | -50°C to +150°C* |
| Ex d IIC Gb | -20°C to +60°C* |
| Ex e IIC Gb | -50°C to +200°C* |
| Ex tb IIIC Db | -50°C to +200°C* |
| * Unless fitted with an interface sealing O-ring with lower properties, temperatures shall then be limited as per the manufacturer's instructions | |

### Aluminium Variants

i. Aluminium variants are not permitted for Group I applications.



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**Conditions of Manufacture**

These products shall be marked in accordance with the information as specified in this certificate and related reports.

i. Aluminium variants are not permitted for Group I applications. The manufacturer shall ensure that the equipment is marked appropriately.

**Ranges of Adaptors, Reducers, Stopping Plugs and PD-E-4 nylon Stopping Plugs**

i. In accordance with EN 60079-1:2007, the coating on joint surfaces of metallic devices that are electroplated shall be no more than 0.008 mm thick,
ii. The female threads of adaptors are restricted to one size larger than the male thread size.

**T Line Swivel Adapters**

None



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