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 09.0102X

Issue No: 7

Certificate history:
Issue No. 7 (2019-01-14)
Issue No. 6 (2014-11-04)
Issue No. 5 (2014-09-12)
Issue No. 4 (2012-05-14)
Issue No. 3 (2011-01-25)
Issue No. 2 (2010-09-23)
Issue No. 1 (2010-09-03)
Issue No. 0 (2010-08-04)

Status: **Current**

Date of Issue: **2019-01-14**

Applicant: **Eaton Electric ltd**
Great Marlings,
Butterfield,
Luton,
Bedfordshire,
LU2 8DL
United States of America

Equipment: **ADU-A-B-C-DD Azonix Driller Unit**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking:
Ex ia IIC T4 Gb

Ta = -20°C to +50°C

Approved for issue on behalf of the IECEx Certification Body: R A Craig

Position: Certification Support Officer

Signature:
(for printed version)

Date: 2019-01-14

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
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom

IECEx Certificate of Conformity

Certificate No:	IECEx SIR 09.0102X	Issue No: 7
Date of Issue:	**2019-01-14**	Page 2 of 5
Manufacturer:	**Eaton Electric ltd** Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL **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 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 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*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/ExTR09.0145/00
GB/SIR/ExTR09.0171/00
GB/SIR/ExTR10.0226/00
GB/SIR/ExTR10.0307/00
GB/SIR/ExTR12.0008/00
GB/SIR/ExTR14.0220/00
GB/SIR/ExTR14.0274/00
GB/SIR/ExTR19.0008/00

Quality Assessment Report:

GB/BAS/QAR07.0017/07

IECEx Certificate of Conformity

Certificate No:	IECEx SIR 09.0102X	Issue No: 7
Date of Issue:	**2019-01-14**	Page 3 of 5

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The ADU is a display unit that gives visual indication of the direction of the drill head, angle, depth and other information by means of two LCDs and arrays of LEDs. It comprises a single printed circuit board with two LCDs, these are mounted in a aluminium alloy enclosure that has a polycarbonate window to allow the LCDs and LEDs to be viewed. External connections are by means of one or two plug-and-socket connectors. The ADU has two versions: Single Port or Dual Port.

Single port (basic model) Two supplies, which are separate intrinsically safe circuits, with the following safety descriptions:

Power	RS232 or RS485
Ui = 15 V Ii = 150 mA Pi = 0.56 W* Ci = 508 nF Li = 0	Ui = 15 V Ii = 150 mA Pi = 0.56 W* Ci = 12 nF Li = 0

* These values were changed in Issue 6

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. All supplies to the ADU shall be considered as separate intrinsically safe circuits.
2. The enclosure contains non-metallic parts. By virtue of its shape, design and position of use, it is assessed that the equipment is not considered to be a significant electrostatic risk; however, the equipment must not be installed in a position where it may be subjected to an excessive air/fluid flow or be subjected to rubbing that may cause an electrostatic build-up.
3. The equipment enclosure contains light metals. The equipment shall be installed in such a manner as to minimise the risk of impact or friction with other metal surfaces.

IECEx Certificate of Conformity

EQUIPMENT (continued):

Dual Port (enhanced features) Six supplies, which are separate intrinsically safe circuits, with the following safety descriptions:

Power	RS232, RS485A & RS485B	Backlight	Heater
Ui = 15 V Ii = 150 mA Pi = 0.56 W* Ci = 508 nF Li = 0	Ui = 15 V Ii = 150 mA Pi = 0.56 W* Ci = 12 nF Li = 0	Ui = 15 V Ii = 150 mA Pi = 0.56 W* Ci = 134 nF Li = 0	Ui = 15 V Ii = 300 mA Pi = 0.869 W* Ci = 12 nF Li = 0

* These values were changed in Issue 6

Model Number

The model number is ADU-A-B-C-DD, where:

A = 1 – Single Port Version (power and communication only), 2 – Dual Port Version (power and communication with heater and/or backlight)

B = 0 – Version with no backlight and heater (Single Port Version or Dual Port Version), 1 – Backlight only (Dual Port Version only), 2 – Heater only (Dual Port Version only), 3 – Backlight and heater (Dual Port Version only)

C = Protocol

DD = Code indicating customer-specific options such as colour, graphics, etc.

Note - the 'C' (AZMODEL) and 'DD' (VERSION) designations are not relevant to this certification and may be any alphanumerics.

IECEx Certificate of Conformity

Certificate No:	IECEx SIR 09.0102X	Issue No: 7
Date of Issue:	**2019-01-14**	Page 5 of 5

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

This Issue, Issue 7, recognises the following change; refer to the certificate annex to view a comprehensive history:

1. Permit a change in the legal entity, and a modified manufacturing name and address from Azonix Corporation, Building #4, North Billerica. MA 01862, USA to Eaton Electric ltd, Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL, UK.

Annex:

IECEx SIR 09.0102X Annexe Issue7.pdf

Full certificate change history

Issue 1 – this Issue introduced the following changes:

1. The introduction of a Dual-Port Version, the ADU-2-B-C-DD; the Description of Equipment has been modified to incorporate this version and to clarify the original model numbering, the Equipment Title has also been changed to be more generic.
2. The removal of the Special Condition for Safe Use that related to the infallible connection of the supplies to zero volts.

Issue 2 – this Issue introduced the following changes:

1. The introduction of a 'power supervisory board' to either the single-port or the dual-port version.
2. The terminal capacitance was revised; the product description being changed to reflect this and to clarify the definitions of the model numbers.

Issue 3 – this Issue introduced the following changes:

1. The recognition of changes to the revision levels of some certification documents without technical change
2. The pin-out on the main board schematic was changed.
3. The equipment name was changed from ADU-1-0-C-DD to ADU-A-B-C-DD.

Issue 4 – this Issue introduced the following change:

1 Following appropriate re-assessment to demonstrate compliance with the requirements of the latest EN 60079 series of standards, the documents previously listed, IEC 60079-0:2004 Ed 4, and IEC 60079-11:2006 Ed 5, were replaced by those currently listed.

Issue 5 – this Issue introduced the following change:

1. The polycarbonate lens specification was relaxed.
2. The artworks for RoHS compliance were modified.
3. Minor corrections and updates to the main board schematic and associated critical component list were recognised.
4. The Applicants/Manufacturer's address was changed from 900 Middlesex Turnpike, Billerica, Massachusetts, 01821, USA to 101 Billerica Ave, Building #4, North Billerica, MA 01862, USA.

Issue 6 – this Issue introduced the following change:

1. The values of P_i were increased as detailed below; the description has been amended to show the new values:

Single port (basic model)

Value	Power	RS232 or RS485
Previous	Pi = 0.375 W	Pi = 0.375 W
New	Pi = 0.56 W	Pi = 0.56 W

Dual Port (enhanced features)

Value	Power	RS232	RS485A	RS485B	Backlight	Heater
Previous	Pi = 0.375 W	Pi = 0.375 W	Pi = 0.375 W	Pi = 0.375 W	Pi = 0.375 W	Pi = 0.75 W
New	Pi = 0.56 W	Pi = 0.56 W	Pi = 0.56 W	Pi = 0.56 W	Pi = 0.56 W	Pi = 0.869 W

Issue 7 – this Issue introduced the following change:

1 Permit a change in the legal entity, and a modified manufacturing name and address from Azonix Corporation, Building #4, North Billerica. MA 01862, USA to Eaton Electric ltd, Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL, UK

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