IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEx BAS 14.0133X**

Certificate history:
Issue 0 (2014-10-23)

Status: **Current**

Issue No: 1

Date of Issue: 2024-04-17

Applicant: **Eaton Electric Limited**
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
United Kingdom

Equipment: **93ZX-FB-**-** Fieldbus Barrier System**

Optional accessory:

Type of Protection: **Flameproof, Increased Safety, Encapsulation, Intrinsic Safety, Dust Protection by Enclosure**

Marking: **Ex db eb ib mb [ia Ga] IIC T4 Gb**

Ex tb III C T80°C Db

(-30°C ≤ T_a ≤ +65°C)

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

Position: **Certification Consultant**

Signature:
(for printed version)

Date:
(for printed version) 17/4/2024

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Certificate issued by:

SGS UK Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire SK17 9RZ
United Kingdom

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Manufacturer:
Eaton Electric Limited
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
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Manufacturing locations:
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Great Marlings
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LU2 8DL
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MTL Instruments Pvt Limited
No 3 Old Mahabalipuram Road
Sholinganallur
Chennai 600119
India

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-1:2014 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
Edition:7.0

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

IEC 60079-18:2017 Explosive atmospheres - Part 18: Protection by encapsulation "m"
Edition:4.1

IEC 60079-31:2013 Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
Edition:2

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with 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 Reports:

GB/BAS/ExTR14.0258/00 GB/BAS/ExTR16.0282/00

Quality Assessment Reports:

GB/BAS/QAR06.0022/11 GB/BAS/QAR07.0017/10

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EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The 93ZX-FB-**-** Fieldbus Barrier System comprises one or two 937X-FB-**-** Fieldbus Barrier Modules (IECEx BAS 09.0081U) housed inside an appropriately certified stainless steel enclosure. Each 937X-FB-**-** Fieldbus Barrier Module is either a 6 way simplex unit, a 12 way simplex unit or a 5 way redundant unit.

The 93ZX-FB-**-** Fieldbus Barrier System is designed to be supplied from a power supply conforming to IEC 61158 and produce several Spur outputs that are each compliant with the FISCO Power Supply requirements. The Spur outputs are isolated from the input supply but are not isolated from each other. Electrical connections are made via screw terminals.

The 93ZX-FB-**-** Fieldbus Barrier System has a certification temperature range of -30°C to +65°C.

See certificate Annex for the Terminal Parameters.

SPECIFIC CONDITIONS OF USE: YES as shown below:
1. The equipment shall only be powered from supplies conforming to IEC 61158.

2. When a Trunk Surge Module is fitted, the power input circuit will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

3. When one or more Spur Surge Modules are fitted, the spur outputs will not withstand a 500V a.c. isolation test to earth. This must be taken into account during installation.

4. Potential electrostatic hazard. The equipment should only be cleaned with a damp cloth.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Variation 1.1

To permit a change of company name, the addition of an alternative manufacturing site, an update to the referenced standards and the use of alternative enclosures.

ExTR: **GB/BAS/ExTR16.0282/00**	File Reference: **16/0371**

Annex:

IECEx BAS 14.0133X Annex 1.pdf

SGS United Kingdom Ltd
Rockhead Business Park
Staden lane, Buxton, Derbyshire
SK17 9RZ
United
Kingdom

Terminal Parameters - SPUR+ve Output Terminal and Shield Terminal w.r.t Spur-ve (each channel)

9387 & 9388 Units - Simplex Models

U_o	= 17.5V
$I_{o\ peak}$	= 249.5mA
$I_{o\ continuous}$	= 113mA
P_o	= 982mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(µF)	(mH)		(µH/ohm)
IIC	0.339	0.57		32.5
IIB	1.97	2.28		130
IIA	8.2	4.57		260

The above parameters apply when one of the two conditions below is given:
- the total L_i i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

The above parameters are reduced to 50% when both of the two conditions below are given:
- the total L_i of the external circuit (excluding the cable) ≥1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) ≥1% of the C_o value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIA & IIB, and 600nF for Group IIC.

The values of L_o and C_o determined by this method shall not be exceeded by the sum of all of the L_i plus cable inductances in the circuit and the sum of all of C_i plus cable capacitances respectively.

9391 - Redundant Models

U_o	= 16.4V
$I_{o\ peak}$	= 246mA
$I_{o\ continuous}$	= 215mA
P_o	= 912mW
U_i	= 17.5V
C_i	= 0
L_i	= 0

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to hazardous area terminals TB1 must not exceed the following values:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(µF)	(mH)		(µH/ohm)
IIC	0.424	0.59		35.2
IIB	2.51	2.35		140
IIA	10.0	4.70		281

The above parameters apply when one of the two conditions below is given:

- the total L_i i of the external circuit (excluding the cable) is < 1% of the L_o value or
- the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.

The above parameters are reduced to 50% when both of the two conditions below are given:

- the total L_i of the external circuit (excluding the cable) ≥1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) ≥1% of the C_o value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIA & IIB, and 600nF for Group IIC.

The values of L_o and C_o determined by this method shall not be exceeded by the sum of all of the L_i plus cable inductances in the circuit and the sum of all of C_i plus cable capacitances respectively.