



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 05.0021** Page 1 of 4 **Certificate history:**
Status: **Current** Issue No: 3 Issue 2 (2018-02-12)
Date of Issue: **2019-10-24** Issue 1 (2009-05-06)
Applicant: **Eaton Electric Limited** Issue 0 (2005-06-01)
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
United Kingdom
Equipment: **MTL5051 Intrinsically Safe Serial Data Communications Isolator**
Optional accessory:
Type of Protection: **Intrinsic Safety**
Marking: **[Ex ia Ga] IIC -20 °C ≤ Ta ≤ +60 °C**
[Ex ia Da] IIIC -20 °C ≤ Ta ≤ +60 °C

Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

D BREARLEY
Certification
Manager

Position:

Technical Manager

Signature:
(for printed version)

Date:

PP D Brearley
24/10/19

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Certificate issued by:

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





IECEX Certificate of Conformity

Certificate No.: **IECEX BAS 05.0021**

Page 2 of 4

Date of issue: 2019-10-24

Issue No: 3

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

Additional manufacturing locations: **MTL Instruments PVT Limited**
No 3 Old Mahabalipuram Road
Sholinganallur
Chennai .
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 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

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

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/ExTR17.0222/00](#)

[GB/BAS/ExTR19.0267/00](#)

Quality Assessment Reports:

[GB/BAS/QAR06.0022/08](#)

[GB/BAS/QAR07.0017/07](#)



IECEX Certificate of Conformity

Certificate No.: **IECEX BAS 05.0021**

Page 3 of 4

Date of issue: 2019-10-24

Issue No: 3

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

An MTL5051 Intrinsically Safe Serial Data Communication Isolator is designed to provide a fully floating d.c. supply for hazardous area mounted instrumentation. Communications is provided by voltage and current switching, or current loops, or RS232 in the hazardous area and by RS232 or RS422 in the safe area.

The MTL5051 apparatus comprises a single isolating transformer, two opto-isolators with five hazardous area output circuits, each of which is protected by zener diodes / resistance combinations providing voltage and current limitation. The above, together with other electronic circuitry, is mounted on a single printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

See Annexe for electrical data.

SPECIFIC CONDITIONS OF USE: NO



IECEX Certificate of Conformity

Certificate No.: **IECEX BAS 05.0021**

Page 4 of 4

Date of issue: 2019-10-24

Issue No: 3

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Variation 3.1

To permit minor component and PCB track changes not affecting the previous assessment.

ExTR: GB/BAS/ExTR19.0267/00

File Reference: 19/0548

Annex:

[IECEX BAS 05.0021 Annex Iss 1.pdf](#)

MTL5051 Intrinsically Safe Serial Data Communications Isolator

Input / Output Parameters

Non-Hazardous Area Terminals 7 to 9, 10 to 12 & Terminals 13 & 14

$U_m = 250V$

The equipment is designed to operate from a d.c. supply of up to 35V on Terminals 7 to 9, Terminals 10 to 12 & Terminals 13 & 14.

Hazardous Area Terminals 2, 3, 4 w.r.t. 1

$U_o = 14V$
 $I_o = 192mA$
 $P_o = 0.80W$
 $C_i = 0$
 $L_i = 0$

Hazardous Area Terminals 2, 3 w.r.t. 1

$U_o = 14V$
 $I_o = 108mA$
 $P_o = 0.45W$
 $C_i = 0$
 $L_i = 0$

Hazardous Area Terminals 2, 5, 6 w.r.t. 1

$U_o = 20V$
 $I_o = 139mA$
 $P_o = 0.46W$
 $C_i = 0$
 $L_i = 0$

Hazardous Area Terminals 3, 4 w.r.t. 1

$U_o = 14V$
 $I_o = 88mA$
 $P_o = 0.35W$
 $C_i = 0$
 $L_i = 0$

Hazardous Area Terminals 5, 6 w.r.t. 1

$U_o = 15V$
 $I_o = 35mA$
 $P_o = 0.07W$
 $C_i = 0$
 $L_i = 0$

Hazardous Area Terminals 2, 3, 4, 5, 6 w.r.t. 1

$U_o = 20V$
 $I_o = 227mA$
 $P_o = 0.81W$
 $C_i = 0$
 $L_i = 0$

Load Parameters

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

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO ($\mu H/ohm$)
<u>Hazardous Area Terminals 2, 3, 4 w.r.t. 1</u>				
IIC	0.73	0.92		55
IIB*	4.60	2.75		229
IIA	17.0	7.34		465
<u>Hazardous Area Terminals 2, 3 w.r.t. 1</u>				
IIC	0.73	3.19		97
IIB*	4.60	13.46		371
IIA	17.0	27.05		783
<u>Hazardous Area Terminals 2, 5, 6 w.r.t. 1</u>				
IIC	0.22	1.89		53
IIB*	1.41	8.38		208
IIA	5.50	16.68		431

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO ($\mu\text{H}/\text{ohm}$)
Hazardous Area Terminals 3, 4 w.r.t. 1				
IIC	0.73	4.80		118
IIB*	4.60	19.61		440
IIA	17.0	40.04		929
Hazardous Area Terminals 5, 6 w.r.t. 1				
IIC	0.58	29.37		265
IIB*	3.55	107.86		1,008
IIA	14.0	225.16		1,891
Hazardous Area Terminals 2, 3, 4, 5, 6 w.r.t. 1				
IIC	0.22	0.36		33
IIB*	1.41	1.09		138
IIA	5.50	2.89		277

* Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes:

- 1) The above load parameters apply when one of the two conditions below is given:
 - the total L_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.
- 2) 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) is $\geq 1\%$ of the L_o value and
 - the total C_i of the external circuit (excluding the cable) is $\geq 1\%$ of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than $1\mu\text{F}$ for Groups IIB & IIA 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 the L_i plus cable inductances in the circuit and the sum of all of the C_i plus cable capacitances respectively.