

1 UK-TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Product and Protective Systems with respect to the risks of explosion**
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 UK-Type Examination Certificate Number: **BAS21UKEX0465**

4 Product: **MTL5051 Intrinsically Safe Serial Data Communications Isolator**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 SGS Baseefa, Approved Body number 1180, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations.

The examination and test results are recorded in confidential Report No. **21(C)0386/17**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN IEC 60079-0:2018 EN 60079-11:2012

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign “X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

11 This UK-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of the product shall include the following:

⊕ II (1) GD [Ex ia Ga] IIC (-20°C ≤ Ta ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ Ta ≤ +60°C)

SGS Baseefa Customer Reference No. **0703**

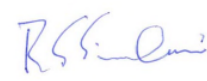
Project File No. **21/0386**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number BAS21UKEX0465**

15 **Description of Product**

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

The MTL5051 equipment comprises a single isolating transformer, two opto-isolators with five hazardous area outputs, each which is protected Zener diode / resistance combinations to provide voltage and current limitation. The above, together with other electronic circuitry is mounted on a single multi-layer printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

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 ration (L/R) of the hazardous area load connected must not exceed the following values:

GROUP	CAPACTIANCE (μF)	INDUCTANCE (mH) OR	L/R RATIO ($\mu H/ohm$)
Hazardous Area Terminals 2, 3, 4 w.r.t. 1			
IIC	0.73	0.92	55
IIB*	4.60	2.75	229
IIA	17.0	7.34	465
Hazardous Area Terminals 2, 3 w.r.t. 1			
IIC	0.73	3.19	97
IIB*	4.60	13.46	371
IIA	17.0	27.05	783

Hazardous Area Terminals 2, 5, 6 w.r.t. 1			
IIC	0.22	1.89	53
IIB*	1.41	8.38	208
IIA	5.50	16.68	431
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 cables is $<1\%$ of the L_o value or
 - The total C_i of the external circuit (excluding the cables is $<1\%$ of the C_o value.
- 2) The above load parameters are reduced to 50% when both of the two conditions below are given:
 - The total L_i of the external circuit (excluding the cables is $<1\%$ of the L_o value or
 - The total C_i of the external circuit (excluding the cables is $<1\%$ of the C_o value.

The reduced capacitance of the external circuit (including the 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 the C_i plus cable capacitances respectively.

16 Report Number

21(C)0386/17

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
13	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
14	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
22(1)	External effects	User/Installer responsibility
22(2)	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
CI5051	1 of 1	5	8.21	MTL5051 IS SERIAL DATA COMMUNICATIONS ISOLATOR

These drawings are held with BAS21UKEX0465 (prime).

For other current drawings not re-submitted for this assessment, see BAS01ATEX7158 - Issue 2