

1 **EU - 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 Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate **Baseefa11ATEX0037 – Issue 3**
Number:

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL4581 Millivolt / Thermocouple Isolator**

5 Manufacturer: **Eaton Electric Limited**

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

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa11ATEX0037 to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in confidential Report No. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 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 EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive 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 ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)

⊕ I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. 0703

Project File No. 16/0371

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SGS Baseefa Limited

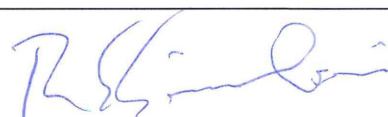
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R S SINCLAIR
TECHNICAL MANAGER

On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa11ATEX0037 – Issue 3**

15 **Description of Product**

The MTL4581 Millivolt / Thermocouple Isolator are designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a low-level d.c. signal from a voltage source or thermocouple located in the hazardous area by limitation of voltage and current. Two transformers provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL4581 Millivolt / Thermocouple Isolator are designed for connection to a low level d.c. signal from a voltage source of thermocouple situated in the hazardous area. The equipment isolates and passes the signal to the receiving equipment located in the non-hazardous area.

The equipment comprises two isolating transformers, duplicated zener diodes and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a single printed circuit board (PCB) 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 8, 9, 11, 13 & 14

$$U_m = 253V \text{ r.m.s.}$$

The circuit connected to non-hazardous area terminals 8, 9, 11, 13 & 14 are designed to operate from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 1 & 2

$$\begin{array}{lll} U_o = 1.1V & U_i = 28V & C_i = 0 \\ I_o = 53mA & I_i = 120mA & L_i = 0.5mH \\ P_o = 15mW & & \end{array}$$

Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of EN 60079-11: 2012, when terminals 1 & 2 are connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of EN 60079-11: 2012 to the parameters of the circuit into which it is connected.

When an external intrinsically safe source is connected to these terminals it should have a source resistance of U_i / I_i and the capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area connections must not exceed the values detailed in the certificate of the intrinsically safe source.

The capacitance and either the inductance or 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 ($\mu\text{H}/\text{ohm}$)
IIC	100	12.3		2,438
IIB*	1,000	47.3		8,932
IIA	1,000	104.2		18,140
I	1,000	155.7		28,229

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

Notes:

- 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.
- 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 & I and 600nF for Group IIC.

16 Report Number

GB/BAS/ExTR16.0237/00

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
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4581-1	5 of 8	4	9.16	MTL4581 & MTL5581 Component Layout
CI4581-1	8 of 8	3	7.16	MTL4581 Certification Label Details – Baseefa

The above drawing is associated and held with IECEx BAS 11.0024 Iss. 2

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4581-1	1 of 8	2	7.11	Parts List for MTL4581 & MTL5581
CI4581-1	2 of 8	2	7.11	MTL4581 & MTL5581 Circuit Diagram
CI4581-1	3 of 8	3	3.14	MTL4581 & MTL5581 Circuit Diagram

Number	Sheet	Issue	Date	Description
CI4581-1	4 of 8	2	7.11	MTL4581 & MTL5581 Track Layout
CI4581-1	6 of 8	1	3.11	PCB Detail for TPL300 and TPL302
CI4581-1	7 of 8	1	3.11	PCB Detail for TPL301
CI4500-100	1 of 1	2	1.13	MTL 4500 Case

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 11.0024

20 Certificate History

Certificate No.	Date	Comments
Baseefa11ATEX0037	1 June 2011	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-0: 2009, EN 60079-11: 2006 and EN 61241-11: 2006 is documented in Certification Test Report No's. GB/BAS/ExTR11.0072/00 & GB/BAS/ExTR11.0073/00.
Baseefa11ATEX0037/1	4 August 2011	To permit minor circuit and PCB changes to the circuit. As a result of these changes, the output and load parameters for the hazardous area terminals 1 & 2 were revised. The associated assessment is documented in Certification Report No. GB/BAS/ExTR11.0184/00.
Baseefa11ATEX0037/2	28 March 2014	i) To permit minor component and drawing changes not affecting the original assessment. ii) To confirm the current design of the MTL4581 Millivolt / Thermocouple Isolator has been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 and EN 61241-11: 2006 and none of the differences affect the equipment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00.
Baseefa11ATEX0037 Issue 3	26 September 2016	This issue of the certificate confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 in respect of differences from EN 60079-0: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. A minor drawing change was also made not affecting the original assessment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0237/00.
For drawings applicable to each issue, see original of that issue.		