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 Number: **Baseefa06ATEX0175 – Issue 9**

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: **MTL4504 / MTL4511 / MTL4514 / MTL4514B / MTL4516 / MTL4516C / MTL4517 Switch / Proximity Detector Interface**

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. Baseefa06ATEX0175 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 :

⟨Ex⟩ II (1) GD **[Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)**
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)
⟨Ex⟩ 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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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0175 – Issue 9**

15 **Description of Product**

The MTL4504 / MTL4511 / MTL4514 / MTL4514B / MTL4516 / MTL4516C / MTL4517 Switch / Proximity Detector Interface are designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to up to two intrinsically safe circuits by limitation of voltage and current. A transformer and relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the interface monitors either a detector or switch located in the hazardous area and controls non-hazardous area loads via relays. Some models of the interface are fitted with independent phase reverse controls and Line Fault Detection (LFD) circuitry allowing an alarm condition to be signalled for either state, set by switches on the side of the interface.

The apparatus comprises an isolating transformer, relays, zener diodes and current limiting resistors to provide voltage and current limitation. These, together with other electronic components, are mounted on a single printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for connection to the hazardous and non-hazardous area. LED indication is provided to indicate Power-on, state of the outputs and LFD status.

The above listed models are all built on a common printed circuit board. The differences between the models relates to the configuration of the relays and non-hazardous connections via the fitting and removal of relays and soldered and component links. The model configurations are as follows: -

MTL4504	Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) & Phase Reversal
MTL4511	Single Channel Switch / Proximity Detector Interface
MTL4514	Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) Alarm
MTL4514B	Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) & Phase Reversal
MTL4516	Dual Channel Switch / Proximity Detector Interface
MTL4516C	Dual Channel Switch / Proximity Detector Interface
MTL4517	Dual Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) Alarm

Input/Output Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 13 & 14 is designed to operate from a d.c. supply voltage up to 35V.

Non-hazardous area terminals 7 to 12 are connected to relay contacts which can switch up to 250V r.m.s or 5A r.m.s or 100VA

Hazardous Area Terminals 1 w.r.t. 2 / 3 (Channel 1)

Hazardous Area Terminals 4 w.r.t. 5 / 6 (Channel 2)*

U_o = 10.5V
I_o = 14mA
P_o = 37mW
C_i = 0
L_i = 0

* For MTL4516, MTL4516C & MTL4517 Models only.

Load Parameters

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

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO (μH/ohm)
IIC	2.41	175		983
IIB*	16.8	680		1,333
IIA	75.0	1,000		1,333
I	95.0	1,000		1,333

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

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μF 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
CI4516-1	6 of 6	6	7.16	MTL4516 Certification Label Details – Baseefa

The above drawings are associated and held with IECEx BAS 06.0041 Iss. 10

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4516-1	1 of 6	2	9.08	Parts List for MTL4516

Number	Sheet	Issue	Date	Description
CI4516-1	2 of 6	5	10.11	Circuit Diagram for MTL4516
CI4516-1	3 of 6	3	12.07	MTL4516 Track Layout
CI4516-1	4 of 6	6	10.12	MTL4516 Component Layout
CI4516-1	5 of 6	2	1.07	PCB Detail for TPL308
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI4500-7	1 of 1	2	1.11	MTL4500 Relay Encapsulant
CI4500-100	1 of 1	2	1.13	MTL4500 Case

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 06.0041

20 Certificate History

Certificate No.	Date	Comments
Baseefa06ATEX0175	16 November 2006	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2004, EN 50020: 2002, IEC 61241-0: 2004 and IEC 61241-11: 2005 is documented in Certification Report No. 05(C)0863/2.
Baseefa06ATEX0175/1	31 January 2007	To permit minor changes to the transformer PCB's not affecting the original assessment.
Baseefa06ATEX0175/2	4 July 2007	To permit minor changes to the circuit design and layout of the PCB.
Baseefa06ATEX0175/3	12 November 2007	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current design of the equipment meets the requirements of EN 60079-0: 2006 and EN 60079-11: 2007. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR07.0120/00.
Baseefa06ATEX0175/4	30 January 2008	To permit minor changes to the PCB layout not affecting the original assessment.
Baseefa06ATEX0175/5	11 March 2010	i) To permit minor circuit changes to form the MTL4504 Single Channel Switch / Proximity Detector Interface with Line Fault Detection and Phase Reversal. ii) To confirm the current designs of the MTL4504 / MTL4511 / MTL4514 / MTL4514B / MTL4516 / MTL4516C / MTL4517 Switch / Proximity Detector Interfaces have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. iii) To permit the notes associated with the load parameters of all models specified on the original schedule to be revised. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0026/00.

Certificate No.	Date	Comments
Baseefa06ATEX0175/6	31 January 2011	i) To permit the fitting of alternative relays on the equipment. ii) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. iii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0296/00.
Baseefa06ATEX0175/7	22 November 2011	To permit minor circuit changes to form the MTL4514B Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) & Phase Reversal. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR11.0295/00.
Baseefa06ATEX0175/8	28 March 2014	i) To permit minor component and drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL4504 / MTL4511 / MTL4514 / MTL4514B / MTL4516 / MTL4516C / MTL4517 Switch / Proximity Detector Interfaces have 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 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00.
Baseefa06ATEX0175 Issue 9	26 September 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The equipment name on page 1 of the certificate was revised to include reference to the MTL4504 & MTL4514B models. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. 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.		