

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: **BAS21UKEX0472**

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 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. **20(C)0386/23**

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)

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

SGS Baseefa Customer Reference No. **0703**

Project File No. **21/0386**

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0191

R S Sinclair

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number BAS21UKEX0472**

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

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

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)*

$$\begin{aligned} U_o &= 10.5V \\ I_o &= 14mA \\ P_o &= 37mW \\ C_i &= 0 \\ L_i &= 0 \end{aligned}$$

* 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 (μ F)	INDUCTANCE (mH)	OR	L/R RATIO (μ H/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 \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 μ F for Groups IIB, IIA & I and 600nF for Group IIC.

16 Report Number

21(C)0386/23

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
CI4516-1	6 of 6	7	8.21	MTL4516 Certification Label Details - Baseefa

These drawings are held with BAS21UKEX0472 (prime).

For other current drawings not re-submitted for this assessment, see Baseefa06ATEX0175 - Issue 9