



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx BAS 06.0040 issue No.:7

Status: **Current**

Date of Issue: **2016-09-26** Page 1 of 4

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

### Certificate history:

Issue No. 7 (2016-9-26)  
Issue No. 6 (2014-3-5)  
Issue No. 5 (2011-1-31)  
Issue No. 4 (2009-5-6)  
Issue No. 3 (2007-10-11)  
Issue No. 2 (2007-7-5)  
Issue No. 1 (2007-2-6)

Equipment: **MTL4510 / MTL4510B / MTL4513 Switch / Proximity Detector Interface**  
Optional accessory:

Type of Protection: **Intrinsic Safety**

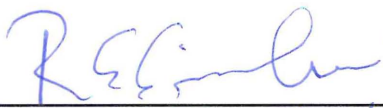
Marking: **[Ex ia Ga] IIC  
[Ex ia Da] IIIC  
[Ex ia Ma] I  
-20°C ≤ Ta ≤ +60°C**

Approved for issue on behalf of the IECEx  
Certification Body: R S Sinclair

Position: Technical Manager

Signature:  
(for printed version)

Date:

  
27-9-16

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

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





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Great Marlings  
Butterfield  
Luton  
Bedfordshire  
LU2 8DL  
United Kingdom

Additional Manufacturing location(s):

**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 electrical apparatus 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 electrical 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 Report:

GB/BAS/ExTR06.0060/00

GB/BAS/ExTR14.0043/00

GB/BAS/ExTR07.0119/00

GB/BAS/ExTR16.0237/00

GB/BAS/ExTR10.0297/00

### Quality Assessment Report:

GB/BAS/QAR06.0022/06

GB/BAS/QAR07.0017/05



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

The MTL4510 Switch / Proximity Detector Interface is designed to restrict the transfer of energy from the unspecified non-hazardous area apparatus to four intrinsically safe circuits by limitation of voltage and current. An isolating transformer and an opto-coupler provide galvanic isolation between the hazardous and non-hazardous area circuitry. Each channel of the MTL4510 monitors either a detector or a switch in the hazardous area and controls a non-hazardous area load via a solid state output.

The apparatus comprise an isolating transformer, an opto-coupler, zener diodes and 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 moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided to indicate power-on, the status of each output and Line Fault Detection (LFD).

The MTL4510B Multifunction Digital Input Interface has the same hazardous area circuitry and parameters as the MTL4510 but has a different configuration via the removal of a link in the non-hazardous area circuitry.

The MTL4513 Switch / Proximity Detector Interface is a depopulated version of the MTL4510, using the same PCB and enclosure having only two channels populated.

See Annex for electrical data.

### CONDITIONS OF CERTIFICATION: NO





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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Variation 7.1

To permit the manufacturer's name to be changed on the certificate and equipment marking. No other changes are made to the equipment design.

ExTR: GB/BAS/ExTR16.0237/00

File Reference: 16/0371

## **MTL4510 / MTL4510B / MTL4513 Switch / Proximity Detector Interface**

### **Non-Hazardous Area Terminals 7 to 14**

$$U_m = 253V$$

The circuit connected to non-hazardous area terminals 7 to 14 are designed to operate from a d.c. supply voltage of 35V d.c.

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

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

Hazardous Area Terminals 4 w.r.t. 5 (Channel 3)\*

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

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

\* For MTL4510 & MTL4510B Models only

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 ( $\mu F$ )	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu H/ohm$ )
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  $1\mu F$  for Groups IIB, IIA & I and  $600nF$  for Group IIC.