



# 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 06.0035 issue No.:10

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. 10 (2016-9-26)  
Issue No. 9 (2013-1-31)  
Issue No. 8 (2012-8-6)  
Issue No. 7 (2011-1-31)  
Issue No. 6 (2009-5-6)  
Issue No. 5 (2008-11-24)  
Issue No. 4 (2007-11-19)  
Issue No. 3 (2007-7-5)  
Issue No. 2 (2007-2-6)

Equipment: **MTL4546 / MTL4546C / MTL4546Y / MTL4546S Single Channel Isolating Driver, 4/20mA for Smart I/P Converters**  
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)

  
27-9-16

Date:

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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Manufacturer: **Eaton Electric Limited**  
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/ExTR06.0050/00  
GB/BAS/ExTR10.0297/00  
GB/BAS/ExTR16.0237/00

GB/BAS/ExTR07.0123/00  
GB/BAS/ExTR12.0181/00

GB/BAS/ExTR08.0216/00  
GB/BAS/ExTR13.0014/00

##### 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 MTL4546 / MTL4546C / MTL4546Y / MTL4546S Single Channel Isolating Driver, 4/20mA for Smart I/P Converters accepts a 4/20mA signal from a controller located in the non-hazardous area to drive a load in the hazardous area. It permits bi-directional transmission of digital signal to and from an operator station or hand-held communicator. The equipment restricts the transfer of energy from unspecified non-hazardous area equipment to an intrinsically safe circuit by limitation of voltage and current. Three transformers provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The equipment comprises a power transformer, two signal transformers, 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 and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL4546, MTL4546C & MTL4546Y models in terms of intrinsic safety are identical. The difference between them is the MTL4546C & MTL4546Y have the Line Fault Detection (LFD) facility disabled. The MTL4546S uses the same PCB and enclosure but the PCB is populated with different voltage and current limitation components, and therefore has different output parameters to the other variants.

See annex for electrical data.

### CONDITIONS OF CERTIFICATION: NO



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

### Variation 10.1

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

# SGS Baseefa Limited

Rockhead Business Park  
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United Kingdom



ANNEX to IECEx BAS 06.0035

Issue No. 3

Date: 2013/01/30

## MTL4546, MTL4546C & MTL4546Y Single Channel Isolating Driver, 4/20mA for Smart I/P Converters

### Non-Hazardous Area Terminals 11, 12, 13 & 14

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

The circuit connected to non-hazardous area terminals 11 to 14 is designed to operate from a d.c. supply voltage of up to 35V.

### Hazardous Area Terminals 2 w.r.t. 1

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 93mA & L_i = 0 \\ P_o = 0.65W & \end{array}$$

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	0.083	4.2	56
IIB*	0.65	12.6	210
IIA	2.15	33.6	444
I	3.76	53.7	668

### 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.

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

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ANNEX to IECEx BAS 06.0035

Issue No. 3

Date: 2013/01/30

## **MTL4546S Single Channel Isolating Driver, 4/20mA for Smart I/P Converters**

### Non-Hazardous Area Terminals 11, 12, 13 & 14

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

The circuit connected to non-hazardous area terminals 11 to 14 is designed to operate from a d.c. supply voltage of up to 35V.

### Hazardous Area Terminals 2 w.r.t. 1

$$\begin{array}{ll} U_o = 22V & C_i = 0 \\ I_o = 100mA & L_i = 0 \\ P_o = 0.55W & \end{array}$$

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	0.165	3.55	64
IIB*	1.14	14.6	258
IIA	4.20	30.5	517
I	6.00	44.3	848

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.

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