

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: **BAS21UKEX0470**

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

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. **21(C)0386/21**

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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*R S Sinclair*

R S SINCLAIR  
TECHNICAL MANAGER  
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number BAS21UKEX0470**

15 **Description of Product**

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 signals to and from an operator station or hand-held communicator. The apparatus restricts the transfer of energy from unspecified non-hazardous area apparatus to 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 current transformers, zener diodes and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a 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 limiting components, and therefore has different output parameters to the other variants.

**Input/Output Parameters**

**MTL4546, MTL4546C & MTL4546Y Models**

Non-Hazardous Area Terminals 11 to 14

$U_m = 253V$  r.m.s.

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

Hazardous Area Terminals 2 w.r.t. 1

$U_o = 28V$	$C_i = 0$
$I_o = 93mA$	$L_i = 0$
$P_o = 0.65W$	

**MTL4546S Model only**

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

$U_m = 253V$  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

$U_o = 22V$	$C_i = 0$
$I_o = 100mA$	$L_i = 0$
$P_o = 0.55W$	

**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 ( $\mu$ F)	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu$ H/ohm)
MTL4546, MTL4546C & MTL4546Y Models				
IIC	0.083	4.2		56
IIB*	0.65	12.6		210
IIA	2.15	33.6		444
I	3.76	53.7		668
MTL4546S Model only				
IIC	0.165	3.55		64
IIB*	1.14	14.6		258
IIA	4.20	30.5		517
I	6.00	44.3		848

\* 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 $\mu$ F for Groups IIB, IIA & I and 600nF for Group IIC.

**16 Report Number**

21(C)0386/21

**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

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**19 Drawings and Documents**

<b>Number</b>	<b>Sheet</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
CI4546-1	7 of 7	7	8.21	MTL4546 Certification Label Details - BASEEFA

These drawings are held with BAS21UKEX0470 (prime).

For other current drawings not re-submitted for this assessment, see Baseefa06ATEX0157 - Issue 9