



# 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 15.0001 issue No.:2

Status: Current

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

Certificate history:  
Issue No. 2 (2016-9-26)  
Issue No. 1 (2015-10-28)  
Issue No. 0 (2015-2-12)

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

Equipment: MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers  
Optional accessory:

Type of Protection: Intrinsic Safety

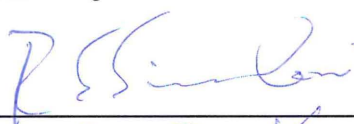
Marking: [Ex ia Ga] IIC  
[Ex ia Da] IIIC  
[Ex ia Ma] I  
(-20°C ≤ Ta ≤ +60°C)

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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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 600119  
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/ExTR15.0001/00

GB/BAS/ExTR15.0284/00

GB/BAS/ExTR16.0237/00

### 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:*

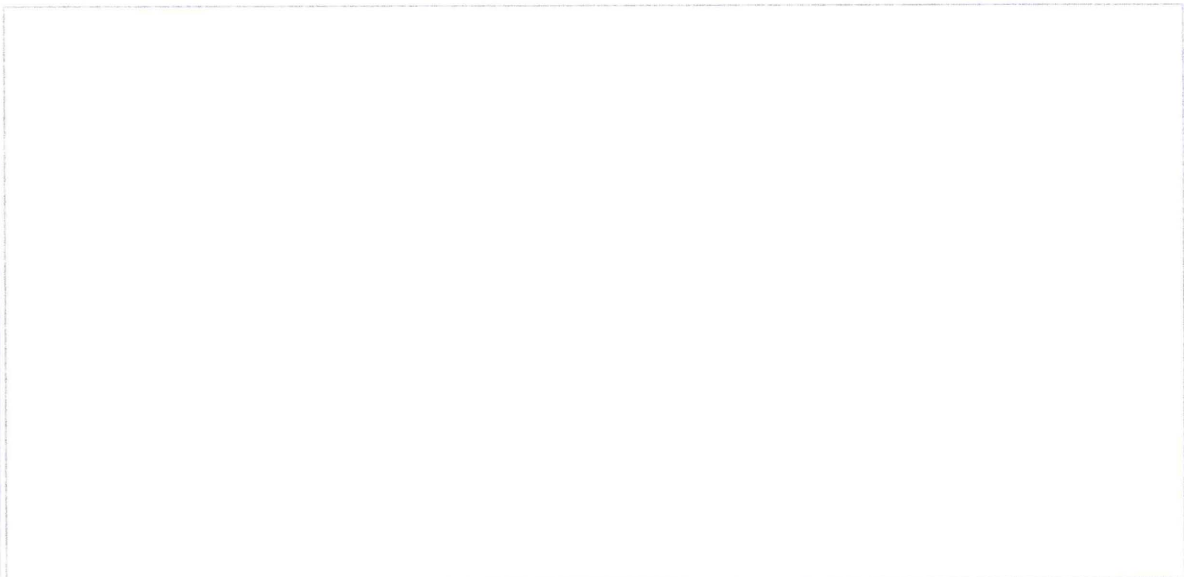
The MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers are designed to control and monitor a device located in the hazardous area and restrict the transfer of energy from unspecified equipment in the non-hazardous area to an intrinsically safe circuit in the hazardous area by the limitation of voltage and current. Opto-isolators and a transformer provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The equipment comprises an isolating transformer, opto-isolators, duplicated zener diode chains and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers are built on a common PCB with different components fitted to give certain output parameters and features. The MTL4521Y & MTL4521YL are loop-powered Solenoid / Alarm Drivers, with the only difference between the models being the current limitation fitted on the hazardous area connections. The MTL4523Y and MTL4523YL variants are similar but are bus powered and have additional Line Fault Detection (LFD) circuitry populated. All models have LED indication fitted dependent on the model indicating output status, Power on and LFD status where applicable.

See Certificate Annex for electrical parameters.

### CONDITIONS OF CERTIFICATION: NO





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

### Variation 2.1

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

## **MTL4521Y/21YL/23Y/23LY Solenoid / Alarm Drivers**

### **Model Range**

Model No.	
MTL4521Y	Loop Powered Solenoid / Alarm Driver
MTL4521YL	Loop Powered Solenoid / Alarm Driver
MTL4523Y	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4523YL	Solenoid / Alarm Driver with Line Fault Detection Alarm

### **MTL4521Y & MTL4523Y Models Parameters**

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

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

The apparatus is designed to operate on the above terminals from a d.c. supply voltage of up to 35V.

#### **Hazardous Area Terminals 2 / 3 w.r.t. 1**

$$\begin{aligned} U_o &= 25V \\ I_o &= 147mA \\ P_o &= 0.92W \\ C_i &= 0 \\ L_i &= 0 \end{aligned}$$

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 ( $\mu H/\Omega$ )
IIC	0.11	1.4	40
IIB**	0.84	7.2	159
IIA	2.97	14.4	328
I	4.87	20.2	478

\*\* 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.

## MTL4521YL & MTL4523YL

### Non-Hazardous Area Terminals 7 to 14

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

The apparatus is designed to operate on the above terminals from a d.c. supply voltage of up to 35V.

### Hazardous Area Terminals 2 / 3 w.r.t. 1

$$\begin{aligned} U_o &= 25V \\ I_o &= 108mA \\ P_o &= 0.68W \\ C_i &= 0 \\ L_i &= 0 \end{aligned}$$

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 ( $\mu H/\Omega$ )
IIC	0.11	3.04	52
IIB*	0.84	12.19	210
IIA	2.97	24.38	421
I	4.87	40.0	691

\*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.