

1 **EU - 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 Equipment and Protective Systems with respect to the risks of explosion  
Directive 2014/34/EU**

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0212 – Issue 7**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL552\* Series Solenoid / Alarm Drivers**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0212 to apply to product designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, 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 Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **See Certificate History**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2012+A11:2013 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 EU - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Directive 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 (I) GD See Schedule for Model Certification Markings**

 **I (M1)**

SGS Baseefa Customer Reference No. **0703**

Project File No. **17/0166**

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R S SINCLAIR   
TECHNICAL MANAGER

On behalf of SGS Baseefa Limited

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## Schedule

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Certificate Number Baseefa07ATEX0212 – Issue 7

### 15 Description of Product

The MTL552\* Series Solenoid / Alarm Drivers are designed to control and monitor IS apparatus located in the hazardous area and restrict the transfer of energy from unspecified apparatus in the non-hazardous area to an intrinsically safe circuit in the hazardous area by limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprise 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 MTL552\* Series Solenoid / Alarm Drivers comprise a number of different models denoted by \* in the model number. All models are built on common PCB's and configured having certain features such as Line Fault Detection (LFD) and Phase Reversal facilities. There are also models in the range that provide loop power or have low current hazardous area outputs. All models have LED indication dependant on the model configuration.

The MTL5521-T Loop Powered Solenoid / Alarm Driver is of similar construction to the MTL5521 variant of the equipment with the same input and output parameters, but has an extended ambient temperature range.

The following models are covered by this certificate and are marked as follows: -

MTL5522	Loop Powered Solenoid / Alarm Driver, IIB	$\text{Ex}$ II (1) GD [Ex ia Ga] IIB (-20°C ≤ T <sub>a</sub> ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T <sub>a</sub> ≤ +60°C) $\text{Ex}$ I (M1) [Ex ia Ma] I (-20°C ≤ T <sub>a</sub> ≤ +60°C)
MTL5521	Loop Powered Solenoid / Alarm Driver	$\text{Ex}$ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T <sub>a</sub> ≤ +60°C) $\text{Ex}$ I (M1) [Ex ia Ma] I (-20°C ≤ T <sub>a</sub> ≤ +60°C)
MTL5523	Solenoid / Alarm Driver with Line Fault Detection Alarm	
MTL5523V	Solenoid / Alarm Driver with Line Fault Detection Alarm	
MTL5523VL	Solenoid / Alarm Driver with Line Fault Detection Alarm	
MTL5524	Solenoid / Alarm Driver with Logic Control, Phase Reversal	
MTL5525	Low Current Loop Powered Solenoid / Alarm Driver	
MTL5521-T	Loop Powered Solenoid / Alarm Driver	$\text{Ex}$ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T <sub>a</sub> ≤ +65°C) [Ex ia Da] IIIC (-20°C ≤ T <sub>a</sub> ≤ +65°C) $\text{Ex}$ I (M1) [Ex ia Ma] I (-20°C ≤ T <sub>a</sub> ≤ +65°C)

### Input/Output Parameters

#### MTL5521, MTL5521-T, MTL5523, MTL5523V & MTL5524 Models

Non-Hazardous Area Terminals 7 to 14

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

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

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

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

**MTL5522 IIB Model Only**

Non-Hazardous Area Terminals 7 to 14

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

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

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

$$\begin{aligned}U_o &= 25V \\I_o &= 166mA \\P_o &= 1.04W \\C_i &= 0 \\L_i &= 0\end{aligned}$$

**MTL5523VL Model Only**

Non-Hazardous Area Terminals 7 to 14

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

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

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

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

**MTL5525 Model Only**

Non-Hazardous Area Terminals 7 to 14

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

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

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

$$\begin{aligned}U_o &= 25V \\I_o &= 83.3mA \\P_o &= 0.52W \\C_i &= 0 \\L_i &= 0\end{aligned}$$

**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)
MTL5521, MTL5521-T, MTL5523, MTL5523V & MTL5524 Models				
IIC	0.11	1.4		40
IIB*	0.84	7.2		159
IIA	2.97	14.4		328
I	4.87	20.2		478
MTL5522 (Group IIB)				
IIB*	0.84	5.6		132
IIA	2.97	10.4		286
I	4.87	16.0		428
MTL5523VL Model				
IIC	0.11	3.04		52
IIB*	0.84	12.19		210
IIA	2.97	24.38		421
I	4.87	40.0		691
MTL5525 Model				
IIC	0.11	5.3		68
IIB*	0.84	21.8		254
IIA	2.97	44.7		536
I	4.87	64.9		814

\* 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  $600$ nF for Group IIC.

## 16 Report Number

See Certificate History

## 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
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

## 19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4521-T-1	1 & 2	1	3.17	Circuit Diagram for MTL5521-T
CI4521-T-2	1 of 1	1	3.17	Parts List for MTL5521-T
CI4521-T-3	1 of 1	1	3.17	MTL5521-T Track Layout
CI4521-T-4	1 of 1	1	3.17	MTL5521-T Component Layout
CI4521-T-6	1 of 1	1	3.17	PCB Detail for TPL301
CI5521-T-1	1 of 1	1	3.17	MTL5521-T Certification Label Details - Baseefa

The above drawings are associated and held with IECEx BAS 07.0068 Iss. 8

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4521-1	1 of 6	2	2.14	Parts List for MTL452X
CI4521-1	2 of 6	5	7.10	Circuit Diagram for MTL452X
CI4521-1	3 of 6	3	2.10	MTL452X Track Layout
CI4521-1	4 of 6	4	1.13	MTL452X Component Layout
CI4521-1	5 of 6	2	1.07	PCB Detail for TPL301
CI4523-1	1 of 6	2	2.14	Parts List for MTL4523V
CI4523-1	2 of 6	2	11.11	Circuit Diagram for MTL4523V
CI4523-1	3 of 6	1	8.10	MTL4523V Track Layout
CI4523-1	4 of 6	2	1.13	MTL4523V Component Layout
CI4523-1	5 of 6	1	8.10	PCB Detail for TPL301
CI4523-2	1 of 3	2	11.11	Circuit Diagram for MTL4523V
CI4523-2	2 of 3	1	8.10	MTL4523V Track Layout
CI4523-2	3 of 3	2	1.13	MTL4523V Component Layout
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline
CI5521-1	1 of 1	4	6.16	MTL5521 Certification Label Details – Baseefa
CI5523-1	1 of 1	4	7.16	MTL5523V & MTL5523VL Certification Label Details - Baseefa

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 07.0068

## 20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0212	12 November 2007	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.0128/00.

Certificate No.	Date	Comments
Baseefa07ATEX0212/1	3 March 2010	<p>i) To permit the use of the MTL4521L PCB as an alternative to the current MTL552* PCB in all models of the equipment.</p> <p>ii) To confirm the current designs of all variants of the MTL552* Series Solenoid / Alarm Drivers have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings.</p> <p>iii) To permit the notes associated with the load parameters of all models specified in the original schedule to be revised.</p> <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0025/00.</p>
Baseefa07ATEX0212/2	17 August 2010	<p>i) To permit minor circuit changes to form the MTL5523V Solenoid / Alarm Driver with Line Fault Detection Alarm variant.</p> <p>ii) To permit a minor drawing change not affecting the original assessment.</p> <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0197/00.</p>
Baseefa07ATEX0212/3	31 January 2011	<p>i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted.</p> <p>ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment.</p> <p>iii) To permit the use of an alternative DIN rail mechanism not affecting the original assessment.</p> <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0298/00.</p>
Baseefa07ATEX0212/4	6 December 2011	<p>To permit minor circuit changes to form the MTL5523VL Solenoid / Alarm Driver with Line Fault Detection Alarm variant.</p> <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR11.0302/00.</p>
Baseefa07ATEX0212/5	21 February 2014	<p>i) To permit minor drawing changes not affecting the original assessment.</p> <p>ii) To confirm the current designs of all variants of the MTL552* Series Solenoid / Alarm Drivers have been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 &amp; EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated.</p> <p>The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0043/00.</p>

Certificate No.	Date	Comments
Baseefa07ATEX0212 Issue 6	5 October 2016	<p>This issue of the certificate incorporates previously issued primary &amp; supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 &amp; EN 60079-11: 2012.</p> <p>The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking.</p> <p>The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.</p>
Baseefa07ATEX0212 Issue 7	27 March 2017	<p>This issue of the certificate permits the addition of the MTL5521-T Loop Powered Solenoid / Alarm Driver variant to the range covered by the certificate.</p> <p>The MTL5521-T is of similar construction to the MTL5521 variant and has the same input and output parameters, but has an extended ambient temperature range of -20°C to +65°C. The Certificate title &amp; marking sections and Schedule have been revised to include the new variant details.</p> <p>The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0097/00, Project File No. 17/0166.</p>

For drawings applicable to each issue, see original of that issue.