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: **BAS21UKEX0443**

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

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)0386/04**

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 See Schedule for Model Certification Markings

I (M1)

SGS Baseefa Customer Reference No. **0703** Project File No. **21/0386**

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UKAS PRODUCT CERTIFICATION
0191

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 # Schedule

14 ## Certificate Number BAS21UKEX0443

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	⟨Ex⟩ II (1) GD ⟨Ex⟩ I (M1)	[Ex ia Ga] IIB (-20°C ≤ T_a ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)
MTL5521	Loop Powered Solenoid / Alarm Driver	⟨Ex⟩ II (1) GD ⟨Ex⟩ I (M1)	[Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C) [Ex ia Ma] I (-20°C ≤ T_a ≤ +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	⟨Ex⟩ II (1) GD ⟨Ex⟩ I (M1)	[Ex ia Ga] IIC (-20°C ≤ T_a ≤ +65°C) [Ex ia Da] IIIC (-20°C ≤ T_a ≤ +65°C) [Ex ia Ma] I (-20°C ≤ T_a ≤ +65°C)

Input/Output Parameters

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

Non-Hazardous Area Terminals 7 to 14

U_m = 253V 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

U_o = 25V
I_o = 147mA
P_o = 0.92W
C_i = 0
L_i = 0

MTL5522 IIB Model Only

Non-Hazardous Area Terminals 7 to 14

U_m = 253V 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

U_o = 25V
I_o = 166mA
P_o = 1.04W
C_i = 0
L_i = 0

MTL5523VL Model Only

Non-Hazardous Area Terminals 7 to 14

U_m = 253V 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

U_o = 25V
I_o = 108mA
P_o = 0.68W
C_i = 0
L_i = 0

MTL5525 Model Only

Non-Hazardous Area Terminals 7 to 14

U_m = 253V 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

U_o = 25V
I_o = 83.3mA
P_o = 0.52W
C_i = 0
L_i = 0

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 (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/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:

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

   The reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIB, IIA & I and 600nF for Group IIC.

16 Report Number

21(C)0386/04

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

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
CI5521-1	1 of 1	5	8.21	MTL5521 Certification Label Details - Baseefa
CI5521-T-1	1 of 1	2	8.21	MTL5521-T Certification Label Details - Baseefa
CI5523-1	1 of 1	5	8.21	MTL5523V & MTL5523VL Certification Label Details - Baseefa

These drawings are held with BAS21UKEX0443 (prime).

For other current drawings not re-submitted for this assessment, see Baseefa07ATEX0212 Issue 7