



# EC-TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use  
in Potentially Explosive Atmospheres  
Directive 94/9/EC

EC-Type Examination Certificate Number : **BAS01ATEX7148**

Equipment or Protective System: **MTL5021 LOOP POWERED SOLENOID/ALARM DRIVER**

Manufacturer: **MEASUREMENT TECHNOLOGY LIMITED**

Address: **Luton, Bedfordshire, LU1 3JJ**

This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

**01(C)0220 dated 18 December 2001 (held on EECS 0703/02/299)**

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

**EN 50014: 1997 + Amds 1 & 2                      EN 50020: 1994**

except in respect of those requirements listed at item 18 of the Schedule.

If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

The marking of the equipment or protective system shall include the following:-

**⊕ II (1) GD    [EEEx ia] IIC    (-20°C ≤ T<sub>a</sub> ≤ +60°C)**

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0703/02/323

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.



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**I M CLEARE**  
**DIRECTOR**  
**29 April 2002**



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Description of Equipment or Protective System

An MTL5021 Loop Powered Solenoid / Alarm Driver enables a device located in the hazardous area to be controlled by a switch in the safe area. The MTL5021 restricts the transfer of energy from unspecified safe-area apparatus to an intrinsically safe circuit by the limitation of voltage and current.

A transformer and an opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry. The output channel is protected by duplicated zener diodes chains and a current limiting resistor 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 the hazardous and non-hazardous area connections.

CON 4, Pins 11, 12

$$U_m = 250V$$

The circuit connected to the safe area terminals on CON 4 are designed to operate from a d.c. supply voltage of up to 35V.

CON 1, Pin 2 & 3 w.r.t. Pin 1

$$U_o = 25V$$

$$I_o = 147mA$$

$$P_o = 0.92W$$

$$C_i = 0$$

$$L_i = 0$$

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load must not exceed the following values:

GROUP	CAPACITANCE in $\mu F$	INDUCTANCE in mH	OR	L/R RATIO in $\mu H/ohm$
IIC	0.11	1.30 (1.45)		40
IIB	0.84	3.90 (7.22)		159
IIA	2.97	10.4 (14.42)		328

When the external circuit contains no lumped inductance greater than  $10\mu H$  i.e. the  $L_i$  of any attached apparatus is less than  $10\mu H$ , the cable inductance may be increased to the values within parentheses.



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Equipment referred to in this certificate having the same type number as items in BASEEFA Certificate No Ex 95D2426 may be used as a direct substitute in a system provided that the cable parameters used are within the limits shown on this certificate.

**VARIATION 0.1**

To permit an alternative current limiting resistor thus further restricting the output current. This version is to be designated as an MTL5025 Loop Powered Solenoid / Alarm Driver.

CON 4, Pins 11, 12

$U_m = 250V$

The circuit connected to the safe area terminals on CON 4 is designed to operate from a d.c. supply voltage of up to 35V.

CON 1, Pin 2 & 3 w.r.t. Pin 1

$U_o = 25V$

$I_o = 93mA$

$P_o = 0.58W$

$C_i = 0$

$L_i = 0$

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load must not exceed the following values:

GROUP	CAPACITANCE in $\mu F$	INDUCTANCE in mH	OR	L/R RATIO in $\mu H/ohm$
IIC	0.11	4.30		63
IIB	0.84	17.72		235
IIA	2.97	36.02		497

**VARIATION 0.2**

To permit the connection of MTL5000 Ring Terminal assemblies in place of the safe and hazardous area screw terminals. The enclosure remains IP20 whether or not the Ring Terminal is fitted. The following MTL5000 Ring Terminals may be connected to the MTL5021 and MT5025. Blanking covers may be removed if necessary.

Hazardous Area Terminal	MTL5021 pins	1, 2, 3
	HAZ-RT-1- 3	1, 2, 3
Safe Area Terminal	MTL5021 pins	11, 12
	SAF-RT-11-12	7, 8



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Hazardous Area Terminal	MTL5025 pins	1, 2, 3
	HAZ-RT-1- 3	1, 2, 3
Safe Area Terminal	MTL5025 pins	11, 12
	SAF-RT-11-12	7, 8

16 **Report No.**

01(C)0220

17 **Special Conditions For Safe Use**

None.

18 **Essential Health and Safety Requirements**

<b>ESSENTIAL HEALTH &amp; SAFETY REQUIREMENTS not covered by standards listed in Section 9</b>		
<b>Clause</b>	<b>Subject</b>	<b>Compliance</b>
1.1.3	Changes in characteristics of materials and combinations thereof	Report No 01(C)0220 Clause 5.1.1.3
1.2.2	Components for incorporation or replacement	Report No 01(C)0220 Clause 5.1.2.2
1.2.5	Additional means of protection	Report No 01(C)0220 Clause 5.1.2.5
1.2.7	Protection against other hazards	Report No 01(C)0220 Clause 5.1.2.7
1.4.2	Withstanding attack by aggressive substances	Report No 01(C)0220 Clause 5.1.4.2

19 **DRAWINGS**

<b>Number</b>	<b>Sheet</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
CI5021-1	2	4	11.01	MTL5021 Parts List
CI5021-1	3	2	04.96	MTL5021 Circuit Diagram
CI5021-1	4	3	09.98	MTL5021 Component Layout
CI5021-1	5	1	06.95	MTL5021 General Assembly
CI5021-1	6	2	11.01	MTL5021 Internal Construction
CI5021-1	7	2	02.96	MTL5021 PCB Track Layout
CI5021-1	8	1	06.95	MTL5021 Transformer Winding Details
*CI5000-5	1	4	10.00	IS Transformer TFR305
*CI5000-5	2	4	10.00	IS Transformer TFR305

Drawings marked \* are associated with BASEEFA Certificate No. BAS01ATEX7149



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**EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7148**

**Drawing associated with Variation 0.1**

<b>Number</b>	<b>Sheet</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
CI5025-1	2	4	11.01	MTL5025 Parts List
CI5025-1	3	2	04.96	MTL5025 Circuit Diagram
CI5025-1	4	3	09.98	MTL5025 Component Layout
CI5025-1	5	1	06.95	MTL5025 General Assembly
CI5025-1	6	2	11.01	MTL5025 Internal Construction
CI5025-1	7	2	02.96	MTL5025 PCB Track Layout
CI5025-1	8	2	11.01	MTL5025 Transformer Winding Details

**Drawing associated with Variation 0.2**

<b>Number</b>	<b>Sheet</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
**CI5000-12	1 to 4	1	02.02	MTL5000 Ring Terminal

Drawing marked \*\* is associated with and held on BASEEFA Certificate BAS01ATEX7144

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