



EC-TYPE EXAMINATION CERTIFICATE

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

EC-Type Examination Certificate Number : **BAS01ATEX7150**

Equipment or Protective System: **MTL5023 SOLENOID/ALARM DRIVER WITH LINE
FAULT DETECTION AND PHASE REVERSAL**

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_a ≤ +60°C)

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

File No: EECS 0703/02/325

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



13 Schedule

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15 Description of Equipment or Protective System

An MTL5023 Solenoid/Alarm Driver with Line Fault Detection and Phase Reversal is designed to monitor apparatus such as apparatus meeting the requirements of clause 1.3 of EN 50014 and to restrict the transfer of energy from unspecified safe-area apparatus to an intrinsically safe circuit by the limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry. LEDs are provided to indicate power-on, output active and line fault.

The apparatus comprises of an isolating transformer, three opto-isolators and a fuse, zener diode / resistance combination 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 connections.

CON 3, Pins 7, 8, 9; CON 4, Pins 10, 11, 12 and CON 5, Pins 13 & 14

$$U_m = 250V$$

The circuit connected to the safe area terminals on CON 3, CON 4 and CON 5 are designed to operate from a d.c. supply voltage of up to 35V.

CON 1, Pins 1 and 3 wrt 1

$$U_o = 25V$$
$$I_o = 147mA$$
$$P_o = 0.94W$$
$$C_i = 0$$
$$L_i = 0$$

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 μF	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.

Equipment referred to in this certificate having the same type number as items in BASEEFA Certificate No Ex 96D2315 may be used as a direct substitute in a system provided that the cable parameters used are within the limits shown on this certificate.



13 **Schedule**

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VARIATION 0.1

To permit the components associated with the line fault detection circuitry to be omitted and other minor changes not adversely affecting the safety parameters of the unit. This apparatus will be designated as an MTL5024 Solenoid / Alarm Driver with Phase Reversal.

The output parameters remain unchanged by this variation.

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 MTL5023 and MTL5024. Blanking covers may be removed if necessary.

Hazardous Area Terminal	MTL5023 pins	1, 2, 3
	HAZ-RT-1-3	1, 2, 3
Safe Area Terminal	MTL5023 pins	7, 10, 11, 12
	SAF-RT-7-12	5, 6, 7, 8

Hazardous Area Terminal	MTL5024 pins	1, 2, 3
	HAZ-RT-1-3	1, 2, 3
Safe Area Terminal	MTL5024 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**

ESSENTIAL HEALTH & SAFETY REQUIREMENTS not covered by standards listed in Section 9

Clause	Subject	Compliance
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



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Schedule

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DRAWINGS

Number	Sheet	Issue	Date	Description
CI5023-1	2	2	11.01	MTL5023 Parts List
CI5023-1	3	1	06.96	MTL5023 Circuit Diagram
CI5023-1	4	2	12.01	MTL5023 Component Layout
CI5023-1	5	1	06.96	MTL5023 General Assembly
CI5023-1	6	2	11.01	MTL5023 Internal Construction
CI5023-1	7	1	06.96	MTL5023 PCB Track Layout
CI5023-1	8	1	06.96	MTL5023 Transformer Winding Details
*CI5000-5	1	4	10.00	IS Transformer TFR305
*CI5000-5	2	4	10.00	IS Transformer TFR305

Drawings marked * are held on BASEEFA Certificate BAS01ATEX7148

Drawing associated with Variation 0.1

Number	Sheet	Issue	Date	Description
CI5024-1	2	2	11.01	MTL5024 Parts List
CI5024-1	3	1	06.96	MTL5024 Circuit Diagram
CI5024-1	4	2	12.01	MTL5024 Component Layout
CI5024-1	5	1	06.96	MTL5024 General Assembly
CI5024-1	6	2	11.01	MTL5024 Internal Construction
CI5024-1	7	1	06.96	MTL5024 PCB Track Layout
CI5024-1	8	2	11.01	MTL5024 Transformer Winding Details

Drawing associated with Variation 0.2

Number	Sheet	Issue	Date	Description
**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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