



EC-TYPE EXAMINATION CERTIFICATE

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

EC-Type Examination Certificate Number : **BAS01ATEX7146**

Equipment or Protective System: **MTL5017 TWO CHANNEL SWITCH/PROXIMITY
DETECTOR INTERFACE 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:-

Ex 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 0703/02/321**

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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15 Description of Equipment or Protective System

An MTL5017 Two Channel Switch/Proximity Detector Interface with line fault detection and phase reversal is designed to restrict the transfer of energy from unspecified safe-area apparatus to two independent intrinsically safe circuits by the limitation of voltage and current. A transformer, an opto-isolator and intrinsically safe relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The detector monitors up to two hazardous area switches or proximity detectors, and controls two safe-area loads via relay outputs. Phase reversal control is available on each channel. A line fault detector can determine if the circuit is open or short circuit.

LED indication is provided to indicate power-on and the state of each output.

The MTL5017 apparatus comprises of a single isolating transformer, an opto-isolator, three I.S. relays, two independent detection circuits each with zener diode/diode/resistance combinations to provide voltage and current limitation. The three relays are used to switch the output loads. 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 5 are designed to operate from a d.c. supply voltage of up to 35V and terminals CON 3 and CON 4 are connected to relay change over contacts which can switch up to 250V r.m.s, 125V d.c. and 100VA.

Channel 1, CON 1, pins 2/3 wrt 1

Or

Channel 2, CON 2, pins 5 wrt 4

Pins 2,3 and 5 are common

$$U_o = 10.5V$$

$$I_o = 14mA$$

$$P_o = 37mW$$

$$C_i = 0$$

$$L_i = 0$$

Each Channel may be considered as a separate Intrinsically Safe circuit.



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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 $\mu\text{H}/\text{ohm}$
IIC	2.41	175		983
IIB	16.8	680		1333
IIA	75.0	1000		1333

Equipment referred to in this certificate having the same type number as items in BASEEFA Certificate No Ex 95C2231 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 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 MTL5017. Blanking covers may be removed if necessary.

Hazardous Area Terminal	MTL5017 pins	1, 2, 4, 5
	HAZ-RT-1-5	1, 2, 3, 4
Safe Area Terminal	MTL5017 pins	10, 11, 12
	SAF-RT-10-12	6, 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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19 DRAWINGS

Number	Sheet	Issue	Date	Description
CI5017-1	2	3	11.01	MTL5017 Parts List
CI5017-1	3	1	03.95	MTL5017 Circuit Diagram
CI5017-1	4	1	03.95	MTL5017 Component Layout
CI5017-1	5	1	03.95	MTL5017 General Assembly
CI5017-1	6	2	11.01	MTL5017 Internal Construction
CI5017-1	7	2	06.95	MTL5017 PCB Track Layout
CI5017-1	8	1	03.95	MTL5017 Transformer Winding Details
*CI4000-1	1	2	11.92	MTL4000 Series 2-core IS Transformer
*CI4000-1	2	2	11.92	MTL4000 Series 2-core IS Transformer

Drawings marked * are associated with and are held on BASEEFA Certificate BAS01ATEX7163

Drawing associated with Variation 0.1

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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