



EC-TYPE EXAMINATION CERTIFICATE

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

EC-Type Examination Certificate Number : BAS01ATEX7164

Equipment or Protective System: **MTL4017 TWO CHANNEL SWITCH/PROXIMITY
DETECTOR INTERFACE WITH LINE MONITORING**

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)0221 dated 17 May 2001 (held on EECS 0703/02/300)

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 0703/02/302

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
13 December 2001



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Description of Equipment or Protective System

An MTL4017 Two Channel Switch/Proximity Detector Interface with Line Monitoring 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. Transformers and intrinsically safe relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The detector monitors hazardous area apparatus and controls two safe-area loads via relay outputs.

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

The apparatus comprises of a single isolating transformer, 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.

Each channel may be considered as a separate intrinsically safe circuit:

CON2, pins 7 to 14

$U_m = 250V$

The circuit connected to the safe area terminals CON2 is designed to operate from a d.c. supply voltage of up to 35V.

Channel 1 CON1, pin 2 wrt 1

Channel 2 CON1, pins 5/6 wrt 4

(pins 2/3 and 5/6 are common)

$U_o = 10.5V$

$I_o = 14mA$

$P_o = 37mW$

$C_i = 0$

$L_i = 0$

For each channel, 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	2.41	175		983
IIB	16.8	680		1333
IIA	75.0	1000		1333



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Equipment referred to in this certificate having the same type number as items in BASEEFA Certificate No Ex 92C2386 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 components associated with the second channel of the MTL4017 to be removed thus forming the MTL4014 One-Channel Switch/Proximity Detector Interface with Line Monitoring.

CON2, pins 7 to 14

$$U_m = 250V$$

CON1, pins 2, 5 and 6 wrt 1
(pins 2 and 5/6 are common)

$$U_o = 10.5V$$

$$I_o = 14mA$$

$$P_o = 37mW$$

$$C_i = 0$$

$$L_i = 0$$

For the single channel channel, 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	2.41	175		983
IIB	16.8	680		1333
IIA	75.0	1000		1333

VARIATION 0.2

To permit minor changes to the non-hazardous area circuitry. The changes do not affect the intrinsic safety assessment. This version is to be designated as an MTL4017S Two Channel Switch/Proximity Detector Interface with Line Fault Detection and is considered to have the same characteristics as the MTL4017.

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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)0221 Clause 5.1.1.3
1.2.2	Components for incorporation or replacement	Report No 01(C)0221 Clause 5.1.2.2
1.2.5	Additional means of protection	Report No 01(C)0221 Clause 5.1.2.5
1.2.7	Protection against other hazards	Report No 01(C)0221 Clause 5.1.2.7
1.4.2	Withstanding attack by aggressive substances	Report No 01(C)0221 Clause 5.1.4.2

19 **DRAWINGS**

Number	Sheet	Issue	Date	Description
CI4017-1	2	4	08.01	MTL4017 Parts List
CI4017-1	3	2	01.94	MTL4017 Circuit Diagram
CI4017-1	4	1	06.93	MTL4017 Component Layout
CI4017-1	5	1	06.93	MTL4017 General Assembly
CI4017-1	6	1	06.93	MTL4017 Internal Construction
CI4017-1	7	2	01.94	MTL4017 PCB Track Layout
CI4017-1	8	1	07.93	MTL4017 Transformer Winding Details
CI4017-1	9	1	10.01	MTL4017 Certification Label
*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

DRAWINGS ASSOCIATED WITH VARIATION 0.1

Number	Sheet	Issue	Date	Description
CI4014-1	2	3	08.01	MTL4014 Parts List
CI4014-1	3	1	11.93	MTL4014 Circuit Diagram
CI4014-1	4	1	11.93	MTL4014 Component Layout
CI4014-1	5	1	11.93	MTL4014 General Assembly
CI4014-1	6	1	11.93	MTL4014 Internal Construction



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CI4014-1	7	1	11.93	MTL4014 PCB Track Layout
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DRAWINGS ASSOCIATED WITH VARIATION 0.2

Number	Sheet	Issue	Date	Description
CI4017-3	1	1	04.97	MTL4017S PCB Track Layout
CI4017-3	2	1	04.97	MTL4017S General Assembly
CI4017-3	3	1	10.01	MTL4017S Certification Label

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