



EC-TYPE EXAMINATION CERTIFICATE

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

EC-Type Examination Certificate Number : **BAS01ATEX7155**

Equipment or Protective System: **MTL5044 TWO CHANNEL REPEATER POWER
SUPPLY 4/20mA**

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 0703/02/330

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

Re-issued 5 July 2002 to correct drawing issue numbers and dates.

CERTATEX\EQUIP\CAT1-2\p, Issue 1, Dated September 1998



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15 Description of Equipment or Protective System

An MTL5044 Two Channel Repeater Power Supply, 4/20mA provides a common fully floating d.c. supply for energising two conventional 4-20 mA transmitters which are located in the hazardous area. It then repeats the current in two independent floating circuits so as to drive loads situated within the safe area. It restricts the transfer of energy from unspecified safe-area apparatus to an intrinsically safe circuit by the limitation of voltage and current. Four transformers provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises of two power transformers, two current transformers, and two output channels each protected by duplicated zener diodes 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 and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for the hazardous and non-hazardous area 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 is designed to operate from a d.c. supply voltage of up to 35V.

Channel 1 - CON 1, Pin 2 w.r.t. Pin 1

Or

Channel 2 - CON 2, Pin 5 w.r.t. Pins 4

$U_o = 28V$

$I_o = 93mA$

$P_o = 0.65W$

$C_i = 0$

$L_i = 0$

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

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 for either channel:

GROUP	CAPACITANCE	INDUCTANCE	OR	L/R RATIO
	(μF)	(mH)		($\mu H/ohm$)
IIC	0.083	3.05 (4.2)		55
IIB	0.650	9.15 (12.6)		210
IIA	2.150	24.4 (33.6)		444



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When the external circuit contains no lumped inductance greater than $10\mu\text{H}$ i.e. the L_i of any attached apparatus is less than $10\mu\text{H}$, 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 95D2339 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 formation of a single channel version by omitting appropriate components thus forming an MTL 5041 Repeater Power Supply 4/20mA.

CON 4, Pins 10, 11, 12 and CON 5, Pins 13 &14

$U_m = 250\text{V}$

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

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

$U_o = 28\text{ V}$

$I_o = 93\text{mA}$

$P_o = 0.65\text{ W}$

$C_i = 0$

$L_i = 0$

The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the hazardous area load must not exceed the values for a single channel of an MTL 5044 above.

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 MTL5044 and MTL5041. Blanking covers may be removed if necessary.

Hazardous Area Terminal	MTL5044 pins	1, 2, 4, 5
	HAZ-RT-1-5	1, 2, 3, 4
Safe Area Terminal	MTL5044 pins	8, 9, 11, 12
	SAF-RT-8-12	5, 6, 7, 8

Hazardous Area Terminal	MTL5041 pins	1, 2
	HAZ-RT-1-2	1, 2
Safe Area Terminal	MTL5041 pins	11, 12
	SAF-RT-11-12	7, 8



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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

19 DRAWINGS

Number	Sheet	Issue	Date	Description
CI5044-1	2	4	11.01	MTL5044 Parts List
CI5044-1	3	4	12.01	MTL5044 Circuit Diagram
CI5044-1	4	4	04.97	MTL5044 Component Layout
CI5044-1	5	1	06.95	MTL5044 General Assembly
CI5044-1	6	2	11.01	MTL5044 Internal Construction
CI5044-1	7	5	04.97	MTL5044 PCB Track Layout
CI5044-1	8	1	06.95	MTL5044 Transformer Winding Details
*CI 5000-1	1	1	05.95	I.S. Transformer TRF301
*CI 5000-1	2	1	05.95	I.S. Transformer TFR301
*CI 5000-2	1	1	05.95	I.S. Transformer TFR300
*CI 5000-2	2	1	05.95	I.S. Transformer TFR300

Drawings marked * are associated with and are held on BASEEFA Certificate BAS01ATEX7157

Drawing associated with Variation 0.1

Number	Sheet	Issue	Date	Description
CI5041-1	2	3	11.01	MTL5041 Parts List
CI5041-1	3	4	11.00	MTL5041 Circuit Diagram



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Number	Sheet	Issue	Date	Description
CI5041-1	4	5	12.01	MTL5041 Component Layout
CI5041-1	5	1	06.95	MTL5041 General Assembly
CI5041-1	6	2	11.01	MTL5041 Internal Construction
CI5041-1	7	5	4.97	MTL5041 PCB Track Layout
CI5041-1	8	2	11.01	MTL5041 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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