



## EC-TYPE EXAMINATION CERTIFICATE

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

EC-Type Examination Certificate Number : **BAS99ATEX7028**

Equipment or Protective System: **MTL 4041A CURRENT REPEATER**

Manufacturer: **MEASUREMENT TECHNOLOGY LIMITED**

Address: **Power Court, Luton, 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°

**98(C)0991 dated 2 March 1999**

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

**EN 50014: 1997**


**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] G     [EEx ia] IIC (T<sub>amb</sub> ≤ 60°C)

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

File No: EECS0703/02/272

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.



Electrical Equipment Certification Service  
Health and Safety Executive  
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom  
Tel: 01298 28000 Fax: 01298 28244

I M CLEARE  
DIRECTOR  
10 March 1999



13

Schedule

14

EC-TYPE EXAMINATION CERTIFICATE N° BAS99ATEX7028

15

**Description of Equipment or Protective System**

The MTL4041A Current Repeater restricts the transfer of energy from unspecified safe area apparatus to intrinsically safe circuits by the limitation of voltage and current.

The MTL4041A Current Repeater is comprised of three isolating transformers which provide galvanic isolation between the hazardous area and the nonhazardous area circuitry and a combination of diode, zener diode and resistance on the output channel 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 area and nonhazardous area connections.

The apparatus is designed to operate from a d.c. supply of up to 35V on CON 2 pins 13 and 14 and 16V d.c. on CON 2 pins 7,8,9 and 11. The segregation of the non-hazardous area and the hazardous area circuits meets the requirements for 375V peak.

**Input/Output Parameters**

Connector CON2

$U_m = 250V$  d.c. or r.m.s.

Connector CON 1

$U_o = 8.6V$  (Diode)

This output voltage does not contribute to the short circuit sparking risk, but must be considered for the calculation of load capacitance.

Although the MTL 4041A does not itself comply with the requirements of Clause 5.4 of EN 50020: 1994, when CON1 is connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface unit will not add more than the values specified in Clause 5.4 of EN 50020: 1994 to the parameters of the circuit into which it is connected.

$C_i = 0$

$L_i = 0$

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



13

**Schedule**

14

**EC-TYPE EXAMINATION CERTIFICATE N° BAS99ATEX7028**

GROUP	CAPACITANCE in $\mu\text{F}$	INDUCTANCE in mH	OR	L/R RATIO in $\mu\text{H}/\text{ohm}$
IIC	6.2	6.2		1674
IIB	55	22.5		6695
IIA	1000	50		13395

16

**Report Nos.**

98(C)0991

17

**SPECIAL CONDITIONS FOR SAFE USE**

None

18.

**Essential Health and Safety Requirements**

Essential Health & Safety Requirements not covered by Standards listed at (9)		
Clause	Subject	Compliance
1.0.2	Analysis of possible operating faults	Report No 98(C)0991 Clause 6.1.0.2
1.0.4	Surrounding area conditions	Report No 98(C)0991 Clause 6.1.0.4
1.0.5	Marking	Report No 98(C)0991 Clause 6.1.0.5
1.0.6	Instructions	Report No 98(C)0991 Clause 6.1.0.6
1.1.3	Changes in characteristics of materials and combinations	Report No 98(C)0991 Clause 6.1.1.3
1.2.2	Components for incorporation or replacement	Report No 98(C)0991 Clause 6.1.2.2
1.2.4	Dust deposits	Report No 98(C)0991 Clause 6.1.2.4
1.2.5	Additional means of protection	Report No 98(C)0991 Clause 6.1.2.5
1.2.7	Protection against other hazards	Report No 98(C)0991 Clause 6.1.2.7
1.4.2	Withstanding attack by aggressive substances	Report No 98(C)0991 Clause 6.1.4.2
1.6.4	Hazards arising from connections	Report No 98(C)0991 Clause 6.1.6.4
2.1.1	Category IG	Report No 98(C)0991 Clause 6.2.1.1

19

**DRAWINGS**

Number	Sheet	Issue	Date	Description
CI 4041-4	1	4	02.99	Parts List
CI 4041-4	2	5	02.99	Circuit Diagram
CI 4041-4	3	3	02.99	PCB Component Layout



13

**Schedule**

14

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<b>Number</b>	<b>Sheet</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
CI 4041-4	4	3	02.99	General Assembly and Label Details
CI 4041-4	5	1	01.99	Internal Construction
CI 4041-4	6	2	01.99	PCB Track Layout
CI 4041-4	7	2	01.99	Transformer Winding Details
*CI4000-1	1&2	2	11.92	4000 Series Transformer
**CI4000-2	1&2	2	11.92	4000 Series Double Toroid Transformer

The drawing marked \* is held with BASEEFA Certificate No Ex 91C2450/3

The drawing marked \*\* is held with BASEEFA Certificate No Ex 92C2003/3

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**SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE**

**Equipment or Protective System Intended for use  
in Potentially explosive atmospheres  
Directive 94/9/EC**

Supplementary EC-Type Examination Certificate Number: **BAS99ATEX7028/1**

Equipment or Protective System: **MTL4041A CURRENT REPEATER**

Manufacturer: **MEASUREMENT TECHNOLOGY LIMITED**

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

This supplementary certificate extends EC-Type Examination Certificate No. BAS99ATEX7028 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

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File No: EECS 0703/02/272

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23 October 2000



- 13 **Schedule**
- 14 **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS99ATEX7028/1**

**Description of the Variation to the Equipment or Protective System**

**VARIATION ONE**

To permit an external intrinsically safe source with  $U_o = 30V$  and  $I_o = 100mA$  having a source resistance of  $U_o/I_o$ , to be connected to pins 5 and 3 with respect to pins 6 and 4.

The capacitance and either the inductance or the inductance to resistance ratio ( $L/R$ ) of the hazardous area cables must not exceed the values as detailed in the original schedule or the certificate relating to the external intrinsically safe source.

**Report No.**

See original certificate.

**Special Conditions For Safe Use**

See original certificate.

**Essential Health and Safety Requirements**

See original certificate.

**DRAWINGS**

See original certificate.

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