



1 **EC - TYPE EXAMINATION CERTIFICATE**

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

3 EC - Type Examination Certificate Number: **Baseefa07ATEX0213**

4 Equipment or Protective System: **MTL5541 / MTL5544 Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters**

5 Manufacturer: **Measurement Technology Limited**

6 Address: **Power Court, Luton, Bedfordshire LU1 3JJ**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd., Notified Body number 1180, 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 No. **GB/BAS/ExTR07.0129/00**

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


EN 60079-0: 2006 EN 60079-11: 2007 EN 61241-0: 2006 EN 61241-11: 2005

except in respect of those requirements listed at item 18 of the Schedule.

10 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.

11 This EC - TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

 **II (1) GD** [Ex ia] IIC -20°C ≤ T_a ≤ +60°C
[Ex iaD]

 **I (M1)** [Ex ia] I

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

Baseefa Customer Reference No. **0703**

Project File No. **07/0628**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

Baseefa

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Schedule

14

Certificate Number Baseefa07ATEX0213

15 Description of Equipment or Protective System

The MTL5544 Two Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters is designed to provide a floating d.c. supply for energising two conventional 2 or 3-Wire transmitters or a 'smart' transmitter in the hazardous area and repeat these currents in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by the means of limitation of voltage and current. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by the connection of a hand-held communicator (HHC).

The MTL5544 Two Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters comprise four isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, zener diode chains and resistors providing voltage and current limitation. The above, together with other electronic components, are mounted on a single printed circuit board (PCB) and housed in a moulded plastic enclosure. Polarised plug and sockets are provided for hazardous and non-hazardous area connections. A power indicator LED is fitted to the top of the apparatus.

The MTL5541 Single Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters is a de-populated version of the MTL5544 and has only one channel populated.

Input/Output Parameters

Non-Hazardous Area Terminals 7 to 14 (10 to 14 on MTL5541 model)

$$U_m = 253V \text{ r.m.s.}$$

The circuit connected to the above non-hazardous area terminals is designed to operate from a d.c. supply voltage up to 35V.

Hazardous Area Terminals 2 w.r.t. 1 (Channel 1)

or

Hazardous Area Terminals 5 w.r.t. 4 (Channel 2 – MTL5544 model only)

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 93mA & L_i = 0 \\ P_o = 0.65W & \end{array}$$

Hazardous Area Terminals 3 w.r.t. 1 (Channel 1)

or

Hazardous Area Terminals 6 w.r.t. 4 (MTL5544 model only)

$$\begin{array}{ll} U_o = 1.1V & U_i = 30V \\ I_o = 53mA & I_i = 121mA \\ P_o = 15mW & \\ C_i = 0 & \\ L_i = 0 & \end{array}$$

When an intrinsically safe source is connected to these terminals it should have a source resistance of U_i / I_i and the capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area connections must not exceed the values detailed in the certificate of the intrinsically safe source. Hazardous area terminals 1 and 5 must not be used when the source is connected to these terminals.



Hazardous Area Terminals 2 w.r.t. 3 (Channel 1)

or

Hazardous Area Terminals 5 w.r.t. 6 (Channel 2 – MTL5544 model only)

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 87mA & L_i = 0 \\ P_o = 0.61W & \end{array}$$

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

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

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO ($\mu H/ohm$)
Hazardous Area Terminals 2 w.r.t. 1 or 5 w.r.t. 4				
IIC	0.083	4.2		56
IIB*	0.65	12.6		210
IIA	2.15	33.6		444
I	3.62	53.7		668
Hazardous Area Terminals 3 w.r.t. 1 or 6 w.r.t. 4				
IIC	100	12.8		2,438
IIB*	1,000	47.8		8,932
IIA	1,000	104.7		18,140
I	1,000	156.2		28,229
Hazardous Area Terminals 2 w.r.t. 3 or 5 w.r.t. 6				
IIC	0.083	5.0		59
IIB*	0.65	20.0		222
IIA	2.15	40.9		469
I	3.62	59.1		710

Note: The above load parameters apply where:

1. The external circuit contains no combined lumped inductance L_i and capacitance C_i greater than 1% of the above values.
- or 2. The inductance and capacitance are distributed as in a cable.
- or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance and capacitance, up to 50% of each of the L and C values is allowed.

* Group IIB parameters also applicable for associated apparatus [Ex iaD]

16 Report Number

GB/BAS/ExTR07.0129/00

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

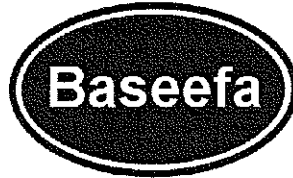
All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.



19 Drawings and Documents

Number	Sheet	Issue	Date	Description
CI4541-1	1 of 8	2	7.07	Parts List for MTL4541 / MTL4544
CI4541-1	2 of 8	4	09-07	Circuit Diagram for the MTL 4541 / 4544
CI4541-1	3 of 8	4	09-07	Circuit Diagram for the MTL 4541 / 4544
CI4541-1	4 of 8	2	6.07	MTL4541 / MTL4544 Track Layout
CI4541-1	5 of 8	4	9.07	MTL4541 Component Layout
CI4541-1	6 of 8	2	1.07	PCB Detail for TPL300
CI4541-1	7 of 8	2	1.07	PCB Detail for TPL301
CI4500-100	1 of 1	1	8.06	MTL 4500 Case
CI5541-1	1 of 1	1	9.07	MTL5541 Certification Label Details and DIN Rai Fitting – Baseefa

The above drawings are associated and held with IECEX Certificate No. IECEX BAS 07.0069.



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

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

- 3 Supplementary EC - Type Examination Certificate Number: **Baseefa07ATEX0213/1**
- 4 Equipment or Protective System: **MTL5541 / MTL5544 Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters**
- 5 Manufacturer: **Measurement Technology Limited**
- 6 Address: **Power Court, Luton, Bedfordshire LU1 3JJ**
- 7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa07ATEX0213 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.

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

Baseefa Customer Reference No. 0703

Project File No. 07/0983

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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



13

Schedule

14

Certificate Number Baseefa07ATEX0213/1

15 **Description of the variation to the Equipment or Protective System**

Variation 1.1

To permit minor changes to the PCB layout not affecting the previous assessment.

16 **Report Number**

None.

17 **Special Conditions for Safe Use**

None.

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
CI4541-1	4 of 8	3	11.07	MTL4541 / MTL4544 Track Layout

The above drawing is associated and held with IECEX Certificate No. IECEX BAS 06.0034/5.