



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx BAS 06.0034

Issue No: 12

Certificate history:

Status: **Current**

Issue No. 12 (2018-02-09)

Issue No. 11 (2016-09-26)

Date of Issue: **2018-02-09**

Page 1 of 4

Issue No. 10 (2014-03-05)

Issue No. 9 (2011-01-31)

Applicant: **Eaton Electric Limited**
Great Marlings
Butterfield
Luton
Bedfordshire LU2 8DL
United Kingdom

Issue No. 8 (2010-06-28)

Issue No. 7 (2009-08-21)

Issue No. 6 (2009-05-06)

Issue No. 5 (2008-01-10)

Issue No. 4 (2007-11-12)

Issue No. 3 (2007-07-05)

Issue No. 2 (2007-04-03)

Equipment: **MTL4541* / MTL4544* Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking:

[Ex ia Ga] IIC
[Ex ia Da] IIIC
[Ex ia Ma] I
-20°C ≤ Ta ≤ +60°C

Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

PP DISCREETLY
CERTIFICATION
MANAGER

Position:

Technical Manager

Signature:

(for printed version)

Date:

[Handwritten Signature]
9/2/18

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire, SK17 9RZ
United Kingdom





IECEX Certificate of Conformity

Certificate No: IECEX BAS 06.0034

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Page 2 of 4

Manufacturer: **Eaton Electric Limited**
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
United Kingdom

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

[GB/BAS/ExTR06.0049/00](#)

[GB/BAS/ExTR07.0122/00](#)

[GB/BAS/ExTR08.0001/00](#)

[GB/BAS/ExTR09.0124/00](#)

[GB/BAS/ExTR10.0101/00](#)

[GB/BAS/ExTR10.0298/00](#)

[GB/BAS/ExTR14.0043/00](#)

[GB/BAS/ExTR16.0237/00](#)

[GB/BAS/ExTR18.0016/00](#)

Quality Assessment Report:

[GB/BAS/QAR07.0017/06](#)



IECEx Certificate of Conformity

Certificate No: IECEx BAS 06.0034

Issue No: 12

Date of Issue: **2018-02-09**

Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The MTL4544* 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 4/20mA 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 current and voltage. 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 MTL4544* Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters comprises 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 the hazardous and non-hazardous area connections. All models are fitted with a power indication LED.

The MTL4541* Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters is a depopulated version of the MTL4544* and has only one channel populated. Both the MTL4541* and MTL4544* available in a number of model variants, denoted by the last digit in the model number. All models variants are built on a common PCB.

See Annex for model and electrical data.

SPECIFIC CONDITIONS OF USE: NO



IECEX Certificate of Conformity

Certificate No: IECEX BAS 06.0034

Issue No: 12

Date of Issue: 2018-02-09

Page 4 of 4

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Variation 12.1

To permit minor drawing changes not affecting the original assessment.

ExTR: GB/BAS/ExTR18.0016/00	File Reference: 18/0066
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Annex:

[IECEX BAS 06.0034 Annex Issue 3.pdf](#)

MTL4541* / MTL4544* Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters

Model Range:

Model No.	
MTL4541	Single Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters
MTL4541B	Single Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters
MTL4541P	Single Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters
MTL4544	Dual Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters
MTL4544B	Dual Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters

MTL4541, MTL4541B, MTL4544 & MTL4544B Models Parameters

Non-Hazardous Area Terminals 8, 9, 11, 12, 13 & 14

$$U_m = 253V$$

The apparatus is designed to operate on the above terminals from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 2 w.r.t. 1

or

Hazardous Area Terminals 5 w.r.t. 4 (MTL4544 & MTL4544B only)

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

Hazardous Area Terminals 3 w.r.t. 1

or

Hazardous Area Terminals 6 w.r.t. 4 (MTL4544 & MTL4544B only)

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

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 2 and 5 must not be used when the source is connected to these terminals.

Hazardous Area Terminals 2 w.r.t. 3

or

Hazardous Area Terminals 5 w.r.t. 6 (MTL4544 & MTL4544B only)

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

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

GROUP	CAPACITANCE (μ F)	INDUCTANCE (mH)	OR	L/R RATIO (μ 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	3.76	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	4.9		59
IIB*	0.65	20.0		222
IIA	2.15	40.9		469
I	3.76	59.1		710

Notes:

- 1) The above load parameters apply when one of the two conditions below is given:
 - the total L_i of the external circuit (excluding the cable) is $< 1\%$ of the L_o value or
 - the total C_i of the external circuit (excluding the cable) is $< 1\%$ of the C_o value.
- 2) The above parameters are reduced to 50% when both of the two conditions below are given:
 - the total L_i of the external circuit (excluding the cable) is $\geq 1\%$ of the L_o value and
 - the total C_i of the external circuit (excluding the cable) is $\geq 1\%$ of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1μ F for Groups IIB, IIA & I and 600nF for Group IIC.

* Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

MTL4541P Model Parameters

Non-Hazardous Area Terminals 8, 9, 11, 12, 13 & 14

$$U_m = 253V$$

The apparatus is designed to operate on the above terminals from a d.c. supply voltage of 35V d.c.

Hazardous Area Terminals 2 w.r.t. 1

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 116.6mA & L_i = 0 \\ P_o = 0.82W & \end{array}$$

Hazardous Area Terminals 3 w.r.t. 1

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

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 terminal 2 must not be used when the source is connected to these terminals.

Hazardous Area Terminals 2 w.r.t. 3

$$\begin{array}{ll} U_o = 28V & C_i = 0 \\ I_o = 107mA & L_i = 0 \\ P_o = 0.75W & \end{array}$$

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

GROUP	CAPACITANCE (μ F)	INDUCTANCE (mH)	OR	L/R RATIO (μ H/ohm)
Hazardous Area Terminals 2 w.r.t. 1				
IIC	0.083	2.7		45
IIB*	0.65	11.8		175
IIA	2.15	23.5		370
I	3.76	33.5		545
Hazardous Area Terminals 3 w.r.t. 1				
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				
IIC	0.083	3.2		50
IIB*	0.65	13.7		190
IIA	2.15	27.5		401
I	3.76	39.3		596

Notes:

- The above load parameters apply when one of the two conditions below is given:
 - the total L_i of the external circuit (excluding the cable) is < 1% of the L_o value or
 - the total C_i of the external circuit (excluding the cable) is < 1% of the C_o value.
- The above parameters are reduced to 50% when both of the two conditions below are given:
 - the total L_i of the external circuit (excluding the cable) is \geq 1% of the L_o value and
 - the total C_i of the external circuit (excluding the cable) is \geq 1% of the C_o value.

The reduced capacitance of the external circuit (including cable) shall not be greater than 1 μ F for Groups IIB, IIA & I and 600nF for Group IIC.

* Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC