



# IECEx Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEx BAS 09.0036** Page 1 of 4 Certificate history:  
Status: **Current** Issue No: 6 Issue 5 (2016-09-26)  
Date of Issue: 2017-05-02 Issue 4 (2014-03-28)  
Applicant: **Eaton Electric Limited** Issue 3 (2012-08-06)  
Great Marlings Issue 2 (2011-01-31)  
Butterfield Issue 1 (2009-11-30)  
Luton Issue 0 (2009-07-02)  
Bedfordshire  
LU2 8DL  
United Kingdom  
Equipment: **MTL4531 Single Channel & MTL4533 Two Channel Vibration Transducer Interface**  
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**

Position:

**Technical Manager**

Signature:  
(for printed version)

Date:

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.
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Certificate issued by:

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





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

Additional manufacturing locations: **MTL Instruments PVT Limited**  
No 3 Old Mahabalipuram Road  
Sholinganallur  
Chennai  
**India**

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 equipment 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 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 Reports:

[GB/BAS/ExTR09.0060/00](#)  
[GB/BAS/ExTR12.0181/00](#)  
[GB/BAS/ExTR17.0025/00](#)

[GB/BAS/ExTR09.0214/00](#)  
[GB/BAS/ExTR14.0065/00](#)

[GB/BAS/ExTR10.0297/00](#)  
[GB/BAS/ExTR16.0237/00](#)

#### Quality Assessment Reports:

[GB/BAS/QAR06.0022/06](#)

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



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The MTL4533 Two Channel Vibration Transducer Interface is designed to restrict the transfer of energy from unspecified apparatus in the non-hazardous area to up to two intrinsically safe vibration transducers by limitation of voltage and current. Two transformers and two opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises two isolating transformer, two opto-isolators and detection circuits with zener diode and resistor combinations 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 hazardous and non-hazardous area connections.

The MTL4531 Single Channel Vibration Transducer Interface is a depopulated version of the MTL4533 with only one channel populated.

See annex for electrical parameters.

**SPECIFIC CONDITIONS OF USE: NO**



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

### Variation 6.1

To permit the fitting of a thermal pad on the MTL4531 model not affecting the original assessment.

### Variation 6.2


To permit minor component changes not affecting the original assessment.

ExTR: **GB/BAS/ExTR17.0025/00**

File Reference: **17/0052**

## Annex:

[IECEx BAS 09.0036 Annex Iss 1.pdf](#)

<b>Baseefa</b> Rockhead Business Park Staden lane, Buxton, Derbyshire SK17 9RZ United Kingdom		
ANNEX to IECEx BAS 09.0036	Issue No. 1	Date: 2012/08/06

**MTL4531 Single & MTL4533 Two Channel Vibration Transducer Interface**

**Input/Output Parameters**

Non-Hazardous Area Terminals 7, 8, 11, 12, 13 & 14)

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

The circuit connected to non-hazardous area terminals 7, 8, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

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

Or

Hazardous Area Terminals 6 w.r.t. 4 (Channel 2 – MTL4533 model only)

$$\begin{array}{ll} U_o = 26.6V & C_i = 0 \\ I_o = 94mA & L_i = 0 \\ P_o = 0.66W & \end{array}$$

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

Or

Hazardous Area Terminals 6 w.r.t. 5 (Channel 2 – MTL4533 model only)

$$\begin{array}{ll} U_o = 1.1V & U_i = 28V \\ I_o = 0.11mA & C_i = 0 \\ P_o = 0.03mW & L_i = 0 \end{array}$$

Although the apparatus does not itself comply with the simple apparatus requirements of Clause 5.7 of IEC 60079-11: 2006, when each hazardous area channel is connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of IEC 60079-11: 2006 to the parameters of the circuit into which it is connected.

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

**Load Parameters**

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

GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu$ H/ohm)
<u>Hazardous Area Terminals 3 w.r.t. 1 or Terminals 6 w.r.t. 4 (MTL4533 only)</u>				
IIC	0.094	4.02		56
IIB*	0.73	16.09		227
IIA	2.42	32.19		455
I	4.27	52.81		746

# Baseefa

Rockhead Business Park  
Staden lane, Buxton, Derbyshire  
SK17 9RZ  
United Kingdom



ANNEX to IECEx BAS 09.0036

Issue No. 1

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GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu$ H/ohm)
Hazardous Area Terminals 3 w.r.t. 2 or Terminals 6 w.r.t. 5 (MTL4533 only)				
IIC	100	1,000		1,000
IIB*	1,000	1,000		1,000
IIA	1,000	1,000		1,000
I	1,000	1,000		1,000

## 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  $1\mu$ F for Groups IIB, IIA & I and 600nF for Group IIC.

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