1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0210 – Issue 3**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5510 / MTL5510B / MTL5513 Switch / Proximity Detector Interface**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0210 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

⟨Ex⟩ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)

⟨Ex⟩ I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp DBrearley
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0210 – Issue 3**

15 **Description of Product**

The MTL5510 Switch / Proximity Detector Interface is designed to restrict the transfer of energy from the unspecified non-hazardous area apparatus to four intrinsically safe circuits by limitation of voltage and current. An isolating transformer and an opto-coupler provide galvanic isolation between the hazardous and non-hazardous area circuitry. Each channel of the MTL5510 monitors either a detector or a switch located in the hazardous area and controls a non-hazardous area load via a solid state output.

The apparatus comprise an isolating transformer, an opto-coupler, zener diode and resistors to provide 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 plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided to indicate power-on, the status of each output and Line Fault Detection (LFD).

The MTL5510B Multifunction Digital Input Interface has the same hazardous area circuitry and parameters as the MTL5510 but has a different configuration via the removal of a link in the non-hazardous area circuitry.

The MTL5513 Switch / Proximity Detector Interface is a depopulated version of the MTL5510, using the same PCB and enclosure having only two channels populated.

Input/Output Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 7 to 14 is designed to operate from a d.c. supply voltage up to 35V.

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

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

Hazardous Area Terminals 4 w.r.t. 5 (Channel 3)*

Hazardous Area Terminals 6 w.r.t 5 (Channel 4)*

U_o = 10.5V
I_o = 14mA
P_o = 37mW
C_i = 0
L_i = 0

* For MTL5510 & MTL5510B Models only.

Load Parameters

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

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	2.41	175		983
IIB*	16.8	680		1,333
IIA	75.0	1,000		1,333
I	95.0	1,000		1,333

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

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5510-1	1 of 1	3	8.16	MTL5510 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx BAS 07.0066 Iss. 4

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4510-1	1 of 7	2	6.07	Parts List for MTL4510 and MTL4513
CI4510-1	2 of 7	2	05.07	Circuit Diagram for MTL4510 / 4513
CI4510-1	3 of 7	2	05.07	Circuit Diagram for MTL4510 / 4513
CI4510-1	4 of 7	2	5.07	MTL4510 Track Layout
CI4510-1	5 of 7	3	1.13	MTL4510 Component Layout
CI4510-1	6 of 7	2	1.07	PCB Detail for TPL308
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 07.0066

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0210	8 October 2007	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.0126/00.
Baseefa07ATEX0210/1	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. iv) To confirm the current designs of the MTL5510 / MTL5510B / MTL5513 Switch / Proximity Detector Interfaces have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0297/00.
Baseefa07ATEX0210/2	5 March 2014	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL5510 / MTL5510B / MTL5513 Switch / Proximity Detector Interfaces have been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0043/00.
Baseefa07ATEX0210 Issue 3	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0211 – Issue 7**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5511 / MTL5514 / MTL5514-T / MTL5516C / MTL5517 Switch / Proximity Detector Interface**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0211 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx II (1) GD [Ex ia Ga] IIC
[Ex ia Da] IIIC See Certificate Schedule for ambient temperature range
Ⓔx I (M1) [Ex ia Ma] I

SGS Baseefa Customer Reference No. **0703** Project File No. **17/0165**

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R S SINCLAIR pp D BRADLEY
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0211 – Issue 7**

15 **Description of Product**

The MTL5511 / MTL5514 / MTL5514-T / MTL5516C / MTL5517 Switch / Proximity Detector Interface are designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to up to two intrinsically safe circuits by limitation of voltage and current. A transformer and relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the interface monitors either a detector or switch located in the hazardous area and controls non-hazardous area loads via relays. Some models of the interface are fitted with independent phase reverse controls and Line Fault Detection (LFD) circuitry allowing an alarm condition to be signalled for either state, set by switches on the side of the interface.

The apparatus comprises an isolating transformer, relays, zener diodes and current limiting resistors to provide voltage and current limitation. These, together with other electronic components, are mounted on a single printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for connection to the hazardous and non-hazardous area. LED indication is provided to indicate Power-on, state of the outputs and LFD status.

The above listed models are all built on a common printed circuit board. The differences between the models relates to the configuration of the relays and non-hazardous connections via the fitting and removal of relays and soldered and component links.

The MTL5514-T Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) Alarm is of similar construction to the MTL5514 variant of the equipment with the same input and output parameters, but has an extended ambient temperature range.

The following table details the model configurations and ambient temperature ranges for each variant of the equipment: -

Model Variant	Ambient Temperature Range
MTL5511 Single Channel Switch / Proximity Detector Interface	$-20°C \leq T_a \leq +60°C$
MTL5514 Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) Alarm	$-20°C \leq T_a \leq +60°C$
MTL5516C Dual Channel Switch / Proximity Detector Interface	$-20°C \leq T_a \leq +60°C$
MTL5517 Dual Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) Alarm	$-20°C \leq T_a \leq +60°C$
MTL5514-T Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) Alarm	$-20°C \leq T_a \leq +65°C$

Input/Output Parameters

Non-Hazardous Area Terminals 7 to 14

$U_m = 253V$ r.m.s.

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

Non-hazardous area terminals 7 to 12 are connected to relay contacts which can switch up to 250V r.m.s or 5A r.m.s or 100VA

Hazardous Area Terminals 1 w.r.t. 2 / 3 (Channel 1)
Hazardous Area Terminals 4 w.r.t. 5 / 6 (Channel 2)*

$U_o = 10.5V$ $C_i = 0$
$I_o = 14mA$ $L_i = 0$
$P_o = 37mW$

* For MTL5516C & MTL5517 Models only.

Load Parameters

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

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO (μH/ohm)
IIC	2.41	175		983
IIB*	16.8	680		1,333
IIA	75.0	1,000		1,333
I	95.0	1,000		1,333

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

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 ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR17.0096/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	Protection against other hazards (LVD type requirements, etc.)
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4514-T-1	1 of 1	1	3.17	Circuit Diagram for MTL5514-T
CI4514-T-2	1 of 1	1	3.17	Parts List for MTL5514-T
CI4514-T-3	1 of 1	1	3.17	MTL5514-T Track Layout
CI4514-T-4	1 of 1	1	3.17	MTL5514-T Component Layout

Number	Sheet	Issue	Date	Description
CI4514-T-6	1 of 1	1	3.17	PCB Detail for TPL308
CI5514-T-1	1 of 1	1	3.17	MTL5514-T Certification Label Details and DIN Rail Fittings - Baseefa

The above drawings are associated and held with IECEx BAS 07.0067 Iss. 8

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4516-1	1 of 6	2	9.08	Parts List for MTL4516
CI4516-1	2 of 6	5	10.11	Circuit Diagram for MTL4516
CI4516-1	3 of 6	3	12.07	MTL4516 Track Layout
CI4516-1	4 of 6	6	10.12	MTL4516 Component Layout
CI4516-1	5 of 6	2	1.07	PCB Detail for TPL308
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI4500-7	1 of 1	2	1.11	MTL4500 Relay Encapsulant
CI5500-100	1 of 1	3	1.13	New 5500 Outline
CI5516-1	1 of 1	4	7.16	MTL5516C Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 07.0067

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0211	12 November 2007	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.0127/00.
Baseefa07ATEX0211/1	30 January 2008	To permit minor changes to the PCB layout not affecting the original assessment.
Baseefa07ATEX0211/2	11 March 2010	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL5511 / MTL5514 / MTL5516C / MTL5517 Switch / Proximity Detector Interfaces have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. iii) To permit the notes associated with the load parameters of all models specified on the original schedule to be revised. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0026/00.

Certificate No.	Date	Comments
Baseefa07ATEX0211/3	31 January 2011	i) To permit the fitting of alternative relays on the equipment. ii) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. iii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iv) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0296/00.
Baseefa07ATEX0211/4	22 November 2011	To permit minor drawing changes not affect the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR11.0295/00.
Baseefa07ATEX0211/5	28 March 2014	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL5511 / MTL5514 / MTL5516C / MTL5517 Switch / Proximity Detector Interfaces have been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00.
Baseefa07ATEX0211 Issue 6	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
Baseefa07ATEX0211 Issue 7	3 April 2017	This issue of the certificate permits the addition of the MTL5514-T Single Channel Switch / Proximity Detector Interface with Line Fault Detection (LFD) Alarm variant to the range covered by the certificate. The MTL5514-T is of similar construction to the MTL5514 variant and has the same input and output parameters, but has an extended ambient temperature range of -20°C to +65°C. The Certificate title & marking sections and Schedule have been revised to include the new variant details. The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0096/00, Project File No. 17/0165.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa13ATEX0242 – Issue 1**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5514D Single Channel Switch / Proximity Detector Interface with Dual Output, Line Fault Detection & Phase Reversal**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa13ATEX0242 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)
Ⓔx I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp D Beardsley
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa13ATEX0242 – Issue 1**

15 Description of Product

The MTL5514D Single Channel Switch / Proximity Detector Interface with Dual Output, Line Fault Detection & Phase Reversal is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to an intrinsically safe circuit by limitation of voltage and current. Relays and a transformer provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The interface monitors either a detector or switch located in the hazardous area and controls two non-hazardous area loads via relays. The interface is also fitted with independent phase reversal controls and Line Fault Detection (LFD) circuitry allowing an alarm condition to be signalled for either state, set by switches on the side of the interface.

The equipment comprises an isolating transformer, relays, zener diodes and current limiting resistors to provide voltage and current limitation. These, together with other electronic components are mounted on a single printed circuit board and housed in a plastic enclosure. Polarised plug and socket connections are provided for connection to the hazardous and non-hazardous area. LED indication is provided to indicate Power-on, state of the output and LFD status.

Input / Output Parameters

Non-Hazardous Area Terminals 7 to 14

U_m = 253V

The circuit connected to non-hazardous area terminals pins 13 & 14 are designed to operate from a d.c. supply voltage of up to 35V d.c.

Non-hazardous area terminals pins 7, 8, 10 & 11 are connected to relay contacts which can switch up to 253V r.m.s, 2A r.m.s and 100VA.

Hazardous Area Terminals 1 w.r.t. 2 / 3

U_o = 10.5V C_i = 0
I_o = 14mA L_i = 0
P_o = 37mW

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

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	2.41	175		983
IIB**	16.8	680		1,333
IIA	75.0	1,000		1,333
I	95.0	1,000		1,333

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

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 ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5514D-6	1 of 1	2	7.16	MTL5514D Certification Label Details – Baseefa

The above drawing is associated and held with IECEx BAS 13.0124 Iss. 1

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4514D-1	1 of 1	1	10.13	MTL4514D Circuit Diagram
CI4514D-2	1 & 2	1	11.13	MTL4514D Parts List
CI4514D-3	1 of 1	1	10.13	MTL4514D Track Layout
CI4514D-4	1 of 1	1	11.13	MTL4514D Component Layout
CI4514D-5	1 of 1	1	10.13	PCB Detail for TPL308
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 13.0124

20 Certificate History

Certificate No.	Date	Comments
Baseefa13ATEX0242	8 January 2014	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 is documented in Certification Test Report No. GB/BAS/ExTR13.0271/00.

Certificate No.	Date	Comments
Baseefa13ATEX0242 Issue 1	5 October 2016	This issue of the certificate confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 in respect of differences from EN 60079-0: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0212 – Issue 7**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL552* Series Solenoid / Alarm Drivers**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0212 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. **See Certificate History**

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

EN 60079-0:2012+A11:2013 EN 60079-11:2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx II (1) GD See Schedule for Model Certification Markings

Ⓔx I (M1)

SGS Baseefa Customer Reference No. **0703** Project File No. **17/0166**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0212 – Issue 7**

15 **Description of Product**

The MTL552* Series Solenoid / Alarm Drivers are designed to control and monitor IS apparatus located in the hazardous area and restrict the transfer of energy from unspecified apparatus in the non-hazardous area to an intrinsically safe circuit in the hazardous area by limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprise an isolating transformer, opto-isolators, duplicated zener diode 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 (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL552* Series Solenoid / Alarm Drivers comprise a number of different models denoted by * in the model number. All models are built on common PCB's and configured having certain features such as Line Fault Detection (LFD) and Phase Reversal facilities. There are also models in the range that provide loop power or have low current hazardous area outputs. All models have LED indication dependant on the model configuration.

The MTL5521-T Loop Powered Solenoid / Alarm Driver is of similar construction to the MTL5521 variant of the equipment with the same input and output parameters, but has an extended ambient temperature range.

The following models are covered by this certificate and are marked as follows: -

MTL5522	Loop Powered Solenoid / Alarm Driver, IIB	⟨Ex⟩ II (1) GD ⟨Ex⟩ I (M1)	[Ex ia Ga] IIB (-20°C ≤ T_a ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)
MTL5521	Loop Powered Solenoid / Alarm Driver	⟨Ex⟩ II (1) GD ⟨Ex⟩ I (M1)	[Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C) [Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)
MTL5523	Solenoid / Alarm Driver with Line Fault Detection Alarm		
MTL5523V	Solenoid / Alarm Driver with Line Fault Detection Alarm		
MTL5523VL	Solenoid / Alarm Driver with Line Fault Detection Alarm		
MTL5524	Solenoid / Alarm Driver with Logic Control, Phase Reversal		
MTL5525	Low Current Loop Powered Solenoid / Alarm Driver		
MTL5521-T	Loop Powered Solenoid / Alarm Driver	⟨Ex⟩ II (1) GD ⟨Ex⟩ I (M1)	[Ex ia Ga] IIC (-20°C ≤ T_a ≤ +65°C) [Ex ia Da] IIIC (-20°C ≤ T_a ≤ +65°C) [Ex ia Ma] I (-20°C ≤ T_a ≤ +65°C)

Input/Output Parameters

MTL5521, MTL5521-T, MTL5523, MTL5523V & MTL5524 Models

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 7 to 14 is designed to operate from a d.c. supply voltage up to 35V.

Hazardous Area Terminals 2 /3 w.r.t. 1

U_o = 25V
I_o = 147mA
P_o = 0.92W
C_i = 0
L_i = 0

MTL5522 IIB Model Only

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 7 to 14 is designed to operate from a d.c. supply voltage up to 35V.

Hazardous Area Terminals 2 /3 w.r.t. 1

U_o = 25V
I_o = 166mA
P_o = 1.04W
C_i = 0
L_i = 0

MTL5523VL Model Only

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 7 to 14 is designed to operate from a d.c. supply voltage up to 35V.

Hazardous Area Terminals 2 /3 w.r.t. 1

U_o = 25V
I_o = 108mA
P_o = 0.68W
C_i = 0
L_i = 0

MTL5525 Model Only

Non-Hazardous Area Terminals 7 to 14

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 7 to 14 is designed to operate from a d.c. supply voltage up to 35V.

Hazardous Area Terminals 2 /3 w.r.t. 1

U_o = 25V
I_o = 83.3mA
P_o = 0.52W
C_i = 0
L_i = 0

Load Parameters

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

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
MTL5521, MTL5521-T, MTL5523, MTL5523V & MTL5524 Models			
IIC	0.11	1.4	40
IIB*	0.84	7.2	159
IIA	2.97	14.4	328
I	4.87	20.2	478
MTL5522 (Group IIB)			
IIB*	0.84	5.6	132
IIA	2.97	10.4	286
I	4.87	16.0	428
MTL5523VL Model			
IIC	0.11	3.04	52
IIB*	0.84	12.19	210
IIA	2.97	24.38	421
I	4.87	40.0	691
MTL5525 Model			
IIC	0.11	5.3	68
IIB*	0.84	21.8	254
IIA	2.97	44.7	536
I	4.87	64.9	814

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

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

See Certificate History

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4521-T-1	1 & 2	1	3.17	Circuit Diagram for MTL5521-T
CI4521-T-2	1 of 1	1	3.17	Parts List for MTL5521-T
CI4521-T-3	1 of 1	1	3.17	MTL5521-T Track Layout
CI4521-T-4	1 of 1	1	3.17	MTL5521-T Component Layout
CI4521-T-6	1 of 1	1	3.17	PCB Detail for TPL301
CI5521-T-1	1 of 1	1	3.17	MTL5521-T Certification Label Details - Baseefa

The above drawings are associated and held with IECEx BAS 07.0068 Iss. 8

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4521-1	1 of 6	2	2.14	Parts List for MTL452X
CI4521-1	2 of 6	5	7.10	Circuit Diagram for MTL452X
CI4521-1	3 of 6	3	2.10	MTL452X Track Layout
CI4521-1	4 of 6	4	1.13	MTL452X Component Layout
CI4521-1	5 of 6	2	1.07	PCB Detail for TPL301
CI4523-1	1 of 6	2	2.14	Parts List for MTL4523V
CI4523-1	2 of 6	2	11.11	Circuit Diagram for MTL4523V
CI4523-1	3 of 6	1	8.10	MTL4523V Track Layout
CI4523-1	4 of 6	2	1.13	MTL4523V Component Layout
CI4523-1	5 of 6	1	8.10	PCB Detail for TPL301
CI4523-2	1 of 3	2	11.11	Circuit Diagram for MTL4523V
CI4523-2	2 of 3	1	8.10	MTL4523V Track Layout
CI4523-2	3 of 3	2	1.13	MTL4523V Component Layout
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline
CI5521-1	1 of 1	4	6.16	MTL5521 Certification Label Details – Baseefa
CI5523-1	1 of 1	4	7.16	MTL5523V & MTL5523VL Certification Label Details - Baseefa

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 07.0068

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0212	12 November 2007	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.0128/00.

Certificate No.	Date	Comments
Baseefa07ATEX0212/1	3 March 2010	i) To permit the use of the MTL4521L PCB as an alternative to the current MTL552* PCB in all models of the equipment. ii) To confirm the current designs of all variants of the MTL552* Series Solenoid / Alarm Drivers have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. iii) To permit the notes associated with the load parameters of all models specified in the original schedule to be revised. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0025/00.
Baseefa07ATEX0212/2	17 August 2010	i) To permit minor circuit changes to form the MTL5523V Solenoid / Alarm Driver with Line Fault Detection Alarm variant. ii) To permit a minor drawing change not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0197/00.
Baseefa07ATEX0212/3	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0298/00.
Baseefa07ATEX0212/4	6 December 2011	To permit minor circuit changes to form the MTL5523VL Solenoid / Alarm Driver with Line Fault Detection Alarm variant. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR11.0302/00.
Baseefa07ATEX0212/5	21 February 2014	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current designs of all variants of the MTL552* Series Solenoid / Alarm Drivers have been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0043/00.

Certificate No.	Date	Comments
Baseefa07ATEX0212 Issue 6	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
Baseefa07ATEX0212 Issue 7	27 March 2017	This issue of the certificate permits the addition of the MTL5521-T Loop Powered Solenoid / Alarm Driver variant to the range covered by the certificate. The MTL5521-T is of similar construction to the MTL5521 variant and has the same input and output parameters, but has an extended ambient temperature range of -20°C to +65°C. The Certificate title & marking sections and Schedule have been revised to include the new variant details. The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0097/00, Project File No. 17/0166.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa08ATEX0084 – Issue 3**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5526 Two Channel Switch-operated Relay Output**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa08ATEX0084 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

⟨Ex⟩ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)

⟨Ex⟩ I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp D Brierley
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa08ATEX0084 – Issue 3**

15 Description of Product

The MTL5526 Two Channel Switch-operated Relay Output is designed to enable two separate intrinsically safe circuits to be switched via relay contacts by on/off switches or logic signals from unspecified apparatus in the non-hazardous area. Configuration switches on the apparatus allow the two relay output channels to be alternatively controlled by one input. Each non-hazardous area input can also be loop powered. Two relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the apparatus comprises a relay, a zener diode and a fuse to provide voltage and current limitation to the relay. 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. LED indication is provided for status of each output channel and power-on.

Input / Output Parameters

Non-Hazardous Area Terminals 8, 9, 10, 11, 13 & 14

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 10, 11, 13 & 14 are designed to operate from a d.c. supply voltage up to 35V.

Hazardous Area Terminals 1 to 3 (Channel 1) or Hazardous Area Terminals 4 to 6 (Channel 2)

U_i = 30V $\quad$ U_o = 0
C_i = 0 $\quad$ I_o = 0
L_i = 0

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5526-1	1 of 1	3	7.16	MTL5526 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawing is associated and held with IECEx BAS 08.0030 Iss. 4

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4526-1	1 of 5	1	4.08	Parts List for MTL4526
CI4526-1	2 of 5	1	3.08	MTL4526 Final Assembly
CI4526-1	3 of 5	1	4.08	MTL4526 Track Layout
CI4526-1	4 of 5	2	1.13	MTL4526 Component Layout
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI4500-7	1 of 1	2	1.11	MTL4500 Relay Encapsulant
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 08.0030

20 Certificate History

Certificate No.	Date	Comments
Baseefa08ATEX0084	28 May 2008	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Test Report No. GB/BAS/ExTR08.0064/00.
Baseefa08ATEX0084/1	31 January 2011	i) To permit the fitting of alternative relays on the equipment. ii) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. iii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iv) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. v) To confirm the current design of the MTL5526 Two Channel Switch-operated Relay Output has been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR11.0001/00.

Certificate No.	Date	Comments
Baseefa08ATEX0084/2	28 March 2014	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current design of the MTL5526 Two Channel Switch-operated Relay Output has been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 and EN 61241-11: 2006 and none of the differences affect the equipment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00.
Baseefa08ATEX0084 Issue 3	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa09ATEX0103 – Issue 6**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5531 Single Channel & MTL5533 Two Channel Vibration Transducer Interface**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa09ATEX0103 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. **See Certificate History**

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

⟨Ex⟩ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)
⟨Ex⟩ I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **17/0052**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 # Schedule

14 ## Certificate Number Baseefa09ATEX0103 – Issue 6

15 Description of Product

The MTL5533 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 transformers, 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. LED indication is provided for power-on.

The MTL5531 Single Channel Vibration Transducer Interface is a depopulated version of the MTL5533 with only one channel populated.

Input / Output Parameters

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

U_m = 253V 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 (MTL5533 only)

U_o = 26.6V
I_o = 94mA
P_o = 0.66W
C_i = 0
L_i = 0

Hazardous Area Terminals 3 w.r.t. 2 – Channel 1
or
Hazardous Area Terminals 6 w.r.t. 5 – Channel 2 (MTL5533 only)

U_o = 1.1V
I_o = 0.11mA
P_o = 0.03mW
C_i = 0
L_i = 0
U_i = 28V

Although the MTL5531 & MTL5533 do not comply with the simple apparatus requirements of Clause 5.7 of EN 60079-11: 2012, when terminals 3 w.r.t. 2 or terminals 6 w.r.t 5 (MTL5533 only) are 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 EN 60079-11: 2012 to the parameters of the circuit into which it is connected.

Load Parameters

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

GROUP	CAPACITANCE (µF)	INDUCTANCE OR (mH)	L/R RATIO (µH/ohm)
Hazardous Area Terminals 3 w.r.t. 1 or Terminals 6 w.r.t. 4 (MTL5533 only)			
IIC	0.094	4.02	56
IIB*	0.73	16.09	227
IIA	2.42	32.19	455
I	4.27	52.81	746
Hazardous Area Terminals 3 w.r.t. 2 or Terminals 6 w.r.t. 5 (MTL5533 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

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

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 ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR17.0025/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4533-1	5 of 8	7	1.17	Component Layout for MTL4531 and MTL4533
CI4533-1	5A of 8	1	1.17	Thermal Pad Details

The above drawing is associated and held with IECEx BAS 09.0037 Iss. 6

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4533-1	1 of 8	2	10.09	Parts List for MTL4531 & MTL4533
CI4533-1	2 of 8	2	10.09	MTL4533 Circuit Diagram Safe Area
CI4533-1	3 of 8	2	10.09	MTL4533 Circuit Diagram Hazardous Area
CI4533-1	4 of 8	2	10.09	Track Layout for MTL4531 and MTL4533
CI4533-1	6 of 8	1	6.09	PCB Detail for TPL301
CI4533-1	7 of 8	1	6.09	PCB Detail for TPL308
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline
CI5533-1	1 of 1	3	7.16	MTL5533 & MTL5531 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 09.0037

20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0103	2 July 2009	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Test Report No. GB/BAS/ExTR09.0060/00, Project File No. 07/0935.
Baseefa09ATEX0103/1	25 November 2009	To permit minor changes to the circuit and PCB layout not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR09.0214/00, Project File No. 09.0801.
Baseefa09ATEX0103/2	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the use of an alternative DIN rail mechanism not affect the original assessment. iv) To confirm the current designs of the MTL5531 Single Channel & MTL5533 Two Channel Vibration Transducer Interface have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0297/00, Project File No. 10/0721.

Certificate No.	Date	Comments
Baseefa09ATEX0103/3	6 August 2012	i) To confirm the current design of the MTL5531 Single Channel & MTL5533 Two Channel Vibration Transducer Interface have been reviewed against the requirements of IEC 60079-0: 2011 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 and EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated assessment is documented in Certification Report No. GB/BAS/ExTR12.0181/00, Project File No. 12/0553.
Baseefa09ATEX0103/4	28 March 2014	i) To permit minor component and drawing changes not affecting the original assessment. ii) To confirm the current design of the MTL5531 Single Channel & MTL5533 Two Channel Vibration Transducer Interface has been reviewed against the requirements of EN 60079-0: 2012 in respect of the differences from IEC 60079-0: 2011 and none of the differences affect the equipment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00, Project File No. 13/0105.
Baseefa09ATEX0103 Issue 5	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00, Project File No. 16/0371.
Baseefa09ATEX0103 Issue 6	2 May 2017	i) To permit the fitting of a thermal pad on the MTL5531 model not affecting the original assessment. ii) To permit minor component changes not affecting the original assessment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0025/00, Project File No. 17/0052.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0213 – Issue 6**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

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

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0213 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)
Ⓔx I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp DBBEANLEY
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0213 – Issue 6**

15 Description of Product

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 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 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 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 plugs and sockets are provided for hazardous and non-hazardous area connections. A power indicator LED is fitted to the top of the equipment.

The MTL5541 Single Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters is a depopulated 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 r.m.s.

The circuit connected to non-hazardous area terminals is designed to operate from a d.c. supply voltage of 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)

U_o = 28V C_i = 0
I_o = 93mA L_i = 0
P_o = 0.65W

Hazardous Area Terminals 3 w.r.t. 1 (Channel 1)
or
Hazardous Area Terminals 6 w.r.t 4 (Channel 2 – MTL5544 Model only)

U_o = 1.1V C_i = 0 U_i = 30V
I_o = 53mA L_i = 0 I_i = 121mA
P_o = 15mW

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 above 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 Models Only)

U_o = 28V C_i = 0
I_o = 87mA L_i = 0
P_o = 0.61W

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 load connected must not exceed the following values:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/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

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

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5541-1	1 of 1	5	7.16	MTL5541 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx BAS 07.0069 Iss. 7

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4541-1	1 of 8	3	6.10	Parts List for MTL4541 / MTL4544
CI4541-1	2 of 8	5	07.09	Circuit Diagram for MTL4541 / 4544
CI4541-1	3 of 8	5	07.09	Circuit Diagram for MTL4541 / 4544
CI4541-1	4 of 8	4	7.09	MTL4541 / MTL4544 Track Layout
CI4541-1	5 of 8	6	1.13	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
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline

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

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0213	12 November 2007	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.0129/00.
Baseefa07ATEX0213/1	4 January 2008	To permit minor changes to the PCB layout not affecting the original assessment.
Baseefa07ATEX0213/2	21 August 2009	i) To permit an alternative printed circuit board to be fitted in all models of the equipment not affecting the original assessment. ii) To permit minor drawing changes not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR09.0124/00.

Certificate No.	Date	Comments
Baseefa07ATEX0213/3	28 June 2010	i) To permit minor component changes to all models of the equipment not affecting the original assessment. ii) To permit the notes associated with the load parameters of all models specified on the original schedule to be revised. iii) To confirm the current designs of the MTL5541 / MTL5544 Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0101/00.
Baseefa07ATEX0213/4	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) To permit an alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0298/00.
Baseefa07ATEX0213/5	5 March 2014	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL5541 / MTL5544 Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters have been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0043/00.
Baseefa07ATEX0213 Issue 6	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa08ATEX0322 – Issue 3**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5541A / MTL5541AS Single Channel & MTL5544A / MTL5544AS Two Channel Current Repeater**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa08ATEX0322 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)
Ⓔx I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR PP D DONNELLEY
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa08ATEX0322 – Issue 3**

15 **Description of Product**

The MTL5544A Two Channel Current Repeater is designed to repeat up to two 4-20mA current signals from separately powered 4/20mA transmitters located in the hazardous area to unspecified apparatus 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 connection of a hand-held communicator (HHC).

The MTL5544A Two Channel Current Repeater comprises four isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, fuses, zener diodes and resistors providing voltage and current limitation on each channel. 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. The apparatus is fitted with a Power-on LED indication.

The MTL5541A Single Channel Current Repeater is a depopulated version of the MTL5544A and has only one channel populated.

Minor changes to the non-hazardous are circuitry of both models of the apparatus form the MTL5541AS Single Channel and MTL5544AS Two Channel Current Repeater. These models use the same common PCB and enclosure and in terms of intrinsic safety are identical.

Input / Output Parameters

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

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 2 w.r.t. 1 (Channel 1)
Or
Hazardous Area Terminals 5 w.r.t. 4 (Channel 2 – MTL5544A / 5544AS)

U_o = 8.6V (Diode) C_i = 0
I_o = 0 L_i = 0
P_o = 0

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

Although the apparatus does not itself comply with the simple apparatus requirements of Clause 5.7 of EN 60079-11: 2012, 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 EN 60079-11: 2012 to the parameters of the circuit into which it is connected.

Each hazardous area channel is also considered suitable for the connection of an external intrinsically safe source with a U_o = 30V and I_o = 100mA having a source resistance of U_o/I_o to be connected to hazardous area terminals 2 w.r.t. 1 - Channel 1 and 5 w.r.t. 4 – Channel 2.

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

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

Hazardous Area Terminals 5 w.r.t. 1 (Channels 1 & 2 combined with terminals 2 & 4 connected together – MTL5544A / 5544AS models only

U_o = 17.2V (Diode) C_i = 0
I_o = 0 L_i = 0
P_o = 0

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

The connection of channel 1 and 2 together is considered suitable for the connection of an external intrinsically safe source with a U_o = 30V and I_o = 100mA having a source resistance of U_o/I_o to be connected to hazardous area terminals 5 w.r.t. 1.

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

Load Parameters

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

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
Hazardous Area Terminals 2 w.r.t. 1 (Channel 1) or 5 w.r.t. 4 (Channel 2 – MTL5544A/44AS models only)			
IIC	6.2	5.01	1,351
IIB*	55	20.06	5,406
IIA	1,000	40.12	10,813
I	1,000	65.82	17,740
Hazardous Area Terminals 5 w.r.t. 1 (Channels 1 & 2 combined – MTL5544A/44AS models only)			
IIC	0.36	5.01	675
IIB*	2.11	20.06	2,703
IIA	8.7	40.12	5,406
I	12.16	65.82	8,870

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

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 ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5541-2	1 of 1	3	7.16	MTL5541A Certification Label Details & DIN Rail Fittings – Baseefa

The above drawing is associated and held with IECEx BAS 08.0106 Iss. 5

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4541-2	1 of 8	1	10.08	Parts List for MTL4541A / MTL4544A
CI4541-2	2 of 8	1	12.08	Certification Diagram for MTL4544A & 4541A
CI4541-2	3 of 8	1	12.08	Certification Diagram for MTL4544A & 4541A
CI4541-2	4 of 8	1	11.08	MTL4541A & MTL4544A Track Layout
CI4541-2	5 of 8	2	1.13	MTL4541A & MTL4544A Component Layout
CI4541-2	6 of 8	1	11.08	PCB Detail for TPL300
CI4541-2	7 of 8	1	11.08	PCB Detail for TPL301
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 08.0106

20 Certificate History

Certificate No.	Date	Comments
Baseefa08ATEX0322	12 December 2008	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Test Report No. GB/BAS/ExTR08.0223/00.

Certificate No.	Date	Comments
Baseefa08ATEX0322/1	31 January 2011	i) To permit the addition of output parameters for the interconnection of hazardous area channel 1 & 2 on the MTL5544A & MTL5544AS Current Repeater models. The combination of the two channels does not affect the original assessment. ii) To permit the notes associated with the load parameters of all models specified in the original certificate schedule to be revised. iii) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. iv) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. v) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. vi) To confirm the current designs of the MTL5541A / MTL5541AS Single Channel & MTL5544A / MTL5544AS Two Channel Current Repeaters have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0281/00.
Baseefa08ATEX0322/2	5 March 2014	i) To permit minor component and drawing changes not affecting the original assessment. ii) To confirm the current design of the MTL5541A / MTL5541AS Single Channel & MTL5544A / MTL5544AS Two Channel Current Repeaters have been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 and EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0043/00.
Baseefa08ATEX0322 Issue 3	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa09ATEX0156 – Issue 7**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5541S, MTL5541S-T, MTL5544S & MTL5544D Repeater Power Supplies, 4/20mA**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa09ATEX0156 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. **See Certificate History**

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx **II (1) GD**	**[Ex ia Ga] IIC**	
	[Ex ia Da] IIIC	**See Certificate Schedule for ambient temperature range**
Ⓔx **I (M1)**	**[Ex ia Ma] I**	

SGS Baseefa Customer Reference No. **0703** Project File No. **17/0163**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 # Schedule

14 ## Certificate Number Baseefa09ATEX0156 – Issue 7

15 Description of Product

The MTL5544S Two Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters is designed to provide floating d.c. supplies for energising two 'Smart' 4/20mA Transmitters located 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 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 MTL5544S Two Channel Repeater Power Supply, 4/20mA for 'Smart' 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 plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is fitted to indicate power-on.

The MTL5541S Single Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters is a depopulated version of the MTL5544S and has only one channel populated.

The MTL5541S-T Single Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters is of a similar construction to the MTL5541S variant of the equipment with the same input and output parameters, but has an extended ambient temperature range.

The MTL5544D Repeater Power Supply, 4/20mA for 2 or 3 Wire Transmitters with two outputs is designed to provide a floating d.c. supplies for energising a 2 or 3-Wire 4/20mA Transmitter located in the hazardous area and repeat the current on two channels in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by 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 apparatus uses the same printed circuit board and enclosure as the MTL5544S but is populated with only one hazardous area transmitter connection and two non-hazardous area outputs fitted.

The following table details the ambient temperature ranges for each variants of the equipment.

Model Variant	Ambient Temperature Range
MTL5541S Single Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters	$-20°C \leq T_a \leq +60°C$
MTL5541S-T Single Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters	$-20°C \leq T_a \leq +65°C$
MTL5544S Two Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters	$-20°C \leq T_a \leq +60°C$
MTL5544D Repeater Power Supply, 4/20mA for 2 or 3 Wire Transmitters with two outputs	$-20°C \leq T_a \leq +60°C$

Input / Output Parameters

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

U_m = 253V r.m.s.

The apparatus is designed to operate on non-hazardous area terminals 8, 9, 11, 12, 13 & 14 from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 2 w.r.t. 1 (Channel 1)
Or
Hazardous Area Terminals 5 w.r.t. 4 (Channel 2 – MTL5544S model)

U_o = 28V C_i = 0
I_o = 93mA L_i = 0
P_o = 0.65W

Hazardous Area Terminals 3 w.r.t. 1 (Channel 1)
Or
Hazardous Area Terminals 6 w.r.t. 4 (Channel 2 – MTL5544S model)

U_o = 1.1V U_i = 30V C_i = 0
I_o = 53mA I_i = 121mA L_i = 0
P_o = 15mW

Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of EN 60079-11: 2012, when terminals 3 w.r.t. 1 or terminals 6 w.r.t 4 (MTL4544S model only) are 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 EN 60079-11: 2012 to the parameters of the circuit into which it is connected.

When an external 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.

Hazardous Area Terminals 2 w.r.t. 3 (Channel 1)
Or
Hazardous Area Terminals 5 w.r.t. 6 (Channel 2 – MTL5544S model)

U_o = 28V C_i = 0
I_o = 87mA L_i = 0
P_o = 0.61W

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 must not exceed the following values for either channel:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
Hazardous Area Terminals 2 w.r.t. 1 or 5 w.r.t. 4 (MTL4544S only)			
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 (MTL4544S only)			
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 (MTL4544S only)			
IIC	0.083	4.9	59
IIB*	0.65	20.0	222
IIA	2.15	40.9	469
I	3.76	59.1	710

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

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 ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR17.0080/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4541-3	1 of 8	3	9.15	Parts List for MTL4541S, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D
CI4541S-T-1	1 & 2	1	3.17	Circuit Diagram for the MTL5541S-T
CI4541S-T-2	1 of 1	1	3.17	Parts List for MTL5541S-T
CI4541S-T-3	1 of 1	1	3.17	Track Layout for MTL5541S-T
CI4541S-T-4	1 of 1	1	3.17	Component Layout for MTL5541S-T
CI4541S-T-6	1 of 1	1	3.17	PCB Detail for TPL300
CI4541S-T-7	1 of 1	1	3.17	PCB Detail for TPL301
CI5541S-T-1	1 of 1	1	3.17	MTL5541S-T IECEx Certification Label Details and DIN Rail Fittings - Baseefa

The above drawing is associated and held with IECEx BAS 09.0071 Iss. 7

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4541-3	2 of 8	2	10.12	Circuit Diagram for the MTL4541S, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D, MTL4541T
CI4541-3	3 of 8	2	10.12	Circuit Diagram for the MTL4541S, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D, MTL4541T
CI4541-3	4 of 8	1	6.09	Track Layout for MTL4541S, MTL4541T, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D
CI4541-3	5 of 8	3	1.14	Component Layout for MTL4541S, MTL4541T, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D
CI4541-3	6 of 8	1	6.09	PCB Detail for TPL300
CI4541-3	7 of 8	1	6.09	PCB Detail for TPL301
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline
CI5541-4	1 of 1	3	7.16	MTL5541S, MTL5544S, MTL5544D Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 09.0071

20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0156	9 July 2009	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Test Report No. GB/BAS/ExTR09.0103/00.
Baseefa09ATEX0156/1	28 June 2010	i) To permit minor component changes to all models of the equipment not affecting the original assessment. ii) To permit the addition of output parameters for Hazardous Area Terminals 2 w.r.t. 3 (Channel 1) & 5 w.r.t. 6 (Channel 2 – MTL5544S model only) to all models of the equipment. iii) To confirm the current designs of the MTL5541S, MTL5544S & MTL5544D Repeater Power Supplies, 4/20mA have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006 and, with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. iv) To permit the notes associated with the load parameters of all models specified on the original certificate schedule to be revised. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0100/00.

Certificate No.	Date	Comments
Baseefa09ATEX0156/2	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the use of an alternative DIN rail mechanism on the equipment not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0298/00.
Baseefa09ATEX0155/3	6 August 2012	To confirm the current designs of the MTL5541S, MTL5544S & MTL5544D Repeater Power Supplies, 4/20mA have been reviewed against the requirements of IEC 60079-0: 2011 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 and EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated assessment is documented in Certification Report No. GB/BAS/ExTR12.0181/00.
Baseefa09ATEX0156/4	20 February 2013	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL5541S, MTL5544S & MTL5544D Repeater Power Supplies, 4/20mA have been reviewed against the requirements of EN 60079-0: 2012 in respect of the differences from IEC 60079-0: 2011 and none of the differences affect the equipment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR13.0022/00.
Baseefa09ATEX0156/5	27 January 2014	i) To permit minor drawing changes not affecting the original assessment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0019/00.
Baseefa09ATEX0156 Issue 6	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.

Certificate No.	Date	Comments
Baseefa09ATEX0156 Issue 7	2 May 2017	This issue of the certificate permits the addition of the MTL5541S-T 1 Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters variant to the range covered by the certificate. The MTL5541S-T is of similar construction to the MTL5541S variant and has the same input and output parameters, but has an extended ambient temperature range of -20°C to +65°C. The Certificate title & marking sections and Schedule have been revised to include the new variant details. This issue also permits a minor drawing change not affecting the original assessment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0080/00, Project File No. 17/0163.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0214 – Issue 6**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5546 / MTL5546Y / MTL5546Y-T Single Channel Isolating Driver, 4/20mA for Smart I/P Converters**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0214 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx **II (1) GD**	**[Ex ia Ga] IIC**	
	[Ex ia Da] IIIC	**See Certificate Schedule for ambient temperature range**
Ⓔx **I (M1)**	**[Ex ia Ma] I**	

SGS Baseefa Customer Reference No. **0703** Project File No. **17/0164**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0214 – Issue 6**

15 **Description of Product**

The MTL5546 / MTL5546Y / MTL5546Y-T Single Channel Isolating Driver, 4/20mA for Smart I/P Converters accepts a 4/20mA signal from a controller located in the non-hazardous area to drive a load in the hazardous area. It permits bi-directional transmission of digital signals to and from an operator station or hand-held communicator. The apparatus restricts the transfer of energy from unspecified non-hazardous area apparatus to intrinsically safe circuit by limitation of voltage and current. Three transformers provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The equipment comprises a power transformer, two current transformers, zener diodes 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 hazardous and non-hazardous area connections.

The MTL5546 & MTL5546Y models in terms of intrinsic safety are identical. The difference between them is the MTL5546Y have the Line Fault Detection (LFD) facility disabled.

The MTL5546Y-T Single Channel Isolating Driver, 4/20mA for Smart I/P Converters is of a similar construction to the MTL5546Y variant of the equipment with the same input and output parameters, but has an extended ambient temperature range.

The following table details the ambient temperature ranges for each variant of the equipment.

Model Variant	Ambient Temperature Range
MTL5546 Single Channel Isolating Driver, 4/20mA for Smart I/P Converters	$-20°C \leq T_a \leq +60°C$
MTL5546Y Single Channel Isolating Driver, 4/20mA for Smart I/P Converters	$-20°C \leq T_a \leq +60°C$
MTL5546Y-T Single Channel Isolating Driver, 4/20mA for Smart I/P Converters	$-20°C \leq T_a \leq +65°C$

Input/Output Parameters

Non-Hazardous Area Terminals 11 to 14

$U_m = 253V$ r.m.s.

The circuit connected to non-hazardous area terminals 11 to 14 are designed to operate from a d.c. supply voltage up to 35V.

Hazardous Area Terminals 2 w.r.t. 1

$U_o = 28V$ $\quad C_i = 0$
$I_o = 93mA$ $\quad L_i = 0$
$P_o = 0.65W$

Load Parameters

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

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
IIC	0.083	4.2	56
IIB*	0.65	12.6	210
IIA	2.15	33.6	444
I	3.76	53.7	668

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

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 ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR17.0086/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject
1.2.7	Protection against other hazards (LVD type requirements, etc.)
1.2.8	Overloading of equipment (protection relays, etc.)
1.4.1	External effects
1.4.2	Aggressive substances, etc.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI4546Y-T-1	1 of 1	1	3.17	Circuit Diagram for the MTL 5546Y-T
CI4546Y-T-2	1 of 1	1	3.17	Parts List for MTL5546Y-T
CI4546Y-T-3	1 of 1	1	3.17	MTL5546Y-T Track Layout
CI4546Y-T-4	1 of 1	1	3.17	MTL5546Y-T Component Layout
CI4546Y-T-6	1 of 1	1	3.17	PCB Detail for TPL300 and TPL302
CI4546Y-T-7	1 of 1	1	3.17	PCB Detail for TPL301
CI5546Y-T-1	1 of 1	1	3.17	MTL5546Y-T Certification Label Details and DIN Rail Fittings - Baseefa

The above drawings are associated and held with IECEx BAS 07.0070 Iss. 7

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4546-1	1 of 7	3	10.08	Parts List for MTL4546
CI4546-1	2 of 7	6	10.12	Circuit Diagram for MTL4546
CI4546-1	3 of 7	3	6.07	MTL4546 Track Layout

Number	Sheet	Issue	Date	Description
CI4546-1	4 of 7	6	10.12	MTL4546 Component Layout
CI4546-1	5 of 7	2	1.07	PCB Detail for TPL300 and TPL302
CI4546-1	6 of 7	2	1.07	PCB Detail for TPL301
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline
CI5546-1	1 of 1	4	7.16	MTL5546 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 07.0070

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0214	15 November 2007	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.130/00.
Baseefa07ATEX0214/1	20 November 2008	To permit minor component changes to the current design to form the MTL5546Y Single Channel Isolating Driver, 4/20mA for Smart I/P Converters. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR08.0216/00.
Baseefa07ATEX0214/2	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. iv) To confirm the current designs of the MTL5546 & MTL5546Y Single Channel Isolating Driver, 4/20mA for Smart I/P Converters have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0297/00.

Certificate No.	Date	Comments
Baseefa07ATEX0214/3	6 August 2012	To confirm the current designs of the MTL5546 & MTL5546Y Single Channel Isolating Driver, 4/20mA for Smart I/P Converters have been reviewed against the requirements of IEC 60079-0: 2011 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR12.0181/00.
Baseefa07ATEX0214/4	31 January 2013	i) To permit minor enclosure and drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL5546 & M5546Y Single Channel Isolating Drivers, 4/20mA for Smart I/P Converters have been reviewed against the requirements of EN 60079-0: 2012 in respect of the differences from IEC 60079-0: 2011 and none of the differences affected the equipment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR13.0014/00.
Baseefa07ATEX0214 Issue 5	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The equipment name on page 1 of the certificate was revised to include reference to the MTL5546Y model. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
Baseefa07ATEX0214 Issue 6	4 April 2017	This issue of the certificate permits the addition of the MTL5546Y-T Single Channel Isolating Driver, 4/20mA for Smart I/P Converters variant to the range covered by the certificate. The MTL5546Y-T is of similar construction to the MTL5546Y variant and has the same input and output parameters, but has an extended ambient temperature range of -20°C to +65°C. The Certificate title & marking sections and Schedule have been revised to include the new variant details. The associated assessment is documented in Certification Report No. GB/BAS/ExTR17.0086/00, Project File No. 17/0164.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0215 – Issue 4**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5549 & MTL5549Y 2 Channel Isolating Driver, 4/20mA for Smart I/P Converters**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0215 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

⟨Ex⟩ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)
⟨Ex⟩ I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp D BEARDSLEY
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0215 – Issue 4**

15 **Description of Product**

The MTL5549 & MTL5549Y 2 Channel Isolating Driver, 4/20mA for Smart I/P Converters accepts up to two separate 4/20mA signals from controllers located in the non-hazardous area to drive loads in the hazardous area. It permits bi-directional transmission of digital signals to and from an operator station or hand-held communicator. The apparatus restricts the transfer of energy from unspecified non-hazardous area apparatus to intrinsically safe circuit by limitation of voltage and current. Three transformers on each channel provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the apparatus comprises a power transformer, two current transformers, zener diodes 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 hazardous and non-hazardous area connections.

The MTL5549 & MTL5549Y models in terms of intrinsic safety are identical. The difference between them is the MTL5549Y have the Line Fault Detection (LFD) facility disabled.

Input/Output Parameters

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

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 are 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)

U_o = 28V
I_o = 93mA
P_o = 0.65W
C_i = 0
L_i = 0

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 load connected must not exceed the following values:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.083	4.2		56
IIB*	0.65	12.6		210
IIA	2.15	33.6		444
I	3.76	53.7		668

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

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5549-1	1 of 1	4	7.16	MTL5549 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx BAS 07.0071 Iss. 5

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4549-1	1 of 8	2	7.08	Parts List for MTL4549
CI4549-1	2 of 8	4	07-08	Circuit Diagram for MTL4549
CI4549-1	3 of 8	4	07-08	Circuit Diagram for MTL4549
CI4549-1	4 of 8	3	11.07	MTL4549 Track Layout
CI4549-1	5 of 8	6	1.13	MTL4549 Component Layout
CI4549-1	6 of 8	2	1.07	PCB Detail for TPL300 and TPL302
CI4549-1	7 of 8	2	1.07	PCB Detail for TPL301
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating

Number	Sheet	Issue	Date	Description
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 07.0071

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0215	20 December 2007	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.0131/00.
Baseefa07ATEX0215/1	15 July 2008	To permit minor component changes to the current design to form the MTL5549Y 2 Channel Isolating Driver, 4/20mA for Smart I/P Converters. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR08.0146/00.
Baseefa07ATEX0215/2	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the fitting of an alternative DIN rail mechanism not affecting the original assessment. iv) To confirm the current designs of the MTL5549 & MTL5549Y 2 Channel Isolating Driver, 4/20mA for Smart I/P Converters have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0297/00.
Baseefa07ATEX0215/3	5 March 2014	i) To permit minor drawing changes not affecting the original assessment. ii) To confirm the current designs of the MTL5549 & MTL5549Y 2 Channel Isolating Driver, 4/20mA for Smart I/P Converters have been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0043/00.

Certificate No.	Date	Comments
Baseefa07ATEX0215 Issue 4	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The equipment name on page 1 of the certificate was revised to include reference to the MTL5549Y model. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

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: **Baseefa09ATEX0027**

4 Equipment or Protective System: **MTL5561 Two Channel Fire / Smoke Detector Interface**

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, 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/ExTR09.0012/00

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

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

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 :

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

⟨Ex⟩ **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. **08/0953**

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

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DIRECTOR
On behalf of
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Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0027**

15 **Description of Equipment or Protective System**

The MTL5561 Two Channel Fire / Smoke Detector Interface is designed to provide two separate loop-powered interface channels for the connection of fire and smoke detectors located in the hazardous area to unspecified apparatus in the non-hazardous area whilst restricting the transfer of energy from unspecified non-hazardous area apparatus to the intrinsically safe circuits by limitation of voltage and current.

The MTL5561 Two Channel Fire / Smoke Detector Interface comprises two isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, fuses, zener diodes and resistors providing voltage and current limitation on each channel. The above, together with other electronic components are mounted on a single printed circuit board and housed in a moulded plastic enclosure. Polarised plug and sockets are provided for hazardous and non-hazardous area connections.

Input / Output Parameters

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

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 11 & 12 are designed to operate from a d.c. supply voltage up to 35V.

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

Or

Hazardous Area Terminals 5 & 6 w.r.t. 4 (Channel 2)

U_o = 28V C_i = 0
I_o = 93mA L_i = 0
P_o = 0.65W

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 to either channel of the apparatus must not exceed the following values:

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO (μH/ohm)
IIC	0.083	4.2		56
IIB*	0.65	12.6		210
IIA	2.15	33.6		444
I	3.40	53.7		668

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/ExTR09.0012/00

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
CI4561-1	1 of 6	1	3.09	Parts List for MTL4561 / MTL5561
CI4561-1	2 of 6	1	1.09	MTL4561 and MTL5561 Circuit Diagram
CI4561-1	3 of 6	1	2.09	MTL4561 Track Layout
CI4561-1	4 of 6	1	3.09	MTL4561 Component Layout
CI4561-1	5 of 6	1	3.09	MTL4561 Two Channel Fire / Smoke Detector Interface, Loop-powered Transformer Winding Details
CI5561-1	1 of 1	1	2.09	MTL5561 Certification Label Details and DIN Rail Fittings - Baseefa
CI4500-2	1 of 1	1	12.08	MTL4500 Series Single Toroid I.S. Transformer
CI4500-100	1 of 1	1	8.06	MTL 4500 Case

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 09.0008

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:	**Baseefa09ATEX0027/1**
4	Equipment or Protective System:	**MTL5561 Two Channel Fire / Smoke Detector Interface**
5	Manufacturer:	**Measurement Technology Limited**
6	Address:	**Great Marlings, Butterfield, Luton, Bedfordshire. LU2 8DL** (formerly Power Court, Luton, Bedfordshire LU1 3JJ)

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa09ATEX0027 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. **09/0647**

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

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On behalf of
Baseefa

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Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0027/1**

15 Description of the variation to the Equipment or Protective System

Variation 1.1

To permit: -

1) Minor changes to the circuit, PCB layout and transformers not affecting the original assessment.

2) Minor changes to the label drawing not affecting the original assessment.

16 Report Number

GB/BAS/ExTR09.0188/00

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
CI4500-2	1 of 1	2	8.09	MTL4500 Series Single Toroid I.S. Transformer
CI4561-1	2 of 6	2	9.09	MTL4561 and MTL5561 Circuit Diagram
CI4561-1	3 of 6	2	9.09	MTL4561 Track Layout
CI4561-1	4 of 6	2	9.09	MTL4561 Component Layout
CI5561-1	1 of 1	2	8.09	MTL5561 Certification Label Details and DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 09.0008/2

Certificate Number
See Schedule

Issued 31 January 2011

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:	**See Schedule**
4	Equipment or protective system:	**See Schedule**
5	Manufacturer:	**Measurement Technology Limited**
6	Address:	**Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL** (formerly Power Court, Luton, Bedfordshire, LU1 3JJ)

7 This supplementary certificate extends the EC - Type Examination Certificates listed in the Schedule to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedules of the said Certificates but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

A copy of this Supplementary Certificate shall be attached to each of the original Certificates.

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

Baseefa Customer Reference No. **0703**

Project File No. **10/0721**

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

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Registered in England No. 4305578. Registered address as above.

Schedule

Description of the variation to the Equipment or Protective System

Variation 1.

To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted on all models of the equipment. The fitting of these components does not affect the original assessment.

Variation 2.

To permit an alternative method of applying the conformal coating to the PCB's fitted in all models of the equipment. This change does not affect the original assessment.

Variation 3.

To permit the use of an alternative DIN rail mechanism on the all models of the equipment not affecting the original assessment.

Variation 4.

To confirm the current design of all models have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006 and, with exception of the marking, none of the differences affect this equipment.

The marking of all models of the equipment have been revised as follows in accordance with the requirements of EN 60079-0: 2009 to include the Equipment Protection Level (EPL) markings:

⟨Ex⟩ II (1)GD [Ex ia Ga] IIC ($-20°C \leq T_a \leq +60°C$)
[Ex ia Da] IIIC ($-20°C \leq T_a \leq +60°C$)

⟨Ex⟩ I (M1) [Ex ia Ma] I ($-20°C\ T_a \leq +60°C$)

Certificate No.	Supplement No.	Equipment Type
Baseefa07ATEX0210	1	MTL5510 / MTL5510B / MTL5513 Switch / Proximity Detector Interface
Baseefa07ATEX0214	2	MTL5546 Single Channel Isolating Driver, 4/20mA for Smart I/P Converters
Baseefa07ATEX0215	2	MTL5549 2 Channel Isolating Driver, 4/20mA for Smart I/P Converters
Baseefa07ATEX0216	1	MTL5575 Temperature Converter
Baseefa09ATEX0027	2	MTL5561 Two Channel Fire / Smoke Detector Interface
Baseefa09ATEX0103	2	MTL5531 Single Channel & MTL5533 Two Channel Vibration Transducer Interface
Baseefa09ATEX0118	2	MTL5576 Two Channel & MTL5575B Single Channel Temperature Converter

Report No.

GB/BAS/ExTR10.0297/00

Special Conditions for Safe Use

None

Essential Health and Safety Requirements

See original certificates

Drawings and Documents

Number	Sheet	Issue	Date	Description
CI4500-3	1 of 1	1	12.10	MTL4500 and MTL5500 – Alternative Zener Diode (Panjit)
CI4500-4	1 of 1	1	11.10	MTL4500 & 5500 – Label update to EPL - Baseefa
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 and MTL5500 – Conformal Coating

The above drawings are held with IECEx Certificate No. IECEx BAS 07.0066 Iss 2.

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:	**Baseefa09ATEX0027/3**
4	Equipment or Protective System:	**MTL5561 Two Channel Fire / Smoke Detector Interface**
5	Manufacturer:	**Measurement Technology Limited**
6	Address:	**Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa09ATEX0027 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.

8 Item 9 of the original Certificate is replaced by "Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2012 **EN 60079-11: 2012**

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

9 The marking of the equipment has changed from the original Certificate and shall include the following:

⟨Ex⟩ **II (1) GD** **[Ex ia Ga] IIC (-20°C ≤ T_a ≤+60°C)**
[Ex ia Da] IIIC (-20°C ≤ T_a ≤+60°C)

⟨Ex⟩ **I (M1)** **[Ex ia Ma] I (-20°C ≤ T_a ≤+60°C)**

This certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0703** Project File No. **13/0105**

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R S SINCLAIR pp Alan Cooper
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0027/3**

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

Variation 3.1

To permit minor drawing changes not affecting the original assessment.
As part of this, drawing No. CI5500-100 replaces drawing No. CI4500-100.

Variation 3.2

To confirm the current design of the MTL5561 Two Channel Fire / Smoke Detector Interface has been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment.

Due to the correction of the permitted capacitance figures for Group I equipment in EN 60079-11: 2012, the load parameters for the MTL5561 are revised to the following: -

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

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	0.083	4.2		56
IIB*	0.65	12.6		210
IIA	2.15	33.6		444
I	3.76	53.7		668

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

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 ≥1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥1% of the C_o value.

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

16 **Report Number**

GB/BAS/ExTR14.0065/00

17 **Specific Conditions of 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
CI4561-1	4 of 6	3	1.13	MTL4561 Component Layout
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 09.0008 Iss. 4

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa14ATEX0158 – Issue 2**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5573 Temperature Converter**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa14ATEX0158 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

⟨Ex⟩ II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)

⟨Ex⟩ I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp D BRADLEY
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa14ATEX0158 – Issue 2**

15 Description of Product

The MTL5573 Temperature Converters are designed to restrict the transfer of energy from unspecified non-hazardous area equipment to either thermocouples or RTD's located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5573 Temperature Converters are designed for connection to thermocouples or two, three or four wire RTD's situated in the hazardous area. The apparatus converts the low level d.c. signal from the sensor mounted in the hazardous area into a 4/20mA current for driving a load in the non-hazardous area. An optional cold junction compensation (CJC) plug can be fitted to the hazardous area connections which alters the internal connections and affects the output parameters.

The equipment comprises an isolating transformer, an opto-isolator, duplicated zener diode 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 (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for the connection of a suitably certified data terminal for programming the equipment.

Input / Output Parameters

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

U_m = 253V r.m.s.

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

Hazardous Area Terminals 1 to 6 (forming part of the same intrinsically safe circuit)

U_o = 6.6V C_i = 0
I_o = 76mA L_i = 0
P_o = 0.13W

Hazardous Area Terminals 3 w.r.t. 1 (WITHOUT the Cold Junction Compensation (CJC) plug fitted)

U_o = 1.1V C_i = 0
I_o = 7mA L_i = 0
P_o = 2mW

Hazardous Area Terminals 3, 2 & 1 (with or without CJC plug fitted)

U_o = 6.6V C_i = 0
I_o = 10mA L_i = 0
P_o = 17mW

Programming / Configuration Port (Jack Socket)

U_o = 8V U_i = 9.1V
I_o = 14.6mA
P_o = 26mW
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 connected to hazardous area terminals 1 to 6 and the programming / configuration port must not exceed the following values:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
Hazardous Area Terminals 1 to 6			
IIC	22	6.42	288
IIB**	500	25.6	1,057
IIA	1,000	53.0	2,228
I	1,000	77.2	3,402
Programming / Configuration Port (Jack Socket)			
IIC	0.367	153	349
IIB**	2.15	591	1,355
IIA	8.8	1,000	1,453
I	12.32	1,000	1,453

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

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 ≥ 1% of the L_o value and
- the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5573-5	1 of 1	2	7.16	MTL5573 Certification Label Details & DIN Rail Fittings – Baseefa – Ex i

The above drawing is associated and held with IECEx BAS 14.0082 Iss. 2

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4573-1	1 of 1	2	10.14	Circuit Diagram for MTL4573
CI4573-2	1 to 3	2	10.14	MTL4573 Parts List
CI4573-3	1 of 1	2	10.14	MTL4573 Track Layout
CI4573-4	1 & 2	2	10.14	MTL4573 Component Layout
CI4573-6	1 of 1	1	10.13	PCB Detail for TPL301
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 14.0082

20 Certificate History

Certificate No.	Date	Comments
Baseefa14ATEX0158	2 July 2014	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 is documented in Certification Test Report No. GB/BAS/ExTR14.0163/00.
Baseefa14ATEX0158/1	13 November 2014	To permit minor circuit and PCB changes not affecting the original assessment. The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0323/00.
Baseefa14ATEX0158 Issue 2	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa07ATEX0216 – Issue 3**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5575 Temperature Converter**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa07ATEX0216 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)

Ⓔx I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp D BRADLEY
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa07ATEX0216 – Issue 3**

15 Description of Product

The MTL5575 Temperature Converter is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to either thermocouples or RTD's located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5575 Temperature Converter is designed for connection to thermocouples or two, three or four wire RTD's situated in the hazardous area. The apparatus converts the low level d.c. signal from the sensor mounted in the hazardous area into a 4/20mA current for driving a load in the non-hazardous area. An optional cold junction compensation plug can be fitted to the hazardous area connections, which alter the internal connections and affects the output parameters.

The apparatus comprise an isolating transformer, an opto-isolator, 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 (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for the connection of a suitably certified data terminal for programming the apparatus.

Input/Output Parameters

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

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 1 to 6 (forming part of the same intrinsically safe circuit)

U_o = 7.2V
I_o = 76mA
P_o = 0.14W
C_i = 0
L_i = 0

Hazardous Area Terminals 3 w.r.t. 1 (WITHOUT the Cold Junction Compensation (CJC) plug fitted))

U_o = 1.1V
I_o = 7mA
P_o = 2mW
C_i = 0
L_i = 0

Hazardous Area Terminals 3, 2 & 1 (with or without the CJC plug fitted)

U_o = 7.2V
I_o = 10mA
P_o = 18mW
C_i = 0
L_i = 0

Programming / Configuration Port (Jack Socket)

U_o	=	8V	U_i	=	9.1V
I_o	=	14.6mA	C_i	=	0
P_o	=	26mW	L_i	=	0

Load Parameters

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area load connected to hazardous area terminals 1 to 6 and the programming / configuration port of the apparatus must not exceed the following values:

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR L/R RATIO (µH/ohm)
Hazardous Area Terminals 1 to 6			
IIC	13.5	6.42	263
IIB*	240	25.6	969
IIA	1,000	53.0	2,042
I	1,000	77.2	3,119
Programming / Configuration Port (Jack Socket)			
IIC	0.367	153	349
IIB*	2.15	591	1,355
IIA	8.8	1,000	1,453
I	12.32	1,000	1,453

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

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5575-1	1 of 1	3	7.16	MTL5575 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawings are associated and held with IECEx BAS 07.0072 Iss. 4

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4575-1	1 of 6	1	11.06	Parts List for MTL4575
CI4575-1	2 of 6	2	05.07	Circuit Diagram for MTL4575
CI4575-1	3 of 6	2	6.07	MTL4575 Track Layout
CI4575-1	4 of 6	3	10.12	MTL4575 Component Layout
CI4575-1	5 of 6	2	1.07	PCB Detail for TPL301
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 07.0072

20 Certificate History

Certificate No.	Date	Comments
Baseefa07ATEX0216	13 December 2006	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Report No. GB/BAS/ExTR07.0132/01.
Baseefa07ATEX0216/1	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the fitting of an alternative DIN rail mechanism not affecting the original assessment. iv) To confirm the current design of the MTL5575 Temperature Converter has been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0297/00.

Certificate No.	Date	Comments
Baseefa07ATEX0216/2	28 March 2014	i) To permit minor drawing changes not affecting the original assessment. ii) To permit the correction of the parameters for the Programming / Configuration Port. iii) To confirm the current design of the MTL5575 Temperature Converter has been reviewed against the requirements of EN 60079-0: 2012 and EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 & EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00.
Baseefa07ATEX0216 Issue 3	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa09ATEX0118 – Issue 4**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5576 Two Channel & MTL5575B Single Channel Temperature Converter**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa09ATEX0118 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

Ⓔx II (1) GD [Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)
Ⓔx I (M1) [Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa09ATEX0118 – Issue 4**

15 Description of Product

The MTL5576 Two Channel Temperature Converter is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to either up to two thermocouples or RTD's located in the hazardous area by limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5576 Two Channel Temperature Converter is designed for connection of thermocouples or two, three or four wire RTD's situated in the hazardous area. The apparatus converts the low level d.c. signal from the sensor mounted in the hazardous area into a 4/20mA current for driving a load in the non-hazardous area.

The apparatus comprises an isolating transformer, opto-isolators, 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 (PCB) and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for the connection of a suitably certified data terminal for programming the apparatus.

The MTL5575B Single Channel Temperature Converter comprises the same circuitry and enclosure as the MTL5576, the only difference being is it only has one channel for the connection of thermocouples or two, three or four wire RTD's situated in the hazardous area. In terms of intrinsic safety, both the MTL5576 & MTL5575B are identical.

Input / Output Parameters

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

U_m = 253V r.m.s.

The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 1, 2, 3 & 4 (forming part of the same intrinsically safe circuit)

U_o = 6.6V C_i = 0
I_o = 42mA L_i = 0
P_o = 69.3mW

Hazardous Area Terminals 1, 2 & 3 (Channel 1)
or
Hazardous Area Terminals 4, 5 & 6 (Channel 2 – MTL5576 model only)

U_o = 6.6V C_i = 0
I_o = 28mA L_i = 0
P_o = 46.2mW

Hazardous Area Terminals 3 w.r.t. 1 (Channel 1)
or
Hazardous Area Terminals 6 w.r.t. 4 (Channel 2 – MTL5576 model only)

U_o = 1.2V U_i = 5V
I_o = 4mA C_i = 0
P_o = 1.2mW L_i = 0

Programming / Configuration Port (Jack Socket)

U_o	=	6.68V	U_i	=	9.1V
I_o	=	12mA	C_i	=	0
P_o	=	17.7mW	L_i	=	0

Load Parameters

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

GROUP	CAPACITANCE (µF)	INDUCTANCE OR (mH)	L/R RATIO (µH/ohm)
Hazardous area terminals 1, 2, 3 & 4 (forming part of the same intrinsically safe circuit)			
IIC	22.0	20.1	513
IIB*	500	80.6	2,052
IIA	1,000	161.2	4,104
I	1,000	264.5	6,363
Hazardous area terminals 1, 2 & 3 (Channel 1) or terminals 4, 5 & 6 (Channel 2 – MTL5576 only)			
IIC	11.0	22.6	384
IIB*	250	90.7	1,539
IIA	500	181.4	2,121
I	500	297.6	2,121
Hazardous area terminals 3 w.r.t. 1 (channel 1) or terminals 6 w.r.t. 4 (Channel 2 – MTL5576 only)			
IIC	50	500	1,666
IIB*	500	500	1,666
IIA	500	500	1,666
I	500	500	1,666
Programming / Configuration Port (Jack Socket)			
IIC	0.478	79.4	448
IIB*	2.88	317.9	1,412
IIA	11.6	635.8	1,412
I	15.8	1,000	1,412

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

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5576-1	1 of 1	3	7.16	MTL5576 Certification Label Details & DIN Rail Fittings – Baseefa

The above drawing is associated and held with IECEx BAS 09.0043 Iss. 4

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4576-1	1 of 7	1	6.09	Parts List for MTL4576
CI4576-1	2 of 7	2	8.09	Certification Drawing for MTL4576 & 5576
CI4576-1	3 of 7	2	8.09	Certification Drawing for MTL4576 & 5576
CI4576-1	4 of 7	2	8.09	MTL4576 Track Layout
CI4576-1	5 of 7	3	1.13	MTL4576 Component Layout
CI4576-1	6 of 7	1	5.09	PCB Detail for TPL301
CI4500-3	1 of 1	1	12.10	MTL4500 & MTL5500 – Alternative Zener Diodes (Panjit)
CI4500-5	1 of 1	1	11.10	MTL5500 – Alternative DIN Rail Mechanism
CI4500-6	1 of 1	1	20.12.10	MTL4500 & MTL5500 – Conformal Coating
CI5500-100	1 of 1	3	1.13	New 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 09.0043

20 Certificate History

Certificate No.	Date	Comments
Baseefa09ATEX0118	2 July 2009	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2006, EN 60079-11: 2007 and EN 61241-11: 2006 is documented in Certification Test Report No. GB/BAS/ExTR09.0064/00.
Baseefa09ATEX0118/1	6 November 2009	To permit minor changes to the circuit and PCB layout not affecting the original assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR09.0197/00.

Certificate No.	Date	Comments
Baseefa09ATEX0118/2	31 January 2011	i) To permit the alternative fitting of 1SMB3EZ** zener diodes in place of 1SMB59**BT3 components currently fitted. ii) An alternative method of applying the conformal coating to the PCB fitted in the equipment not affecting the original assessment. iii) To permit the use of an alternative DIN rail mechanism not affecting the original assessment. iv) To confirm the current designs of the MTL5576 Two Channel & MTL5575B Single Channel Temperature Converters have been reviewed against the requirements of EN 60079-0: 2009 in respect of the differences from EN 60079-0: 2006, and with exception of the marking, none of the differences affect the equipment. In accordance with the requirements of EN 60079-0: 2009, the equipment markings were revised to include the Equipment Protection Level (EPL) markings. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR10.0297/00.
Baseefa09ATEX0118/3	28 March 2014	i) To permit minor component and drawing changes not affecting the original assessment. ii) To permit the correction of the parameters for the Programming / Configuration Port (Jack Socket). iii) To confirm the current designs of the MTL5576 Two Channel & MTL5575B Single Channel Temperature Converters have been reviewed against the requirements of EN 60079-0: 2012 EN 60079-11: 2012 in respect of the differences from EN 60079-0: 2009, EN 60079-11: 2007 and EN 61241-11: 2006 and none of the differences affect the equipment. In accordance with EN 60079-11: 2012, the Group I capacitive load parameters were corrected and the associated load parameter notes were updated. The associated assessment is documented in Certification Report No. GB/BAS/ExTR14.0065/00.
Baseefa09ATEX0118 Issue 4	5 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012. The certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		

1 # EU - TYPE EXAMINATION CERTIFICATE

2 **Safety Device, Controlling Device or Regulating Device intended for use outside a potentially explosive atmosphere but required for or contributing to the safe functioning of Equipment and Protective Systems with respect to the risks of explosion**
Directive 2014/34/EU

3 EU - Type Examination Certificate Number: **Baseefa15ATEX0196 – Issue 1**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.

4 Product: **MTL5582B Resistance Isolator**

5 Manufacturer: **Eaton Electric Limited**

6 Address: **Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL**

7 This re-issued certificate extends EC Type Examination Certificate No. Baseefa15ATEX0196 to apply to product 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.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products 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. See Certificate History

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

EN 60079-0: 2012 + A11: 2013 EN 60079-11: 2012

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 product is subject to the Specific Conditions of Use specified in the schedule to this certificate.

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

12 The marking of the product shall include the following :

⟨Ex⟩ **II (1) GD** **[Ex ia Ga] IIC (-20°C ≤ T_a ≤ +60°C)**
[Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C)

⟨Ex⟩ **I (M1)** **[Ex ia Ma] I (-20°C ≤ T_a ≤ +60°C)**

SGS Baseefa Customer Reference No. **0703** Project File No. **16/0371**

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R S SINCLAIR pp D BRADLEY
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa15ATEX0196 – Issue 1**

15 Description of Product

The MTL5582B Resistance Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a Resistance Temperature Device (RTD) or other resistance located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5582B Resistance Isolator is designed for the connection to a 2-wire, 3-wire or 4-wire RTD or other resistance situated in the hazardous area. The equipment repeats the resistance on the non-hazardous area output terminals for connection to a monitoring system.

The equipment comprises an isolating transformer, opto-isolator, duplicated zener diodes and current limiting resistors to provide 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 plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for connection of a suitably certified data terminal for programming the equipment. An LED is fitted to provide power on indication.

Input / Output Parameters

Non-hazardous Area Terminals 9, 10, 11, 12, 13 & 14

U_m = 253V r.m.s.

The apparatus is designed to operate on non-hazardous area terminals 9, 10, 11, 12, 13 & 14 from a d.c. supply voltage of up to 35V.

Hazardous Area Terminals 1, 3, 4 & 5

U_o = 6.51V C_i = 0
I_o = 10mA L_i = 0
P_o = 16.1mW

Hazardous Area Terminals 1, 3 & 4

U_o = 6.51V C_i = 0
I_o = 6mA L_i = 0
P_o = 9.2mW

Hazardous Area Terminals 3 w.r.t. 1

U_o = 1.2V U_i = 5V
I_o = 4mA C_i = 0
P_o = 1.2mW L_i = 0

Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of EN 60079-11: 2012, when terminals 3 w.r.t. 1 are 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 EN 60079-11: 2012 to the parameters of the circuit into which it is connected.

Programming / Configuration Port (Jack Socket)

U_o	=	6.68V	U_i	=	9.1V
I_o	=	12mA	C_i	=	0
P_o	=	17.7mW	L_i	=	0

Load Parameters

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 (µH/ohm)
Hazardous area terminals 1, 3, 4 & 5			
IIC	22.0	61.2	894
IIB*	500	244.8	3,576
IIA	1,000	489.7	3,651
I	1,000	803.4	3,651
Hazardous area terminals 1, 3 & 4			
IIC	22.0	71.4	966
IIB*	500	285.9	3,378
IIA	1,000	571.9	3,378
I	1,000	938.4	3,378
Hazardous area terminals 3 w.r.t. 1			
IIC	100	1,000	3,333
IIB*	1,000	1,000	3,333
IIA	1,000	1,000	3,333
I	1,000	1,000	3,333
Programming / Configuration Port (Jack Socket)			
IIC	0.478	79.4	448
IIB*	2.88	317.9	1,412
IIA	11.6	635.8	1,412
I	15.8	1,000	1,412

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

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 ≥ 1% of the L_o value and
   - the total C_i of the external circuit (excluding the cable) is ≥ 1% of the C_o value.

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

16 Report Number

GB/BAS/ExTR16.0238/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

In addition to the Essential Health and Safety Requirements (EHSRs) covered by the standards listed at item 9, the following are considered relevant to this product, and conformity is demonstrated in the report:

Clause	Subject	Compliance
1.2.7	Protection against other hazards (LVD type requirements, etc.)	Manufacturer responsibility
1.2.8	Overloading of equipment (protection relays, etc.)	User/Installer responsibility
1.4.1	External effects	User/Installer responsibility
1.4.2	Aggressive substances, etc.	User/Installer responsibility

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
CI5582B-5	1 of 1	2	7.16	MTL5582B Certification Label Details & DIN Rail Fittings – Baseefa – Ex i

The above drawing is associated and held with IECEx BAS 15.0139 Iss. 1

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4582B-1	1 & 2	1	2.16	Certification drawing for MTL4582B
CI4582B-2	1 to 3	1	2.16	MTL4582B Parts List
CI4582B-3	1 of 1	1	2.16	MTL4582B Track Layout
CI4582B-4	1 of 1	1	2.16	MTL4582B Component Layout
CI4582B-7	1 of 1	1	9.15	PCB Detail for TPL301
CI5500-100	1 of 1	3	1.13	New MTL 5500 Outline

The above drawings are associated and held with IECEx Certificate No. IECEx BAS 15.0139

20 Certificate History

Certificate No.	Date	Comments
Baseefa15ATEX0196	14 March 2016	The release of the prime certificate. The associated test and assessment against the requirements of EN 60079-0: 2012 + A11: 2013 and EN 60079-11: 2012 is documented in Certification Test Report No. GB/BAS/ExTR15.0300/00.
Baseefa15ATEX0196 Issue 1	5 October 2016	This issue of the certificate permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The associated assessment is documented in Certification Report No. GB/BAS/ExTR16.0238/00.
For drawings applicable to each issue, see original of that issue.		