

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: **Baseefa11ATEX0113X – 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: **E05510 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. Baseefa11ATEX0113X 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 :

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

SGS Baseefa Customer Reference No. **0703**

Project File No. **16/0371**

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SGS Baseefa Limited

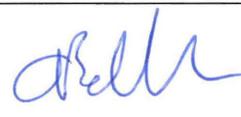
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PP A. Bellman

R S SINCLAIR

TECHNICAL MANAGER

On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa11ATEX0113X**

15 **Description of Product**

The E05510 Switch / Proximity Detector Interface is designed to restrict the transfer of energy from the unspecified non-hazardous area equipment to up to four intrinsically safe circuits by limitation of voltage and current. An isolating transformer and an opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry. Each channel of the E05510 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 equipment comprises an isolating transformer, an opto-isolator, zener diodes and resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a single printed circuit board (PCB) designed to be mounted in a rack enclosure. External connections to the hazardous and non-hazardous area are made via a connector on the bottom of the PCB. LED indication is provided to indicate power-on, the status of each output and Line Fault Detection (LFD) where applicable.

The E05510 is available with four output channels (Model No. E05510-1034) or two output channels (Model No. E05510-1032). Both models use the same PCB but the two channel version only has two channels populated.

The equipment is also available without the Line Fault Detection (LFD) circuitry fitted with four output channels (Model No. E05510-1034L) or two output channels (Model No. E05510-1032L). Both models use the same PCB but the two channel version only has two channels populated.

All variants of the E05510 Switch / Proximity Detector Interfaces have the following electrical parameters: -

Non-hazardous Area Connections X1, pins dz2 & dz4 (Supply), dz18 & b18 (Ch. 1 O/P) dz16 & b16 (Ch. 2 O/P), dz14 & b14 (Ch. 3 O/P*) and dz12 & b12 (Ch. 4 O/P*)

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

The circuits connected to the above non-hazardous area connections are designed to operate from a d.c. supply voltage of up to 35V.

Hazardous Area Connections X1, pins db32 w.r.t. z32 (Channel 1)

Hazardous Area Connections X1, pins db30 w.r.t. z30 (Channel 2)

Hazardous Area Connections X1, pins db28 w.r.t. z28 (Channel 3*)

Hazardous Area Connections X1, pins db26 w.r.t. z26 (Channel 4*)

$$\begin{aligned} U_o &= 10.5V & C_i &= 0 \\ I_o &= 14mA & L_i &= 0 \\ P_o &= 37mW \end{aligned}$$

* For the E05510-1034(L) model only

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:

GROUP	CAPACITANCE (μF)	INDUCTANCE (mH)	OR	L/R RATIO ($\mu\text{H}/\text{ohm}$)
IIC	2.41	175		983
IIB	16.8	680		1,333
IIA	75.0	1,000		1,333

Notes:

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

The reduced capacitance of the external circuit (including cable) shall not be greater than $1\mu\text{F}$ for Groups IIB & IIA and 600nF for Group IIC.

16 Report Number

None

17 Specific Conditions of Use

1. The equipment must be installed in an enclosure that provides a minimum degree of protection of at least IP20 in accordance with IEC 60529 for the equipment and its associated external connections.
2. The connections from the equipment to the external connection facilities on the rack enclosure must have segregation between the non-intrinsically safe and intrinsically safe circuitry meeting the relevant requirements of Table 5 of EN 60079-11: 2012 for a peak voltage of 375V.
3. The segregation between the equipment and other equipment installed in the rack enclosure including its external connection facilities must meet the relevant segregation requirements of Table 5 of EN 60079-11: 2012.
4. The external connection facilities for the equipment must meet the following requirements: -
 - a. If terminals are used, unless partitioning is used, the bare conducting parts of terminals must have a minimum separation of 50mm between the non-intrinsically safe and intrinsically safe connections. The creepage and clearance between the bare conducting parts of the terminals connected to the separate intrinsically safe circuits must meet the requirements of Table 5 and Figure 1 of EN 60079-11: 2012.
 - b. If plugs and sockets are used for external connections to the equipment, those for the intrinsically safe circuitry must be separated from, and non-interchangeable with, those for connection of the non-intrinsically safe circuitry. If the plug or socket is not prefabricated with its wires, the connecting facilities must meet the requirements of clause 6.2.1 of EN 60079-11: 2012.

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.

Clause	Subject	Compliance
1.2.7	LVD type requirements	Standards require manufacturer's declaration.
1.4.1	External effects	The Purchaser should make the manufacturer aware of such issues.
1.4.2	Aggressive substances, etc.	The Purchaser should make the manufacturer aware of such issues.

19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
100P0051	1 of 1	2	8.16	ATEX Certification Label for E055-103

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
85P0074	1 of 1	Original	07.10.2010	Front Panel of E05510
125P0055	1 of 1	Original	10.05.2002	Construction Drawing Type: E05510-103
CIE05510	1 of 1	Original	08.10.2010	MTL 05510 IS Serial Data Communications Isolator Transformer Winding Detail
E05510B01	1 of 1	Original	04.04.2011	Type E05510-103 – PCB Drawing Assembly Print
E05510I01	1 of 1	Original	04.04.2011	Type E05510-103 – PCB Inner Layer 1 Drawing
E05510I02	1 of 1	Original	04.04.2011	Type E05510-103 – PCB Inner Layer 2 Drawing
E05510K01	1 of 1	Original	04.04.2011	Type E05510-103 – PCB Top Layer & Component Layout Drawing
E05510L01	1 of 1	Original	08.10.2010	Type E05510-103 – PCB Bottom Layer & Component Layout Drawing
E05510R01	1 of 1	Original	04.04.2011	Type E05510-103 – PCB Bottom Layer Drawing
E05510S01	1 of 1	Original	30.09.2010	Type E05510 Schematic Drawing
E05510V01	1 of 1	Original	04.04.2011	Type E05510-103 – PCB Top Layer Drawing
95P0041	1 of 1	A1	12.03.2014	Coding Drawing for Male and Female Connectors Type: E05510-103.(L)
100P0052	1 of 1	Original	12.03.2014	IS Relevant Label for Switch / Proximity Detector Interface Type E05510-103.
125P0057	1 of 1	Original	12.03.2014	Construction Drawing Type E05510-103.L
CI-E05510	1 of 1	1	04.14	Parts List for MTL E05510
CI-E5510S02	1 of 1	Original	12.03.2014	Type E05510-103xL Schematic Drawing
E05510B02	1 of 1	Original	12.03.2014	E05510-103.L PCB Drawing Assembly Print
E05510V02	1 of 1	Original	04.04.2014	E05510-103.L PCB Top Layer Drawing
E05510R02	1 of 1	Original	12.03.2014	E05510-103.L PCB Bottom Layer Drawing
E05510K02	1 of 1	Original	12.03.2014	E05510-103.L PCB Top & Component Layout Drawing
E05510L02	1 of 1	Original	12.03.2014	E05510-103.L PCB Bottom Layer & Component Layout Drawing
E05510I03	1 of 1	Original	12.03.2014	E05510-103.L PCB Inner Layer 1 Drawing
E05510I04	1 of 1	Original	12.03.2014	E05510-103.L PCB Inner Layer 2 Drawing
BO-001-0196	1 of 1	Original	12.03.2014	E05510 (LEWA) PCB Detail

20 Certificate History

Certificate No.	Date	Comments
Baseefa11ATEX0113X	01 June 2011	The release of the prime certificate. The associated test and assessment against the requirements of EN60079-0: 2006, EN60079-11: 2007, EN60079-0: 2009 and EN61241: 2006 is documented in Test Report No. GB/BAS/ExTR11.0133/00 for Project number 10/0897.

Certificate No.	Date	Comments
Baseefa11ATEX0113X/1	24 October 2014	To permit change of manufacturer name and address from MTL Instruments GmbH, Bessemer Strasse 80, 44793 Bochum, Germany, to Measurement Technology Limited, Great Marlings, Butterfield, Luton, Bedfordshire, LU2 8DL. Also to permit minor circuit changes to form the E05510-1034L Four Channel and E05510-1032L Two Channel Switch / Proximity Detector. Also to confirm that the design meets the requirements of EN60079-0: 2012 and EN60079-11: 2012 Report GB/BAS/ExTR14.0305/00 for project 14/0293.
Baseefa11ATEX0113X Issue 2	12 June 2017	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current design meets the requirements of EN 60079-0: 2012 + A11: 2013. The certificate also permits the manufacturer's name to be changed on the certificate and the equipment marking. No other changes are made to the equipment design.
For drawings applicable to each issue, see original of that issue.		