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: **BAS01ATEX7203 – 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: **MTL700 Series Shunt Zener Diode Safety Barriers (IIB)**

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. BAS01ATEX7203 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 The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. 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, is responsible only for the additional work relating to this re-issued certificate and any other supplementary certificate it has issued.

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] IIB (-20°C ≤ T_a ≤ +60°C)**
[Ex ia Da] IIIC (-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 BAS01ATEX7203 – Issue 2**

15 **Description of Product**

The MTL700 Series Shunt Zener Diode Safety Barriers (IIB) are designed to restrict the transfer of energy, from unspecified safe are equipment to intrinsically safe circuits, by limitation of voltage and current. The range consists of single and dual channel barriers covering polarised – positive and negative, non-polarised, non-polarised-star connected barriers and diode return barriers.

The barriers consist of electronic components on a single printed circuit board encapsulated within a moulded plastic enclosure which incorporates a pair of terminals at both the hazardous and non-hazardous area ends and two studs for connection to earth via a busbar. Alternatively the studs can be connected to earth via a spring mounted foot suitable for mounting on a DIN rail.

The barriers are asymmetrical and have a blue label defining the hazardous area terminals.

For all versions of the MTL700 Shunt Zener Barriers: -

Input Parameters

Single Channel - Terminal 1 wrt 2 (including earth stud)
Dual Channel - Terminal 1 & 2 wrt to earth stud

U_m = 253V

Output Parameters

Single Channel 1 - Terminal 3 wrt 4 (including earth stud)
Dual Channel 1 - Terminal 3 wrt to earth stud

U_o = See a or a1 below
I_o = See a or a1 below
P_o = See a or a1 below

Dual Channel 2 - Terminal 4 wrt to earth stud

U_o = See a2 below
I_o = See a2 below
P_o = See a2 below

Type	Description	DC/AC		U_o (V)	R_{min} (Ω)	I_o (mA)	P_o (W)
MTL707P	28V, 164R	+	a1	28	164.6	170	1.19
	15V (Diode)		a2	15	†	-	-
			b	28	164.6	170	1.19
MTL729P	28V, 164R	+	a	28	164.6	170	1.19

Notes:

1. +/- - Shunt zener diode barriers may be of positive or negative polarity dependant on the configuration of the zener diodes. The certification label will detail the exact type.
   Diode - diode return barrier

2. Circuit configuration for output parameters

   a - Single channel
   a1 - First channel of a dual channel barrier
   a2 - Second channel of a dual channel barrier
   b - Both channels of a dual channel barrier connected in parallel, with respect to earth.

3. The hazardous area terminals of each of the barrier outputs marked † must be considered at the voltage U_o. This is considered as the theoretical maximum to which a capacitive load across the hazardous area terminals could become charged by leakage through the series blocking diodes. This voltage does not contribute to the output current.

Load Parameters

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

Type	ac/dc		FOS	IIB**			IIA		
			IIB	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
MTL707P	+	a1	2.64	0.65	5.65	127	2.15	11.34	260
		a2	-	3.55	-	-	14.0	-	-
		b	2.64	0.65	5.65	127	2.15	11.34	260
MTL729P	+	a	2.64	0.65	5.65	127	2.15	11.34	260

** 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.

16 Report Number

GB/BAS/ExTR16.0276/00

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
CI700-8	1 of 1	3	8.16	Label for MTL700 Series Safety Barriers Certified to the ATEX Directive

The above drawing is associated and held with IECEx Certificate No. IECEx BAS 05.0019 Iss. 3, and also associated with ATEX Certificate No. BAS01ATEX7202 Iss. 4.

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI700-1*[1]	1 of 1	3	2.96	MTL700 Series Barriers General Assembly
CI700-2*[1]	1 of 1	3	12.00	MTL700 Series Barriers, Diode Pulse and Storage Temperature Test
CI700-4*[1]	1 of 1	1	9.83	Zener Diode Types and Selection Procedure
CI700-5*[1]	1 of 1	4	9.93	MTL700 Series Barriers Alternative Termination and Encapsulation
CI700-7*[1]	1 & 2	1	12.00	DRK700 Earth Foot
CI707-22*[2]	2 of 3	1	11.91	MTL707P Safety Barrier – Circuit Diagram, Parts List & Layout
CI707-22*[2]	3 of 3	1	11.91	MTL707P Safety Barrier – Circuit Diagram, Parts List & Layout
CI729-22*[2]	2 of 3	1	11.91	MTL729P Safety Barrier – Circuit Diagram, Parts List & Layout
CI729-22*[2]	3 of 3	1	11.91	MTL729P Safety Barrier – Circuit Diagram, Parts List & Layout

Drawings marked *[1] are also associated with IECEx Certificate No. IECEx BAS 05.0019 and ATEX Certificate No. BAS01ATEX7202.

Drawings marked *[2] are also associated with IECEx Certificate No. IECEx BAS 05.0019.

20 Certificate History

Certificate No.	Date	Comments
BAS01ATEX7203	20 July 2001	The release of the prime certificate. The associated test and assessment against the requirements of EN 50014: 1997 + Amds 1 & 2 and EN 50020: 1994 is documented in Certification Report No. 00(C)0587.
BAS01ATEX7203/1	5 January 2011	i) To confirm the current designs of the MTL700 Series Shunt Zener Diode Safety Barriers (IIB) has been reviewed against the requirements of EN 60079-0: 2006 and EN 60079-11: 2007 in respect of the differences from EN 50014: 1997 + Amd. 1 & 2 and EN 50020: 1994 and none of the differences affect this equipment. ii) To permit the additional assessment of the equipment against the requirements for associated apparatus to EN 61241-11: 2005 to Category [Ex ia Da] IIIC (-20°C ≤ T_a ≤ +60°C). The test and assessment of the above is documented in Certification Report No. GB/BAS/ExTR10.0207/01.

Certificate No.	Date	Comments
BAS01ATEX7203 Issue 2	12 October 2016	This issue of the certificate incorporates previously issued primary & supplementary certificates into one certificate and confirms the current designs of the equipment meet the requirements of EN 60079-0: 2012 + A11: 2013 & EN 60079-11: 2012 including the revision of the equipment marking in accordance with these standards. This issue of the certificate also permits the manufacturer's name to be changed on page 1 of the certificate and on the equipment marking. The test and assessment of the above is documented in Certification Report No. GB/BAS/ExTR16.0276/00.
For drawings applicable to each issue, see original of that issue.		