

**UK-TYPE EXAMINATION CERTIFICATE**

**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 Product and Protective Systems with respect to the risks of explosion  
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1**

UK-Type Examination Certificate Number: **BAS21UKEX0566X – Issue 1**

Product: **MTL SUM5 Universal Isolator**

Manufacturer: **Eaton Electric Limited**

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

This re-issued certificate extends UK-Type Examination Certificate No. BAS21UKEX0566X 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.

SGS Baseefa, Approved Body number 1180, in accordance with Regulation 43 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), 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 Schedule 1 of the Regulations.

The examination and test results are recorded in confidential Report No. **See Certificate History**

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

**EN IEC 60079-0:2018 EN 60079-11:2012**

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

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.

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

The marking of the product shall include the following:

⊕ II (1) GD [Ex ia Ga] IIC (-40°C ≤ Ta ≤ +70°C)  
[Ex ia Da] IIIC (-40°C ≤ Ta ≤ +70°C)  
⊕ I (M1) [Ex ia Ma] I (-40°C ≤ Ta ≤ +70°C)

SGS Baseefa Customer Reference No. **0703**

Project File No. **22/0280**

This document is issued by the Company subject to its General Conditions for Certification Services accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and the Supplementary Terms and Conditions accessible at <http://www.sgs.com/SGSBaseefa/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained herein reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. It does not necessarily indicate that the equipment may be used in particular industries or circumstances. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, schedule included, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

**SGS Baseefa Limited**

Rockhead Business Park, Staden Lane,  
Buxton, Derbyshire SK17 9RZ

Telephone +44 (0) 1298 766600 Fax +44 (0) 1298 766601

e-mail [baseefa@sgs.com](mailto:baseefa@sgs.com) web site [www.sgs.co.uk/sgsbaseefa](http://www.sgs.co.uk/sgsbaseefa)

Registered in England No. 4305578.

Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN



*Brearily*

pp D. Brearily

**R S SINCLAIR**  
**TECHNICAL MANAGER**

On behalf of SGS Baseefa Limited

13

## Schedule

14

### Certificate Number BAS21UKEX0566X – Issue 1

#### 15 Description of Product

The MTL SUM5 Universal Isolator is designed to provide a digital or analogue interface for equipment located in the hazardous area and repeat the signals in the non-hazardous area, whilst restricting the transfer of energy from unspecified non-hazardous area equipment to the intrinsically safe equipment by means of limitation of voltage and current.

The MTL SUM5 Universal Isolator comprises two interconnected modules; an Interface Module (MTL4-ADIO Universal Analogue / Digital Interface Module), and a Base Module, which can either be standard type (MTL4-BSIS IS Module Base) or relay output type (MTL4-BSISR IS Module Relay Base).

The Interface Module comprises an isolating transformer, opto-isolator circuits that provide galvanic isolation between the hazardous and non-hazardous area circuitry and zener diode / resistor arrangements providing voltage and current limitation. The above, together with other electronic components, are mounted on a single printed circuit board and housed in a moulded plastic enclosure. The internal connections between the Interface Module and associated Base Module are made via an edge-connect type plug and socket arrangement.

The Base Module provides the external hazardous area connection via four screw terminals along one side of the base with the non-hazardous area connections being made via a polarised plug connection at the bottom of the base designed to connect to an associated backplane. The Interface Module clips to the other side of the Base Module. In addition to providing the connection facilities, the Base Module also contains additional zener diode and current limiting resistor arrangements to provide further voltage and current limitation on the hazardous area side of the circuit. The Base Module is fitted with Loop Disconnect above the Interface Module that allows the hazardous area terminals to be isolated. The Base Module is also fitted with a RFID circuit to allow identification of the Isolator when fitted in a system. Two Base Module variants are available, the standard MTL4-BSIS IS Module Base and the MTL4-BSISR IS Module Relay Base.

The MTL4-BSIS IS Module Base is additionally fitted with an IS Power Jumper Link on the top edge of the module to allow the output current of the hazardous area outputs to be changed depending on the configuration of the isolator.

The MTL4-BSISR IS Module Relay Base provides a galvanically isolated SPDT relay contacts suitable for switching an intrinsically safe source of up to 30V. The relay contacts are rated 30V and 1A.

The MTL SUM5 Universal Isolator can optionally be fitted with Surge protection on the hazardous area connections by the fitting of a Plug-In Surge Module that plugs into the top of the Base Module. An earth screw connection facility is provided at the bottom of the Base Module to allow for connection to earth arrangement on the backplane required for surge protection. There are two variants of Plug-in Surge Module, the MTL4-SD Plug-In Surge Module designed to be fitted to the MTL4-BSIS IS Module Base, and the MTL4-SDR Plug-In Relay Surge Module designed to be fitted to the MTL4-BSISR IS Module Relay Base.

The configuration of the MTL SUM5 Universal Isolator as either an analogue input or output, or digital input or output, is dependent on the Interface module fitted, the position of the IS Power Jumper Link on the Base Module (where applicable) and the software configuration of the Interface Module fitted.

#### **Input & Output Parameters – MTL4-BSIS IS Module Base & MTL4-ADIO Interface Module**

##### **Non-Hazardous Area Connector CON1, Pins 1 to 6 & 9 to 12**

$$U_m = 30V$$

The non-hazardous Connector CON1, pins 1 to 6, & 9 to 12 are designed to operate from a d.c. supply voltage of up to 30V supplied from either safety extra low-voltage (SELV) or protective extra low-voltage circuits; for example, equipment complying with the requirements of either the IEC 60950 series, IEC 61010-1 or a technically equivalent standard.

Digital O/P Configuration - Hazardous Area Terminals 4 w.r.t. 3 (IS Power Jumper Link not Fitted)

$U_o$	=	26.5V	$C_i$	=	0
$I_o$	=	90mA	$L_i$	=	0
$P_o$	=	0.6W			

Digital O/P Configuration - Hazardous Area Terminals 4 w.r.t. 3 (IS Power Jumper Link Fitted)

$U_o$	=	26.5V	$C_i$	=	0
$I_o$	=	136mA	$L_i$	=	0
$P_o$	=	0.9W			

Analogue O/P Configuration – Hazardous Area Terminals 4 w.r.t. 2 (IS Power Jumper Link not Fitted)

$U_o$	=	26.5V	$C_i$	=	0.5nF
$I_o$	=	90mA	$L_i$	=	0
$P_o$	=	0.6W			

Analogue O/P Configuration – Hazardous Area Terminals 4 w.r.t. 2 (IS Power Jumper Link Fitted)

$U_o$	=	26.5V	$C_i$	=	0.5nF
$I_o$	=	136mA	$L_i$	=	0
$P_o$	=	0.9W			

Digital I/P Configuration – Hazardous Area Terminals 2 w.r.t. 3

$U_o$	=	10V	$C_i$	=	0.5nF
$I_o$	=	0.13mA	$L_i$	=	0
$P_o$	=	<1mW			

The hazardous area terminals 2 w.r.t. 3 are also considered suitable for the connection of an external intrinsically safe source with a  $U_o = 30V$  and  $I_o = 100mA$ . When an intrinsically safe source is connected to these terminals 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 1 & 4 must not be used when a source is connected to these terminals.

Digital I/P Configuration – Hazardous Area Terminals 1 w.r.t. 2

$U_o$	=	10V	$C_i$	=	0.5nF
$I_o$	=	14mA	$L_i$	=	0
$P_o$	=	35mW			

Analogue I/P Configuration – Hazardous Area Terminals 2 w.r.t. 3

$U_o$	=	10V	$C_i$	=	0.5nF
$I_o$	=	0.13mA	$L_i$	=	0
$P_o$	=	<1mW			

The hazardous area terminals 2 w.r.t. 3 are also considered suitable for the connection of an external intrinsically safe source with a  $U_o = 30V$  and  $I_o = 100mA$ . When an intrinsically safe source is connected to these terminals 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 1 & 4 must not be used when a source is connected to these terminals.

Analogue I/P Configuration – Hazardous Area Terminals 4 w.r.t 2 (IS Power Jumper Link not Fitted)

$U_o$	=	26.5V	$C_i$	=	0.5nF
$I_o$	=	90mA	$L_i$	=	0
$P_o$	=	0.6W			

Analogue I/P Configuration – Hazardous Area Terminals 4 w.r.t 2 (IS Power Jumper Link Fitted)

$U_o$	=	26.5V	$C_i$	=	0.5nF
$I_o$	=	136mA	$L_i$	=	0
$P_o$	=	0.9W			

Analogue I/P Configuration – Hazardous Area Terminals 2 & 4 w.r.t 3 (IS Power Jumper Link not Fitted)

$U_o$	=	26.5V	$C_i$	=	0.5nF
$I_o$	=	90mA	$L_i$	=	0
$P_o$	=	0.6W			

Analogue I/P Configuration – Hazardous Area Terminals 2 & 4 w.r.t 3 (IS Power Jumper Link Fitted)

$U_o$	=	26.5V	$C_i$	=	0.5nF
$I_o$	=	136mA	$L_i$	=	0
$P_o$	=	0.9W			

Load Parameters

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

GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH) OR L/R RATIO ( $\mu$ H/ohm)
<b>Hazardous Area Terminals 4 w.r.t. 3 (IS Power Jumper Link not Fitted)</b>		
IIC	0.095	4.29
IIB*	0.73	17.1
IIA	2.45	34.3
I	4.3	56.3
<b>Hazardous Area Terminals 4 w.r.t. 3 (IS Power Jumper Link Fitted)</b>		
IIC	0.095	2.00
IIB*	0.73	8.40
IIA	2.45	16.4
I	4.3	56.3
<b>Hazardous Area Terminals 4 w.r.t. 2 (IS Power Jumper Link not Fitted)</b>		
IIC	0.094	4.29
IIB*	0.72	17.1
IIA	2.44	34.3
I	4.29	56.3
<b>Hazardous Area Terminals 4 w.r.t. 2 (IS Power Jumper Link Fitted)</b>		
IIC	0.094	2.00
IIB*	0.72	8.40
IIA	2.44	16.4
I	4.29	56.3
<b>Hazardous Area Terminals 2 w.r.t. 3</b>		
IIC	3.0	1,000
IIB*	20.0	1,000
IIA	100	1,000
I	180	1,000

GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu$ H/ $\Omega$ )
Hazardous Area Terminals 1 w.r.t. 2				
IIC	3.0	172.4		1,015
IIB*	20.0	656.4		4,063
IIA	100	1,000		8,126
I	180	1,000		13,333
Hazardous Area Terminals 2 & 4 w.r.t. 3 (IS Power Jumper Link not Fitted)				
IIC	0.094	4.29		58
IIB*	0.72	17.1		235
IIA	2.44	34.3		471
I	4.29	56.3		774
Hazardous Area Terminals 2 & 4 w.r.t. 3 (IS Power Jumper Link Fitted)				
IIC	0.094	2.00		39
IIB*	0.72	8.40		157
IIA	2.44	16.4		315
I	4.29	56.3		517

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

Notes:

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

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

The values of  $L_o$  and  $C_o$  determined by this method shall not be exceeded by the sum of all of the  $L_i$  plus cable inductances in the circuit and the sum of all of the  $C_i$  plus cable capacitances respectively.

#### Input & Output Parameters – MTL4-BSISR IS Module Relay Base & MTL4-ADIO Interface Module

##### Non-Hazardous Area Connector CON1, Pins 1 to 6 & 9 to 12

$U_m = 30$ V

The non-hazardous Connector CON1, pins 1 to 6, & 9 to 12 are designed to operate from a d.c. supply voltage of up to 30V supplied from either safety extra low-voltage (SELV) or protective extra low-voltage circuits; for example, equipment complying with the requirements of either the IEC 60950 series, IEC 61010-1 or a technically equivalent standard.

##### Relay Contact Connections - Hazardous Area Terminals 1 (NO), 2 (NC) & 3 (COM)

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

The relay contacts are rated to maximum 30V and 1A.

#### 16 Report Number

See Certificate History

## 17 Specific Conditions of Use

1. The non-hazardous area connections of the equipment must be supplied from either safety extra low-voltage (SELV) or protective extra low-voltage (PELV) circuits; for example, equipment complying with the requirements of either the IEC 60950 series, IEC 61010-1 or a technically equivalent standard.
2. When fitted with the optional surge modules the equipment is not capable of withstanding the 500V dielectric strength test required by clause 6.3.13 of EN 60079-11: 2012. This must be taken into account when installing the equipment.
3. MTL4-BSISR IS Module Relay Base only: The circuits connected to these modules are limited to overvoltage category I/II/III (non mains/mains circuits) as defined in IEC 60664-1.

## 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
13	Protection against other hazards (LVD type requirements, etc.)
14	Overloading of equipment (protection relays, etc.)
22(1)	External effects
22(2)	Aggressive substances, etc.

## 19 Drawings and Documents

New drawings submitted for this issue of certificate:

Number	Sheet	Issue	Date	Description
None				

Current drawings which remain unaffected by this issue:

Number	Sheet	Issue	Date	Description
CI4910-5	1 of 1	2	9.21	CERTIFICATION MARKING - MTL4-BSIS
CI4911-5	1 of 1	2	9.21	CERTIFICATION MARKING - MTL4-BSISR
CI4931-5	1 of 1	2	9.21	CERTIFICATION MARKING - MTL4-ADIO
CI4940-5	1 of 1	2	9.21	CERTIFICATION MARKING - SURGE MODULE
CI4942-5	1 of 1	2	9.21	CERTIFICATION MARKING - SURGE MODULE RELAY

For all other drawings see Baseefa19ATEX0022X Issue 5.

## 20 Certificate History

Certificate No.	Date	Comments
BAS21UKEX0566X	4 April 2022	The associated test and assessment against the requirements of EN IEC 60079-0: 2018 and EN 60079-11: 2012 is documented in Certification Report No. 21(C)0386/40. Project File 21/0386.
BAS21UKEX0566X Issue 1	8 November 2022	This issue of the certificate permits minor drawing changes not affecting the previous assessment. The associated test and assessment is documented in Certification Report No. GB/BAS/ExTR22.0187/00. Project File No. 22/0280.
For drawings applicable to each issue, see original of that issue.		