IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	**IECEx BAS 20.0050X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2020-11-12) Issue 0 (2020-10-26)
Date of Issue:	2022-11-08		
Applicant:	**Eaton Electric Limited** Great Marlings Butterfield Luton Bedfordshire LU2 8DL **United Kingdom**		
Equipment:	**MTL SUM5 Universal Isolator System**		
Optional accessory:			
Type of Protection:	**Increased Safety 'ec', Type of Protection 'nC'**		
Marking:	Ex ec nC IIC T4 Gc (-40°C ≤ Ta ≤ +70°C)		

Approved for issue on behalf of the IECEx Certification Body: **Mr R S Sinclair**

Position: **Technical Manager**

Signature: (for printed version) pp D. Brearley

Date: (for printed version) 8/11/2022

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.

Certificate issued by:

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

IECEx Certificate of Conformity

Certificate No.: **IECEx BAS 20.0050X**

Date of issue: 2022-11-08

Issue No: 2

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

Manufacturing locations: **MTL Instruments PVT Limited**
No 3 Old Mahabalipuram Road,
Sholinganallur, Chennai, 600 119
India

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements.This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :
The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

IEC 60079-15:2017 Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition:5.0

IEC 60079-7:2017 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:5.1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

GB/BAS/ExTR20.0125/00 GB/BAS/ExTR20.0159/00 GB/BAS/ExTR22.0187/00

Quality Assessment Reports:

GB/BAS/QAR06.0022/10 GB/BAS/QAR07.0017/09

IECEx Certificate of Conformity

EQUIPMENT:
Equipment and systems covered by this Certificate are as follows:

The MTL SUM5 Universal Isolator System is designed to provide a digital or analogue interface for equipment located in the hazardous area and repeat the signals in either the non-hazardous or zone 2 mounted equipment, whilst restricting the transfer of energy from unspecified non-hazardous area / zone 2 equipment to other hazardous area equipment by means of limitation of voltage and current.

The system comprises a Carrier (two variants – MTL4-ZS16 or MTL4-ZSHUIO) to which up to sixteen MTL SUM5 Isolators can be mounted. Each MTL SUM5 Isolator comprises two interconnected modules; an Interface Module (MTL4-ADIO Universal Analogue / Digital Interface Module), and a Base Module (two variants - MTL4-BSIS IS Module Base or MTL4-BSGP General Purpose Module Base). Each isolator can optionally be fitted with Surge protection on the hazardous area connections by the fitting of a Plug-In Surge Module (MTL4-SD Plug-In Surge Module). An optional Diagnostic Module Alarm (two variants – MTL4-DMA & MTL4-DMR) can be fitted to the system to provide diagnostics of the isolators fitted to the carrier.

See Certificate Annex for further information on the system and electrical parameters.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The equipment must be installed in an area of Pollution Degree 2 or better, as defined in IEC 60664-1, and in an enclosure that provides a degree of protection of at least IP54 and meets the relevant requirements of IEC 60079-0 and IEC 60079-7.
2. The ambient temperature stated on this certificate refers to the temperature within the enclosure into which it must be installed in accordance with condition number 1).
3. The equipment is marked with a temperature classification of T4 in a maximum ambient temperature of 70°C. When the equipment is installed in its enclosure, the maximum ambient temperature of the equipment inside the enclosure must not exceed the maximum ambient temperature.
4. When fitted with the optional MTL4-SD Plug-in Surge Module the equipment is not capable of withstanding the 500V dielectric strength test in accordance with clause 7.1 of IEC 60079-7. This must be taken into account during installation.
5. All connections to, and between the modules forming the equipment the must not be inserted or removed unless either the area in which the equipment is installed is known to be non-hazardous, or the circuit to which it is connected has been de-energised.

IECEx Certificate of Conformity

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Variation 2.1

To permit minor drawing changes not affecting the previous assessment.

ExTR: **GB/BAS/ExTR22.0187/00**	File Reference: **22/0280**

Annex:

IECEx BAS 20.0050X Annex Issue 1.pdf

MTL SUM5 Universal Isolator System

The system comprises a Carrier (two variants – MTL4-ZS16 or MTL4-ZSHUIO) to which up to sixteen MTL SUM5 Isolators can be mounted. An optional Diagnostic Module Alarm (two variants – MTL4-DMA & MTL4-DMR) can be fitted to provide diagnostics of the isolators fitted to the carrier.

The MTL4-ZS16 & MTL4-ZSHUIO Carriers are DIN rail or surface mounted assemblies comprise a single printed circuit board which is fitted with dual-redundancy supply circuitry which supplies the MTL SUM5 Isolators and the optional Diagnostic Module Alarm. The carrier also provides the non-hazardous area external connection facilities for the Isolators and Diagnostic Module Alarm. The carriers are also fitted with a RFID circuit to allow identification of the carrier. In terms of the differences between the MTL4-ZS16 & MTL4-ZSHUIO Carriers, the only difference is the external control system connection facilities. The MTL4-ZS16 Carrier is fitted with screw terminal connections, whereas, the MTL4-ZSHUIO Carrier is fitted with D-Type plug and socket connection.

Each MTL SUM5 Universal Isolator comprises two interconnected modules; an Interface Module (MTL4-ADIO Universal Analogue / Digital Interface Module), and either a light blue coloured IS Base Module (MTL4-BSIS) or a light grey coloured General Purpose Base Module (MTL4-BSGP).

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 Modules provides the external hazardous area connection via four screw terminals along one side of the base with the non-hazardous area / zone 2 connections to the carrier being made via a polarised plug connection at the bottom of the base. The Interface Module clips to the other side of the Base Modules. The Base Modules are fitted with Loop Disconnect above the Interface Module that allows the hazardous area terminals to be isolated. The Base Modules are also fitted with a RFID circuit to allow identification of the Isolator when fitted in a system.

The MTL4-BSIS IS Module Base in addition to providing the connection facilities also contain additional zener diode and current limiting resistor arrangements to provide further voltage and current limitation on the hazardous area side of the circuit. The module 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-BSGP General Purpose Base Module is designed to only be fitted in and connected to Zone 2 certified equipment.

Each 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 (MTL4-SD 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.

Either a MTL4-DMA Diagnostic Module Alarm or MTL4-DMR Diagnostic Module Relay Alarm can be fitted on the carrier to provide diagnostics alarming of the isolators fitted to the carrier. The modules comprises a common printed circuit board mounted in a moulded plastic enclosure with LED's fitted on the top of the module to provide local diagnostic fault indication. External connections to the module are made via a plug and socket connection in the base of the module for direct connection to the carrier. The MTL4-DMA Diagnostic Module Alarm is partially populated module providing a configuration port and basic diagnostic alarming, whereas the

MTL4-DMR Diagnostic Relay Alarm is additionally fitted with 16 relays that can provide contact or trip alarms for each of the isolators fitted to the carrier.

The configuration of each MTL SUM5 Universal Isolator fitted on the Carrier 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.

This certificate covers the installation of the MTL SUM5 Universal Isolators (IECEx BAS 19.0018X), and associated Carriers and Diagnostic Module Alarm in a Zone 2 location.

Electrical Parameters

Carrier Input & Output Parameters – MTL4-ZS16

Power Supply Input POWER V1, V2, 0V, 0V (CON27), Terminals 1 to 4

Maximum Rated Supply Voltage = 30V

The power supply input terminals POWER V1, V2, 0V & 0V pins 1 to 4 are designed to operate from a d.c. supply voltage of 20 to 30Vd.c.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.

Group Alarm Connections ALARM 1A & 1B and ALARM 2A & 2B (CON28), Terminals 1 to 4

Maximum Rated Voltage per alarm = 32V
Maximum Rated Current per alarm = 250mA

Channel Alarm Connections on MTL4-DMR 34-way header, Channels 1-16 (CON6)

Maximum Rated Voltage per channel = 32V
Maximum Rated Current per channel = 250mA

Isolator DCS Connections, Terminals A, B & C of Slots 1 to 16 (CON18 to CON26)

Terminal No.	DCS Connection Description	Terminal No.	DCS Connection Description
A1	VOUT Isolator Slot 1	A9	VOUT Isolator Slot 9
B1	VIN Isolator Slot 1	B9	VIN Isolator Slot 9
C1	0V Isolator Slot 1	C9	0V Isolator Slot 9
A2	VOUT Isolator Slot 2	A10	VOUT Isolator Slot 10
B2	VIN Isolator Slot 2	B10	VIN Isolator Slot 10
C2	0V Isolator Slot 2	C10	0V Isolator Slot 10
A3	VOUT Isolator Slot 3	A11	VOUT Isolator Slot 11
B3	VIN Isolator Slot 3	B11	VIN Isolator Slot 11
C3	0V Isolator Slot 3	C11	0V Isolator Slot 11
A4	VOUT Isolator Slot 4	A12	VOUT Isolator Slot 12
B4	VIN Isolator Slot 4	B12	VIN Isolator Slot 12
C4	0V Isolator Slot 4	C12	0V Isolator Slot 12
A5	VOUT Isolator Slot 5	A13	VOUT Isolator Slot 13
B5	VIN Isolator Slot 5	B13	VIN Isolator Slot 13
C5	0V Isolator Slot 5	C13	0V Isolator Slot 13

Terminal No.	DCS Connection Description	Terminal No.	DCS Connection Description
A6	VOUT Isolator Slot 6	A14	VOUT Isolator Slot 14
B6	VIN Isolator Slot 6	B14	VIN Isolator Slot 14
C6	0V Isolator Slot 6	C14	0V Isolator Slot 14
A7	VOUT Isolator Slot 7	A15	VOUT Isolator Slot 15
B7	VIN Isolator Slot 7	B15	VIN Isolator Slot 15
C7	0V Isolator Slot 7	C15	0V Isolator Slot 15
A8	VOUT Isolator Slot 8	A16	VOUT Isolator Slot 16
B8	VIN Isolator Slot 8	B16	VIN Isolator Slot 16
C8	0V Isolator Slot 8	C16	0V Isolator Slot 16

Terminal Parameters (all positions):

Maximum Rated Voltage = 32V
Maximum Rated Current = 300mA

Carrier Input & Output Parameters – MTL4-ZSHUIO

Power Supply Input POWER V1, V2, 0V, 0V (CON20), Terminals 1 to 4

Maximum Rated Supply Voltage = 30V

The power supply input terminals POWER V1, V2, 0V & 0V, pins 1 to 4 are designed to operate from a d.c. supply voltage of 20 to 30Vd.c.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.

Group Alarm Connections ALARM 1A & 1B and ALARM 2A & 2B (CON28), Terminals 1 to 4

Maximum Rated Voltage per alarm = 32V
Maximum Rated Current per alarm = 250mA

Channel Alarm Connections on MTL4-DMR 34-way header, Channels 1-16 (CON6)

Maximum Rated Voltage per channel = 32V
Maximum Rated Current per channel = 250mA

Isolator DCS Connections, VIN & 0V, Slots 1-16 (CON18)

Terminal No.	DCS Connection Description	Terminal No.	DCS Connection Description
1	VIN Isolator Slot 1	20	0V Isolator Slot 1
2	VIN Isolator Slot 2	21	0V Isolator Slot 2
3	VIN Isolator Slot 3	22	0V Isolator Slot 3
4	VIN Isolator Slot 4	23	0V Isolator Slot 4
5	VIN Isolator Slot 5	24	0V Isolator Slot 5
6	VIN Isolator Slot 6	25	0V Isolator Slot 6
7	VIN Isolator Slot 7	26	0V Isolator Slot 7
8	VIN Isolator Slot 8	27	0V Isolator Slot 8
9	VIN Isolator Slot 9	28	0V Isolator Slot 9
10	VIN Isolator Slot 10	29	0V Isolator Slot 10

Terminal No.	DCS Connection Description	Terminal No.	DCS Connection Description
11	VIN Isolator Slot 11	30	0V Isolator Slot 11
12	VIN Isolator Slot 12	31	0V Isolator Slot 12
13	VIN Isolator Slot 13	32	0V Isolator Slot 13
14	VIN Isolator Slot 14	33	0V Isolator Slot 14
15	VIN Isolator Slot 15	34	0V Isolator Slot 15
16	VIN Isolator Slot 16	35	0V Isolator Slot 16
17	Unused	36	Unused
18	Unused	37	Unused
19	Unused		

Terminal Parameters (all isolator slots above):

Maximum Rated Voltage = 32V
Maximum Rated Current = 300mA

Isolator Input & Output Parameters -

Hazardous Area Terminals - MTL4-BSIS IS Module Base & MTL4-ADIO Interface Module

If the hazardous area terminals are being connected to certified intrinsically safe equipment located in either Zone 0 & Zone 1 hazardous area, the maximum values for the intrinsically safe circuits and associated load parameters have to be taken from IECEx Certificate No. IECEx BAS 19.0018X.

The following I/O parameters are for the connection of certified Zone 2 mounted equipment:

Hazardous Area Terminals 4 w.r.t. 3, 4 w.r.t 2, 2 w.r.t 3, 1 w.r.t. 2, and 2 & 4 w.r.t 3:

Maximum Rated Voltage = 32V
Maximum Rated Current = 300mA

Ratings are irrespective of Isolator and Base configuration (Analogue or Digital, O/P or I/P, IS Power Jumper Link fitted or not fitted).

Hazardous Area Terminals - MTL4-BSGP General Purpose Module Base & MTL4-ADIO Interface Module (Zone 2 Connection only)

The following I/O parameters are for the connection of certified Zone 2 mounted equipment:

Hazardous Area Terminals 4 w.r.t. 3, 4 w.r.t 2, 2 w.r.t 3, 1 w.r.t. 2, and 2 & 4 w.r.t 3:

Maximum Rated Voltage = 32V
Maximum Rated Current = 300mA

Ratings are irrespective of Isolator and Base configuration (Analogue or Digital, O/P or I/P)