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 23.0003X**	Page 1 of 3	Certificate history:
Status:	**Current**	Issue No: 0	
Date of Issue:	2023-05-04		
Applicant:	**Eaton Electric Limited** Great Marlings Butterfield Luton Bedfordshire LU2 8DL **United Kingdom**		
Equipment:	**MTL4500 Series Galvanic Isolators**		
Optional accessory:			
Type of Protection:	**Increased safety “ec”, Type of protection "nC"**		
Marking:	**Ex ec IIC T4 Gc (-20ºC ≤ Ta ≤ +60ºC)** **Ex ec nC IIC T4 Gc (-20ºC ≤ Ta ≤ +60ºC) for MTL4514N only**		

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

Position: **Technical Manager**

Signature: (for printed version)

Date: (for printed version) 4/5/2023

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Certificate issued by:

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

IECEx Certificate of Conformity

Certificate No.: **IECEx BAS 23.0003X**

Date of issue: 2023-05-04

Issue No: 0

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

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

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 Report:

GB/BAS/ExTR23.0005/00

Quality Assessment Reports:

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

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

This certificate covers the following types:

MTL4573 & MTL4573Y Temperature Converter
MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers
MTL4545Y Isolating Driver, 4/20mA for Smart I/P Converters
MTL4541Y Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters
MTL4541YA Single Channel Current Repeater, 4/20mA Passive Input for Smart Transmitters
MTL4514N Switch / Proximity Detector Interface with Line Fault Detection Alarm

See Certificate Annex for a description of the types of equipment and electrical parameters

SPECIFIC CONDITIONS OF USE: YES as shown below:
1) The equipment must be installed in an area of not more than Pollution Degree 2 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) All connections to the equipment 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.

3) Any backplane used does not form part of this certificate and shall be separately certified for use in Zone 2.

4) The external backplane must be fitted with two retention clips type MTL 012-533 that allow the equipment to be ‘clipped’ to the backplane. The retention clips shall always be in place when the equipment is energised.

Annex:

IECEx BAS 23.0003X Annex.pdf

Schedule 1 – MTL4573 & MTL4573Y Temperature Converter

The MTL4573 & MTL4573Y Temperature Converters are designed to restrict the transfer of energy from unspecified non-hazardous area or Zone 2 mounted equipment to either thermocouples or resistance temperature detectors (RTD's) located in the hazardous area (Zones 0, 1 or 2) by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL4573 & MTL4573Y 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 either the non-hazardous area or Zone 2 hazardous area. An optional cold junction compensation (CJC) plug can be fitted to the hazardous area connection which alter 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 during installation and maintenance.

The MTL4573Y Temperature Converter differs from the MTL4573 with regards to the configuration of the non-hazardous area circuitry. In terms of Type 'ec' test and assessment, all are identical. This certificate covers the installation of the MTL4573 & MTL4573Y (IECEx BAS 14.0081) in a Zone 2 location. The MTL4573 & MTL4573Y variants are designed to be installed on a separately certified backplane.

Input / Output Parameters

Supply Circuit – Terminals 13 & 14

Supply Voltage Range = 20 – 35V d.c.

Thermocouple and 2-, 3- & 4-Wire RTD's Inputs

Terminals 1 to 6 (forming part of the same circuit)

Maximum output voltage = 6.6V

Terminals 1 & 3 (Without the Cold Junction Compensation (CJC) Plug fitted)

Maximum output voltage = 1.1V

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

Maximum Output Voltage = 6.6V

Or
The maximum values for the intrinsically safe circuits have to be taken from IECEx Certificate No. IECEx BAS 23.0015.

Signal Outputs – Terminals 8, 9 & 11

Nominal Output of 4-20mA into a maximum load of 600Ω.

Schedule 2 – MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers

The MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers are designed to control and monitor a device located in the hazardous area and restrict the transfer of energy from unspecified non-hazardous area or zone 2 mounted equipment to either a solenoid or alarm device in the hazardous area by the limitation of voltage and current. Opto-isolators and a transformer provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The equipment comprises 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 MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers are built on a common PCB with different components fitted to give certain output parameters and features. The MTL4521Y & MTL4521YL are loop-powered Solenoid / Alarm Drivers, with the only difference between the models being the current limitation fitted on the hazardous area connections. The MTL4523Y and MTL4523YL variants are similar but are bus powered and have additional Line Fault Detection (LFD) circuitry populated. All models have LED indication fitted dependent on the model indicating output status, Power on and LFD status where applicable.

This certificate covers the installation of the MTL4521Y, MTL4521YL, MTL4523Y & MTL4523YL Solenoid / Alarm Drivers (IECEx BAS 23.0012) in a Zone 2 location. The equipment is designed to be installed on a separately certified backplane.

Model Range

Model No.	
MTL4521Y	Loop Powered Solenoid / Alarm Driver
MTL4521YL	Loop Powered Solenoid / Alarm Driver
MTL4523Y	Solenoid / Alarm Driver with Line Fault Detection Alarm
MTL4523YL	Solenoid / Alarm Driver with Line Fault Detection Alarm

Input / Output Parameters

MTL4521Y & MTL4521YL Models Parameters

Loop Powered Control Input - Terminals 10 & 14

Supply Voltage Range = 20 – 35V d.c.

Isolator ID Input – Terminals 12 & 13

Maximum Input Voltage = 3V d.c.

Solenoid / Alarm Driver Output – Terminals 1, 2 & 3

Maximum Output Voltage = 25V d.c.

Or

The maximum values for the intrinsically safe circuits have to be taken from IECEx Certificate No. IECEx BAS 23.0012.

MTL4523Y & MTL4523YL Models Parameters

Power Supply Input - Terminals 13 & 14

Supply Voltage Range = 20 – 35V d.c.

Control Input – Terminals 10 & 11

Maximum Input Voltage = 28V d.c.

Isolator ID Input – Terminals 12 & 13

Maximum Input Voltage = 3V d.c.

Solenoid / Alarm Driver Output – Terminals 1, 2 & 3

Maximum Output Voltage = 25V d.c.

Or

The maximum values for the intrinsically safe circuits have to be taken from IECEx Certificate No. IECEx BAS 23.0012.

Schedule 3 – MTL4545Y Isolating Driver, 4/20mA for Smart I/P Converters

The MTL4545Y Isolating Driver, 4/20mA for Smart I/P Converters accepts a 4/20mA signal from a controller located in either the non-hazardous area or zone 2 to drive a load of up to 800Ω in the hazardous area. It permits bi-directional transmission of a digital signal to and from an operator station or hand-held communicator. The equipment restricts the transfer of energy from unspecified non-hazardous area or zone 2 mounted equipment to a 4/20mA current/pressure converter located in the hazardous area 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 signal transformers, zener diodes and current limiting resistors to provide voltage and current limitation. The above, together with 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. A LED is fitted to provide power on indication.

This certificate covers the installation of the MTL4545Y Isolating Driver, 4/20mA for Smart I/P Converters (IECEx BAS 23.0014) in a Zone 2 location. The equipment is designed to be installed on a separately certified backplane.

Input / Output Parameters

Power Supply Input - Terminals 13 & 14
Supply Voltage Range = 20 – 35V d.c.

Isolator ID Input – Terminals 12 & 13
Maximum Input Voltage = 3V d.c.

4/20mA Signal Input – Terminals 8 & 9
Maximum Input Voltage = 26.4V d.c
Maximum Input Current = 24mA

4/20mA Output – Terminals 1& 2

Maximum Output Voltage = 28V d.c
Maximum Output Current = 24mA

Or

The maximum values for the intrinsically safe circuits have to be taken from IECEx Certificate No. IECEx BAS 23.0014.

Schedule 4 – MTL4541Y Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters

The MTL4541Y Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters is designed to provide a floating d.c. supply for energising a conventional 2 or 3-Wire 4/20mA Transmitter in the hazardous area and repeat these currents in either the non-hazardous area or zone 2, whilst restricting the transfer of energy from unspecified non-hazardous area or zone 2 mounted equipment to the connected transmitter by means of limitation of current and voltage. The equipment also allows bi-directional signal communication between the hazardous and non-hazardous area by connection of a hand-held communicator (HHC).

The MTL4541Y Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters comprises two 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 plug and sockets are provided for hazardous and non-hazardous area connections. A LED is fitted to provide power on indication.

This certificate covers the installation of the MTL4541Y Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters (IECEx BAS 23.0013) in a Zone 2 location. The equipment is designed to be installed on a separately certified backplane.

Input / Output Parameters

Power Supply Input - Terminals 13 & 14
Supply Voltage Range = 20 – 35V d.c.

Isolator ID Input – Terminals 12 & 13
Maximum Input Voltage = 3V d.c.

4/20mA Signal Output – Terminals 8 & 9

Nominal Output of 4-20mA into a maximum load of 360Ω

Transmitter Inputs

Terminals 1 & 2

Maximum output voltage = 28V d.c.

Terminals 1 & 3

Maximum output voltage = 1.1V d.c.
Maximum input voltage = 30V d.c.

Terminals 2 & 3

Maximum output voltage = 28V d.c.

Or

The maximum values for the intrinsically safe circuits have to be taken from IECEx Certificate No. IECEx BAS 23.0013.

Schedule 5 – MTL4541YA Single Channel Current Repeater, 4/20mA Passive Input for Smart Transmitters

The MTL4541YA Single Channel Current Repeater, 4/20mA Passive Input for Smart Transmitters is designed to repeat a current signal from a separately powered 4/20mA transmitter located in the hazardous area to unspecified equipment located either the non-hazardous area or zone 2, whilst restricting the transfer of energy from unspecified non-hazardous area or zone 2 mounted equipment to the connected transmitter by means of limitation of current and voltage. The equipment also allows bi-directional signal communication between the hazardous and non-hazardous or zone 2 area by connection of a hand-held communicator (HHC).

The equipment comprises two isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, fuses, diodes, zener diodes 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 plug and sockets are provided for hazardous and non-hazardous area connections. The equipment is fitted with a power-on LED indication.

This certificate covers the installation of the MTL4541YA Single Channel Current Repeater, 4/20mA Passive Input for Smart Transmitters (IECEx BAS 23.0013) in a Zone 2 location. The equipment is designed to be installed on a separately certified backplane.

Input / Output Parameters

Power Supply Input - Terminals 13 & 14
Supply Voltage Range = 20 – 35V d.c.

Isolator ID Input – Terminals 12 & 13
Maximum Input Voltage = 3V d.c.

4/20mA Signal Output – Terminals 8 & 9

Nominal Output of 4-20mA into a maximum load of 360Ω

Transmitter Inputs

Terminals 1 & 2

Maximum output voltage = 8.6V d.c.

Or

The maximum values for the intrinsically safe circuits have to be taken from IECEx Certificate No. IECEx BAS 23.0013.

Schedule 6 – MTL4514N Switch / Proximity Detector Interface with Line Fault Detection Alarm

The MTL4514N Switch / Proximity Detector Interface with Line Fault Detection Alarm is designed to restrict the transfer of energy from unspecified equipment located in either the non-hazardous area or zone 2 hazardous area to either a separate zone 2 or intrinsically safe hazardous area 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 control a 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 interface has identification circuitry fitted on the non-hazardous area side of the circuit which allows it to be identified when fitted on specific backplanes.

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.

This certificate covers the installation of the MTL4514N Switch / Proximity Detector Interface with Line Fault Detection Alarm (IECEx BAS 23.0011) in a Zone 2 location. The equipment is designed to be installed on a separately certified backplane.

Input / Output Parameters

Power Supply Input - Terminals 13 & 14
Supply Voltage Range = 20 – 35V d.c.

Isolator ID Input – Terminals 12 & 13
Maximum Input Voltage = 3V d.c.

Relay & Line Fault Detection (LFD) Alarm Outputs – Terminals 8 & 9 and 10 & 11

Single pole relays with contacts can switch up to 35V, 2A and 100VA.

Detector / Switch Input – Terminal 1 w.r.t. 2 / 3

7 – 9V d.c.

or

The maximum values for the intrinsically safe circuits have to be taken from IECEx Certificate No. IECEx BAS 23.0011.