IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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Certificate No.: **IECEx TSA 20.0021**

Certificate history:

Status: **Current**

Issue No: 0

Date of Issue: 2020-10-26

Applicant: **Eaton Electrical (Australia) Pty Ltd**
10 Kent Road
Mascot, NSW, 2020
Australia

Equipment: **MTL45xx and MTL55xx range of barrier isolator devices**

Optional accessory:

Type of Protection: **Intrinsic Safety "ia"**

Marking: [Ex ia Ga] IIC
[Ex ia Ga] IIB (MTL5522 only)
[Ex ia Ma] I
[Ex ia Da] IIIC
-20°C ≤ Ta ≤ +60°C

Approved for issue on behalf of the IECEx Certification Body: **Ujen Singh**

Position: **Quality & Certification Manager**

Signature: (for printed version)

Date: 26 October 2020

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Certificate issued by:

TestSafe Australia
919 Londonderry Road
Londonderry NSW 2753
Australia

IECEx Certificate of Conformity

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

Additional 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 60079-0:2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0

IEC 60079-11:2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

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/ExTR07.0126/01
GB/BAS/ExTR07.0127/01
GB/BAS/ExTR07.0128/00
GB/BAS/ExTR07.0129/00
GB/BAS/ExTR07.0130/00
GB/BAS/ExTR07.0131/00
GB/BAS/ExTR07.0132/00
GB/BAS/ExTR08.0001/00
GB/BAS/ExTR08.0009/00
GB/BAS/ExTR08.0064/00
GB/BAS/ExTR08.0065/00
GB/BAS/ExTR08.0146/00
GB/BAS/ExTR08.0216/00
GB/BAS/ExTR08.0223/00
GB/BAS/ExTR09.0012/00
GB/BAS/ExTR09.0060/00
GB/BAS/ExTR09.0064/01
GB/BAS/ExTR09.0103/00
GB/BAS/ExTR09.0104/00
GB/BAS/ExTR09.0124/00
GB/BAS/ExTR09.0188/00
GB/BAS/ExTR09.0197/00
GB/BAS/ExTR09.0214/00
GB/BAS/ExTR10.0025/00
GB/BAS/ExTR10.0026/00
GB/BAS/ExTR10.0100/00
GB/BAS/ExTR10.0101/00
GB/BAS/ExTR10.0197/00
GB/BAS/ExTR10.0246/00
GB/BAS/ExTR10.0247/00
GB/BAS/ExTR10.0281/00
GB/BAS/ExTR10.0282/00
GB/BAS/ExTR10.0296/00
GB/BAS/ExTR10.0297/00
GB/BAS/ExTR10.0298/00
GB/BAS/ExTR11.0001/00
GB/BAS/ExTR11.0072/00
GB/BAS/ExTR11.0073/00
GB/BAS/ExTR11.0184/00
GB/BAS/ExTR11.0295/00
GB/BAS/ExTR11.0302/00
GB/BAS/ExTR12.0181/00
GB/BAS/ExTR13.0014/00
GB/BAS/ExTR13.0022/00
GB/BAS/ExTR13.0271/00
GB/BAS/ExTR14.0019/00
GB/BAS/ExTR14.0043/00
GB/BAS/ExTR14.0065/00
GB/BAS/ExTR14.0133/00
GB/BAS/ExTR14.0163/00
GB/BAS/ExTR14.0323/00
GB/BAS/ExTR15.0300/00
GB/BAS/ExTR16.0237/00
GB/BAS/ExTR16.0238/00
GB/BAS/ExTR16.0350/00
GB/BAS/ExTR17.0025/00
GB/BAS/ExTR17.0080/00
GB/BAS/ExTR18.0016/00

Quality Assessment Reports:

GB/BAS/QAR06.0022/08
GB/BAS/QAR07.0017/08

IECEx Certificate of Conformity

Certificate No.: **IECEx TSA 20.0021** Page 3 of 3

Date of issue: 2020-10-26 Issue No: 0

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

The MTL45 xx and MTL55xx range of Barrier Isolator Interfaces are designed to restrict the transfer of energy from the unspecified non-hazardous area apparatus to intrinsically safe circuits by limitation of voltage and current. Isolating transformer(s), opto-coupler(s) and relay(s), where applicable provide galvanic isolation between the hazardous and non-hazardous area circuitry. Electronic components are mounted on a single printed circuit board (PCB) and housed in moulded plastic enclosure.

All Models are suitable for Groups I, IIA, IIB, IIC & IIIC with the exception of MTL5522 which is ONLY suitable for I, IIA, IIB, IIIC.

Refer to Annexe of this certificate for the description of each model and safety parameters.

SPECIFIC CONDITIONS OF USE: NO

Annex:

Annexe for IECEx TSA 20.0021-0.pdf

Equipment description continue:

The MTL5510 Switch / Proximity Detector Interface is designed to restrict the transfer of energy from the unspecified non-hazardous area apparatus to four intrinsically safe circuits by limitation of voltage and current. An isolating transformer and an opto-coupler provide galvanic isolation between the hazardous and non-hazardous area circuitry. Each channel of the MTL5510 monitors either a detector or a switch in the hazardous area and controls a non- hazardous area load via a solid state output.

The apparatus comprises an isolating transformer, an opto-coupler, 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) and housed in moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non- hazardous area connections. LED indication is provided to indicate power-on, the status of each output and Line Fault Detection (LFD).

The MTL5510B Multifunction Digital Input Interface has the same hazardous area circuitry and parameters as the MTL5510 but has a different configuration via the removal of a link in the non-hazardous area circuitry.

The MTL5513 Switch / Proximity Detector Interface is a depopulated version of the MTL5510, using the same PCB and enclosure having only two channels populated.

The MTL5511 / MTL5514 / MTL5516C / MTL5517 Switch / Proximity Detector Interface are designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to up to two intrinsically safe circuits by limitation of voltage and current. A transformer and relays provide galvanic isolation between the hazardous and non- hazardous area circuitry.

Each channel of the interface monitors either a detector or switch located in the hazardous area and controls non- hazardous area loads via relays. Some models of the interface are fitted with independent phase reverse controls and Line Fault Detection (LFD) circuitry allow an alarm condition to be signalled for either state, set by switches on the side of the interface.

The apparatus comprises an isolating transformer, relays, zener diodes and current limiting resistors to provide voltage and current limitation on each channel. These, together with other electronic components are mounted on a single printed circuit board and housed in a plastic enclosure. Polarised plugs and sockets are provided for connection to the hazardous and non-hazardous area. LED indication is provided to indicate Power-on, state of the outputs and LFD status.

The above listed models are all built on a common printed circuit board. The differences between the models relate to the configuration of relays and non-hazardous area connections.

The MTL5521, 5522, 5523, 5523V, 5523VL, 5524 and 5525 Series Solenoid / Alarm Drivers are designed to control and monitor a device located in the hazardous area and restrict the transfer of energy from unspecified apparatus in the non-hazardous area to an intrinsically safe circuit in the hazardous area by the limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus 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.

All models are built on a common PCB and are configured have certain features such as Line Fault Detection(LFD) and Phase Reversal facilities. There are also models in the range that are loop powered or have low current hazardous area outputs. All models have LED indication dependent on the model configuration.

The MTL 5522 does NOT comply with IIC requirements.

The MTL5544 Two Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters is designed to provide a floating d.c. supply for energising two conventional 2 or 3-Wire 4/20mA transmitters or a 'smart' transmitter in the hazardous area and repeat these currents in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non- hazardous area apparatus to the intrinsically safe circuits by the means of limitation of current and voltage. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by the connection of a hand-held communicator (HHC).

The MTL5544 Two Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters comprises four 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 the hazardous and non-hazardous area connections. All models are fitted with a power indication LED.

The MTL5541 Single Channel Repeater Power Supply, 4/20mA for 2 or 3-Wire Transmitters is a depopulated version of the MTL5544 and has only one channel populated.

The MTL5546 / MTL5546Y Single Channel Isolating Driver, 4/20mA for Smart I/P Converters accepts a 4/20mA signal from a controller located in the non-hazardous area to drive a load in the hazardous area. It permits bi-directional transmission of digital signals to and from an operator station or hand-held communicator. The apparatus restricts the transfer of energy from unspecified non-hazardous area apparatus to an intrinsically safe circuit by limitation of voltage and current. Three transformers provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises a power transformer, two current transformers, zener diodes and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. The MTL5546 & MTL5546Y models in terms of intrinsic safety are identical. The difference between them is the MTL5546Y has the Line Fault Detection(LFD) facility disabled.

The MTL5549 & MTL5549Y 2 Channel Isolating Driver, 4/20mA for Smart I/P Converters accepts up to two separate 4/20mA signals from controllers located in the non-hazardous to drive loads in the hazardous area. It permits bi-directional transmission of digital signals to and from an operator station or hand-held communicator. The apparatus restricts the transfer of energy from unspecified non-hazardous area apparatus to intrinsically safe circuits by limitation of voltage and current. Three transformers on each channel provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the apparatus comprise a power transformer, two current transformers, zener diodes and current limiting resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL5549 & MTL5549Y models in terms of intrinsic safety are identical. The difference between them is the MTL5549Y has the Line Fault Detection (LFD) facility disabled.

The MTL5575 Temperature converter is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to either thermocouples or RTD's located in the hazardous area by limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5575 Temperature converter is 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 the non-hazardous area. An optional cold junction compensation plug can be fitted to the hazardous area connections, which alters the internal connections and affects the output parameters.

The apparatus 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. A jack socket is provided for the connection of a suitably certified data terminal for programming the apparatus.

The MTL4526 Two Channel Switch-operated Relay Output is designed to enable two separate intrinsically safe circuits to be switched via relay contacts by on/off switches or logic signals from unspecified apparatus in the non-hazardous area. Configuration switches on the apparatus allow the two relay output channels to be alternatively controlled by one input. Each non-hazardous area input can also be loop powered. Two relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the apparatus comprises a relay, a zener diode and fuse to provide voltage and current limitation to the relay. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided for the status of each output channel and power-on.

The MTL5526 Two Channel Switch-operated Relay Output is designed to enable two separate intrinsically safe circuits to be switched via relay contacts by on/off switches or logic signals from unspecified apparatus in the non-hazardous area. Configuration switches on the apparatus allow the two relay output channels to be alternatively controlled by one input. Each non-hazardous area input can also be loop powered. Two relays provide galvanic isolation between the hazardous and non-hazardous area circuitry.

Each channel of the apparatus comprises a relay, a zener diode and fuse to provide voltage and current limitation to the relay. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided for the status of each output channel and power-on.

The MTL4501-SR Failsafe Switch / Proximity Detector Interface is designed to provide an interface between unspecified non-hazardous area apparatus and an intrinsically safe circuit in the hazardous area. The apparatus is intended to provide a galvanically isolated fail-safe safe-area output whilst monitoring a fail-safe proximity switch detector located in the hazardous area. Line Fault Detection (LFD) in the apparatus is provided by volt-free relay contact output on the nonhazardous area side of the apparatus. Two transformers and a relay provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises two isolating transformers, a relay, fuses, zener diodes and resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided for power-on, the output status and line fault detection.

The MTL5501-SR Failsafe Switch / Proximity Detector Interface is designed to provide an interface between unspecified non-hazardous area apparatus and intrinsically safe circuit in the hazardous area. The apparatus is intended to provide a galvanically isolated fail-safe safe-area output whilst monitoring a fail-safe proximity switch detector located in the hazardous area. Line Fault Detection (LFD) in the apparatus is provided by volt-free relay contact output on the nonhazardous area side of the apparatus. Two transformers and a relay provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises two isolating transformers, a relay, fuses, zener diodes and resistors to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is provided for power-on, the output status and line fault detection.

The MTL4544A Two Channel Current Repeater is designed to repeat up to two 4-20mA current signals from separately powered 4/20mA transmitters located in the hazardous area to unspecified apparatus in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by the means of limitation of current and voltage. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by connection of a hand-held communicator (HHC).

The MTL4544A Current Repeater comprises four isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, fuses, Zener diodes and resistors providing voltage and current limitation on each channel. 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 apparatus is fitted with a Power-on LED indication.

The MTL4541A Single Channel Current Repeater is a depopulated version of the MTL4544A and has only one channel populated.

Minor changes to the non-hazardous are circuitry of both models of the apparatus form **the MTL4541AS Single Channel and MTL4544AS Two Channel Current Repeater.** These models use the same common PCB and enclosure and in terms of intrinsic safety are identical.

The MTL5544A Two Channel Current Repeater is designed to repeat up to two 4-20mA current signals from separately powered 4/20mA transmitters located in the hazardous area to unspecified apparatus in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by the means of limitation of current and voltage. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by connection of a hand-held communicator (HHC).

The MTL5544A Current Repeater comprises four isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, fuses, zener diodes and resistors providing voltage and current limitation on each channel. 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 apparatus is fitted with a Power-on LED indication.

The MTL5541A Single Channel Current Repeater is a depopulated version of the MTL5544A and has only one channel populated.

Minor changes to the non-hazardous are circuitry of both models of the apparatus form the **MTL5541AS Single Channel and MTL5544AS Two Channel Current Repeater**. These models use the same common PCB and enclosure and in terms of intrinsic safety are identical.

The MTL4561 Two Channel Fire / Smoke Detector Interface is designed to provide two separate loop-powered interface channels for the connection of fire and smoke detectors located in the hazardous area to unspecified apparatus in the non-hazardous area whilst restricting the transfer of energy from unspecified non-hazardous area apparatus to the intrinsically safe circuits by limitation of voltage and current.

The MTL4561 Two Channel Fire / Smoke Detector Interface comprises two isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, fuses, zener diodes and resistors providing voltage and current limitation on each channel. The above, together with other electronic components are mounted on a single printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL5561 Two Channel Fire / Smoke Detector Interface is designed to provide two separate loop-powered interface channels for the connection of fire and smoke detectors located in the hazardous area to unspecified apparatus in the non-hazardous area whilst restricting the transfer of energy from unspecified non-hazardous area apparatus to the intrinsically safe circuits by limitation of voltage and current.

The MTL5561 Two Channel Fire / Smoke Detector Interface comprises two isolating transformers that provide galvanic isolation between the hazardous and non-hazardous area circuitry, fuses, zener diodes and resistors providing voltage and current limitation on each channel. The above, together with other electronic components are mounted on a single printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL4533 Two Channel Vibration Transducer Interface is designed to restrict the transfer of energy from unspecified apparatus in the non-hazardous area to up to two intrinsically safe vibration transducers by limitation of voltage and current. Two transformers and two optoisolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The apparatus comprises two isolating transformer, two opto-isolators and detection circuits with zener diode and resistor combinations to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL4531 Single Channel Vibration Transducer Interface is a depopulated version of the MTL4533 with only one channel populated.

The MTL5533 Two Channel Vibration Transducer Interface is designed to restrict the transfer of energy from unspecified apparatus in the non-hazardous area to up to two intrinsically safe vibration transducers by limitation of voltage and current. Two transformers and two optoisolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.
The apparatus comprises two isolating transformer, two opto-isolators and detection circuits with zener diode and resistor combinations to provide voltage and current limitation. The above, together with other electronic components are mounted on a printed circuit board and housed in a moulded plastic enclosure. Polarised plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL5531 Single Channel Vibration Transducer Interface is a depopulated version of the MTL5533 with only one channel populated.

The MTL4576 Two Channel Temperature Converter is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to either up to two thermocouples or RTD's located in the hazardous area by limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL4576 Two Channel Temperature Converter is designed for connection of 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 the non-hazardous area.

The apparatus comprises an isolating transformer, opto-isolators, duplicated zener diodes 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 apparatus.

The MTL5576 Two Channel Temperature Converter is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to either up to two thermocouples or RTD’s located in the hazardous area by limitation of voltage and current. A transformer and opto-isolators provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5576 Two Channel Temperature Converter is designed for connection of 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 the non-hazardous area.

The apparatus comprises an isolating transformer, opto-isolators, duplicated zener diodes 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 apparatus.

The MTL4544S Two Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters is designed to provides floating d.c. supplies for energising two 'Smart' 4/20mA Transmitters located in the hazardous area and repeat these currents in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by means of limitation of current and voltage. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by the connection of a hand-held communicator (HHC).

The MTL4544S Two Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters comprises four 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 plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is fitted to indicate power-on.

The MTL4541S Single Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters is a depopulated version of the MTL4544S and has only one channel populated.

The MTL4544D Repeater Power Supply, 4/20mA for 2 or 3 Wire Transmitters with two outputs is designed to provide a floating d.c. supplies for energising a 2 or 3-Wire 4/20mA Transmitter located in the hazardous area and repeat the current on two channels in the nonhazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by means of limitation of current and voltage. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by the connection of a hand-held communicator (HHC). The apparatus uses the same printed circuit board and enclosure as the MTL4544S but is populated with only one hazardous area transmitter connection and two non-hazardous area outputs fitted.

The MTL5544S Two Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters is designed to provide floating d.c. supplies for energising two 'Smart' 4/20mA Transmitters located in the hazardous area and repeat these currents in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by means of limitation of current and voltage. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by the connection of a hand-held communicator (HHC).

The MTL5544S Two Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters comprises four 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 plugs and sockets are provided for hazardous and non-hazardous area connections. LED indication is fitted to indicate power-on.

The MTL5541S Single Channel Repeater Power Supply, 4/20mA for 'Smart' Transmitters is a depopulated version of the MTL5544S and has only one channel populated.

The MTL5544D Repeater Power Supply, 4/20mA for 2 or 3 Wire Transmitters with two outputs is designed to provide a floating d.c. supplies for energising a 2 or 3-Wire 4/20mA Transmitter located in the hazardous area and repeat the current on two channels in the non-hazardous area, whilst restricting the transfer of energy from the unspecified non-hazardous area apparatus to the intrinsically safe circuits by means of limitation of current and voltage. The apparatus also allows bi-directional signal communication between the hazardous and non-hazardous area by the connection of a hand-held communicator (HHC). The apparatus uses the same printed circuit board and enclosure as the MTL5544S but is populated with only one hazardous area transmitter connection and two non-hazardous area outputs fitted.

The MTL4532 Pulse Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to a switch, proximity detector, current pulse transmitter or voltage pulse transmitter located in the hazardous area by limitation of voltage and current. Transformers, an opto-isolator and a relay provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL4532 Pulse Isolator is designed for connection of a switch, proximity detector, current pulse transmitter or voltage pulse transmitter situated in the hazardous area. The apparatus repeats the pulse signals from the apparatus in the hazardous area onto outputs in the non-hazardous area. An alarm circuit provides a relay contact output in the non-hazardous area to indicate a failure.

The apparatus comprises isolating transformers, an opto-isolator, a relay, duplicated zener diodes 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 apparatus.

The MTL5532 Pulse Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to a switch, proximity detector, current pulse transmitter or voltage pulse transmitter located in the hazardous area by limitation of voltage and current. Transformers, an opto-isolator and a relay provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5532 Pulse Isolator is designed for connection of a switch, proximity detector, current pulse transmitter or voltage pulse transmitter situated in the hazardous area. The apparatus repeats the pulse signals from the apparatus in the hazardous area onto outputs in the non-hazardous area. An alarm circuit provides a relay contact output in the non-hazardous area to indicate a failure.

The apparatus comprises isolating transformers, an opto-isolator, a relay, duplicated zener diodes 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 apparatus.

The MTL5582 Resistance Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a Resistance Temperature Device (RTD) or other resistance located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5582 Resistance Isolator is designed for connection to a 2-wire, 3-wire or 4-wire RTD or other resistance situated in the hazardous area. The equipment repeats the resistance on the non-hazardous area output terminals for connection to a monitoring system.

Certificate issued by:

TestSafe Australia
919 Londonderry Road
Londonderry NSW 2753 Australia

The equipment comprises an isolating transformer, opto-isolator, duplicated zener diodes and current limiting resistors to provide 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 plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for connection of a suitably certified data terminal for programming the equipment.

The MTL4581 Millivolt / Thermocouple Isolator are designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a low-level d.c. signal from a voltage source or thermocouple located in the hazardous area by limitation of voltage and current. Two transformers provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL4581 Millivolt / Thermocouple Isolator are designed for connection to a low level d.c. signal from a voltage source of thermocouple situated in the hazardous area. The equipment isolates and passes the signal to the receiving equipment located in the non-hazardous area.

The equipment comprises two isolating transformers, duplicated zener diodes and current limiting resistors to provide 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 plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL5581 Millivolt / Thermocouple Isolator are designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a low-level d.c. signal from a voltage source or thermocouple located in the hazardous area by limitation of voltage and current. Two transformers provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5581 Millivolt / Thermocouple Isolator are designed for connection to a low level d.c. signal from a voltage source of thermocouple situated in the hazardous area. The equipment isolates and passes the signal to the receiving equipment located in the non-hazardous area.

The equipment comprises two isolating transformers, duplicated zener diodes and current limiting resistors to provide 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 plugs and sockets are provided for hazardous and non-hazardous area connections.

The MTL4514D Single Channel Switch / Proximity Detector Interface with Dual Output, Line Fault Detection & Phase Reversal is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to an intrinsically safe 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 controls two 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 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.

The MTL5514D Single Channel Switch / Proximity Detector Interface with Dual Output, Line Fault Detection & Phase Reversal is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to an intrinsically safe 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 controls two 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 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.

The MTL4573 & MTL4573Y Temperature Converters are designed to restrict the transfer of energy from unspecified non-hazardous area equipment to either thermocouples or RTD's located in the hazardous area by limitation of voltage and current. A transformer and optoisolator 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 the non-hazardous area. An optional cold junction compensation (CJC) plug can be fitted to the hazardous area connections which alters 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.

The MTL4573Y Temperature Converter differs from the MTL4573 with regard to the configuration of the non-hazardous area circuitry. In terms of intrinsic safety, both are identical.

The MTL5573 Temperature Converter is designed to restrict the transfer of energy from unspecified non-hazardous area apparatus to either thermocouples or RTD's located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5573 Temperature Converter is 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 the non-hazardous area. An optional

cold junction compensation (CJC) plug can be fitted to the hazardous area connections which alters the internal connections and affects the output parameters.

The equipment comprise 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.

The MTL4582B Resistance Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a Resistance Temperature Device (RTD) or other resistance located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL4582B Resistance Isolator is designed for the connection to a 2-wire, 3-wire or 4-wire RTD or other resistance situated in the hazardous area. The equipment repeats the resistance on the non-hazardous area output terminals for connection to a monitoring system.

The equipment comprises an isolating transformer, opto-isolator, duplicated zener diodes and current limiting resistors to provide 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 plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for connection of a suitably certified data terminal for programming the equipment. An LED is fitted to provide power on indication.

The MTL5582B Resistance Isolator is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to a Resistance Temperature Device (RTD) or other resistance located in the hazardous area by limitation of voltage and current. A transformer and opto-isolator provide galvanic isolation between the hazardous and non-hazardous area circuitry.

The MTL5582B Resistance Isolator is designed for the connection to a 2-wire, 3-wire or 4-wire RTD or other resistance situated in the hazardous area. The equipment repeats the resistance on the non-hazardous area output terminals for connection to a monitoring system.

The equipment comprises an isolating transformer, opto-isolator, duplicated zener diodes and current limiting resistors to provide 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 plugs and sockets are provided for hazardous and non-hazardous area connections. A jack socket is provided for connection of a suitably certified data terminal for programming the equipment. An LED is fitted to provide power on indication.

Electrical Ratings/Parameters

The parameters listed in the following tables must be taken into account in any installation.

Non-hazardous Area terminals

Model	Terminals	U_m	Notes
MTL5510 **MTL5510B** **MTL5513**	7 to 14	253 V	The circuit connected to non-hazardous area terminals 7 to 14 are designed to operate from a d.c. supply voltage of 35V d.c.
MTL5511 **MTL5514** **MTL5516C** **MTL5517**	7 to 14	253 V	The circuit connected to non-hazardous area terminals 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V. Non-hazardous area terminals 7 to 12 are connected to relay contacts which can switch up to 253V r.m.s, 2A r.m.s. and 100VA.
MTL5521 **MTL5522** **MTL5523** **MTL5523V** **MTL5523VL** **MTL5524** **MTL5525**	7 to 14	253 V	The apparatus is designed to operate on the above terminals from a d.c. supply voltage of up to 35V.
MTL5541	10 to 14	253 V	The apparatus is designed to operate on the above terminals from a d.c. supply voltage of up to 35V.
MTL5544	7 to 14	253 V	The apparatus is designed to operate on the above terminals from a d.c. supply voltage of up to 35V.
MTL5546 **MTL5546Y**	11 to 14	253 V	The circuit connected to non-hazardous area terminals 11 to 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL5549 **MTL5549Y**	8, 9, 11, 12, 13 &14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL5575	8, 9, 11, 12, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL4526 **MTL5526**	8, 9, 10, 11, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 10, 11, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL4501-SR **MTL5501-SR**	7, 8, 10, 11, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V. The non-hazardous area terminals 10 & 11 are connected to relay contacts which can switch up to 253V r.m.s, 2A r.m.s. and 100VA.
MTL4541A **MTL4541AS** **MTL4544A** **MTL4544AS** **MTL5541A** **MTL5541AS** **MTL5544A** **MTL5544AS**	8, 9, 11, 12, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.

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Model	Terminals	U_m	Notes
MTL4561 **MTL5561**	8, 9, 11 & 12	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11 & 12 is designed to operate from a d.c. supply voltage of up to 35V.
MTL4531 **MTL4533** **MTL5531** **MTL5533**	7, 8, 11, 12, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 7, 8, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL4576 **MTL5576**	8, 9, 11, 12, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL4541S **MTL4544S** **MTL4544D** **MTL5541S** **MTL5544S** **MTL5544D**	8, 9, 11, 12, 13 & 14	253 V	The apparatus is designed to operate on non-hazardous area terminals 8, 9, 11, 12, 13 & 14 from a d.c. supply voltage of up to 35V.
MTL4532 **MTL5532**	7 to 14	253 V	The circuit connected to non-hazardous area terminals 7, 8, 9, 10, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V. Non-hazardous area terminals 11 & 12 are connected to relay contacts which can switch up to 250V r.m.s. or 5A r.m.s. or 100VA.
MTL5582	9 to 14	253 V	The circuit connected to non-hazardous area terminals 9 to 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL4581	8, 9, 11, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11, 13 & 14 are designed to operate from a d.c. supply voltage of up to 35V.
MTL5581	11, 12, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 11, 12, 13 & 14 are designed to operate from a d.c. supply voltage of up to 35V.
MTL4514D	7 to 14	253 V	The circuit connected to non-hazardous area terminals pins 13 & 14 are designed to operate from a d.c. supply voltage of up to 35V d.c. Non-hazardous area terminals pins 7, 8, 10 & 11 are connected to relay contacts which can switch up to 253V r.m.s, 2A r.m.s and 100VA.
MTL5514D	7 to 14	253 V	The circuit connected to non-hazardous area terminals pins 13 & 14 are designed to operate from a d.c. supply voltage of up to 35V d.c. Non-hazardous area terminals pins 7 to 12 are connected to relay contacts which can switch up to 253V r.m.s, 2A r.m.s and 100VA.
MTL4573 **MTL4573Y**	8, 9, 11, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL5573	11 to 14	253 V	The circuit connected to non-hazardous area terminals 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL4582B	8, 9, 11, 12, 13 & 14	253 V	The circuit connected to non-hazardous area terminals 8, 9, 11, 12, 13 & 14 is designed to operate from a d.c. supply voltage of up to 35V.
MTL5582B	9 to 14	253 V	The circuit connected to non-hazardous area terminals 9 to 14 is designed to operate from a d.c. supply voltage of up to 35V.

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Hazardous Area terminals

Input parameters:

INPUT PARAMETERS (Hazardous Area)				
Model	**Terminals**	**U_i**	**I_i**	**Notes**
MTL5541 **MTL5544**	3 w.r.t 1	30 V	121 mA	When an intrinsically safe source is connected to these terminals it should have a source resistance of Ui / Ii and 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 2 and 5 must not be used when the source is connected to these terminals. *MTL5544 model only
	6 w.r.t 4*	30 V	121 mA	
MTL5575	Jack Socket	9.1 V		Programming/ Configuration Port
MTL4526 **MTL5526**	1 to 3	30 V		The hazardous area side of the circuit of each channel contains only the contact circuit of each relay and no capacitive / inductive components.
	4 to 6	30 V		
MTL4531 **MTL5531** **MTL4533** **MTL5533**	3 w.r.t 2	28 V		
	6 w.r.t 5*	28V		*MTL4533 & MTL5533 models only
MTL4576 **MTL5576**	3 w.r.t 1	5 V		
	6 w.r.t 4	5 V		
	Jack Socket	9.1 V		Programming / Configuration Port
MTL4541S **MTL4544S** **MTL4544D** **MTL5541S** **MTL5544S** **MTL5544D**	3 w.r.t 1	30 V	121 mA	When an external intrinsically safe source is connected to these terminals it should have a source resistance of Ui / Ii and 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. * MTL4544S & MTL5544S models only
	6 w.r.t 4*	30 V	121 mA	
MTL4532 **MTL5532**	3 w.r.t 1	30 V	100 mA	When an external intrinsically safe source is connected to these terminals it should have a source resistance of Ui / Ii and 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.
	Jack Socket	9.1 V		
MTL5582	3 w.r.t. 1	5 V		
	Jack Socket	9.1 V		
MTL4581 **MTL5581**	1 & 2	28 V	120 mA	When an external intrinsically safe source is connected to these terminals it should have a source resistance of Ui / Ii and 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.

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INPUT PARAMETERS (Hazardous Area)				
Model	**Terminals**	**U_i**	**I_i**	**Notes**
MTL4573 **MTL4573Y** **MTL5573**	Jack Socket	9.1 V		Programming / Configuration Port
MTL4582B **MTL5582B**	3 w.r.t. 1	5 V		
	Jack Socket	9.1 V		

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Hazardous Area terminals

Output parameters:

Model	Terminals	Uo (V)	Io (mA)	Po (mW)	Ci (µF)	Li (mH)	Notes
MTL5510 MTL5510B	1 w.r.t. 2	10.5V	14mA	37mW	negligible	negligible	each channel must be considered as a separate intrinsically safe circuit
	3 w.r.t. 2	10.5V	14mA	37mW	negligible	negligible	
	4 w.r.t. 5	10.5V	14mA	37mW	negligible	negligible	
	6 w.r.t. 5	10.5V	14mA	37mW	negligible	negligible	
MTL5513	1 w.r.t. 2	10.5V	14mA	37mW	negligible	negligible	each channel must be considered as a separate intrinsically safe circuit
	3 w.r.t. 2	10.5V	14mA	37mW	negligible	negligible	
MTL5511 MTL5514	1 w.r.t. 2/3	10.5 V	14 mA	37mW	negligible	negligible	each channel must be considered as a separate intrinsically safe circuit
MTL5516C MTL5517	1 w.r.t. 2/3	10.5 V	14 mA	37mW	negligible	negligible	each channel must be considered as a separate intrinsically safe circuit
	4 w.r.t. 5/6	10.5 V	14 mA	37mW	negligible	negligible	
MTL5521 MTL5523 MTL5523V MTL5524	2/3 w.r.t. 1	25 V	147 mA	0.92 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
MTL5522	2/3 w.r.t. 1	25 V	166 mA	1.04 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
MTL5523VL	2/3 w.r.t. 1	25 V	108 mA	0.68 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
MTL5525	2/3 w.r.t. 1	25 V	83.3 mA	0.52 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
MTL5541	2 w.r.t. 1	28 V	93 mA	0.65 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
	2 w.r.t. 3	28 V	87 mA	0.61 W	negligible	negligible	
	3 w.r.t. 1	1.1 V	53 mA	15 mW	negligible	negligible	

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Model	Terminals	Uo (V)	Io (mA)	Po (mW)	Ci (µF)	Li (mH)	Notes
MTL5544	2 w.r.t. 1	28 V	93 mA	0.65 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
	2 w.r.t. 3	28 V	87 mA	0.61 W	negligible	negligible	
	3 w.r.t. 1	1.1 V	53 mA	15 mW	negligible	negligible	
	5 w.r.t. 4	28 V	93 mA	0.65 W	negligible	negligible	
	5 w.r.t. 6	28 V	87 mA	0.61 W	negligible	negligible	
	6 w.r.t. 4	1.1 V	53 mA	15 mW	negligible	negligible	
MTL5546 **MTL5546Y**	2 w.r.t. 1	28 V	93 mA	0.65 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
MTL5549 **MTL5549Y**	2 w.r.t. 1	28 V	93 mA	0.65 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
	5 w.r.t. 4	28 V	93 mA	0.65 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit
MTL5575	1 to 6	6.6 V	76 mA	0.13 W	negligible	negligible	forming part of the same intrinsically safe circuit
	3 w.r.t. 1	1.1 V	7 mA	2 mW	negligible	negligible	WITHOUT the Cold Junction Compensation (CJC) plug fitted
	3, 2 & 1	6.6 V	10 mA	17 mW	negligible	negligible	with or without CJC plug fitted
	Jack Socket	8 V	14.6 mA	26 mW	negligible	negligible	Programming/Configuration Port
MTL4526 **MTL5526**	1 to 3	0 V	0 mA	0 mW	negligible	negligible	
	4 to 6	0 V	0 mA	0 mW	negligible	negligible	
MTL4501-SR **MTL5501-SR**	1 & 2	±9.7 V	30 mA	70 mW	negligible	negligible	

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Model	Terminals	Uo (V)	Io (mA)	Po (mW)	Ci (µF)	Li (mH)	Notes
MTL4541A **MTL4541AS**	2 w.r.t. 1	8.6 V (Diode)	0	0	negligible	negligible	This output voltage does not contribute to the short circuit spark risk, but must be considered for the calculation of load capacitance. Each channel must be considered as a separate intrinsically safe circuit. Each hazardous area channel is also considered suitable for the connection of an external intrinsically safe source with a U_o = 30V and I_o = 100mA having a source resistance of U_o/I_o to be connected to hazardous area terminals 2 w.r.t. 1 - Channel 1 and 5 w.r.t. 4 – Channel 2. The capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area cable must not exceed the values as detailed in the original schedule or the certificate relating to the external intrinsically safe source. The connection of channel 1 and 2 together is also considered suitable for the connection of an external intrinsically safe source with a U_o = 30V and I_o = 100mA having a source resistance of Uo/Io to be connected to hazardous area terminals 5 w.r.t. 1. *MTL4544A, 4544AS, 5544A, 5544AS models only
MTL4544A **MTL4544AS**	5 w.r.t. 4*	8.6 V (Diode)	0	0	negligible	negligible	
MTL5541A **MTL5541AS** **MTL5544A** **MTL5544AS**	5 w.r.t. 1*	17.2 V (Diode)	0	0	negligible	negligible	
MTL4561 **MTL5561**	2 & 3 w.r.t. 1	28 V	93 mA	0.65 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit.
	5 & 6 w.r.t. 4	28 V	93 mA	0.65 W	negligible	negligible	
MTL4531	3 w.r.t. 1	26.6 V	94 mA	0.66 W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit. *MTL4533, 5533 models only
MTL4533	6 w.r.t. 4*	26.6 V	94 mA	0.66 W	negligible	negligible	
MTL5531	3 w.r.t. 2	1.1 V	0.11 mA	0.03 mW	negligible	negligible	
MTL5533	6 w.r.t. 5*	1.1 V	0.11 mA	0.03 mW	negligible	negligible	

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Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Model	Terminals	Uo (V)	Io (mA)	Po (mW)	Ci (µF)	Li (mH)	Notes
MTL4576 **MTL5576**	1,2,3 & 4	6.6 V	42mA	69.3mW	negligible	negligible	forming part of the same intrinsically safe circuit Each channel must be considered as a separate intrinsically safe circuit.
	1, 2 & 3	6.6 V	28mA	46.2mW	negligible	negligible	
	4, 5 & 6	6.6 V	28mA	46.2mW	negligible	negligible	
	3 w.r.t. 1	1.2 V	4 mA	1.2 mW	negligible	negligible	
	6 w.r.t. 4	1.2 V	4 mA	1.2 mW	negligible	negligible	
	Jack Socket	6.68 V	12 mA	17.7 mW	negligible	negligible	
MTL4541S **MTL4544S** **MTL4544D** **MTL5541S** **MTL5544S** **MTL5544D**	2 w.r.t 1	28 V	93 mA	0.65W	negligible	negligible	Each channel must be considered as a separate intrinsically safe circuit. Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of IEC 60079-11: 2011, when terminals 3 w.r.t. 1 or terminals 6 w.r.t 4 (MTL4544S / 5544S model only) are connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of IEC 60079-11: 2011 to the parameters of the circuit into which it is connected. When an external intrinsically safe source is connected to these terminals it should have a source resistance of Ui / Ii and 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 2 and 5 must not be used when the source is connected. *MTL4544S, 5544S models only
	5 w.r.t 4*	28 V	93 mA	0.65W	negligible	negligible	
	3 w.r.t 1	1.1 V	53 mA	15 mW	negligible	negligible	
	6 w.r.t 4*	1.1 V	53 mA	15 mW	negligible	negligible	
	2 w.r.t 3	28 V	87 mA	0.61 W	negligible	negligible	
	5 w.r.t. 6*	28 V	87 mA	0.61 W	negligible	negligible	

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Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Model	Terminals	Uo (V)	Io (mA)	Po (mW)	Ci (µF)	Li (mH)	Notes
MTL4532 **MTL5532**	2 w.r.t 1, 6 w.r.t 1 or 6 w.r.t 3	10.5 V	14 mA	37 mW	negligible	negligible	Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of IEC 60079-11: 2011, when terminals 3 w.r.t. 1 are connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of IEC 60079-11: 2011 to the parameters of the circuit into which it is connected. When an external intrinsically safe source is connected to these terminals it should have a source resistance of Ui / Ii and 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 2, 4, 5 and 6 must not be used when the source is connected.
	3 w.r.t 1	1.1 V	53 mW	15 mW	negligible	negligible	
	5 w.r.t. 1	10.5 V	1.1 mA	2.9 mW	negligible	negligible	
	4 w.r.t. 3	28 V	93 mA	0.65 W	negligible	negligible	
	4 & 3 w.r.t 1	28 V	93 mA at 28V 146 mA at 2.9 V	0.65 W	negligible	negligible	
	5 & 4 w.r.t 1	28 V	93 mA at 28 V 94 mA at 27.5 V	0.65 W	negligible	negligible	
	Jack Socket	8 V	15 mA	27 mW	negligible	negligible	
MTL5582	1, 3, 4 & 5	6.6 V	42 mA	69.3 mW	negligible	negligible	Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of IEC 60079-11: 2011, when terminals 3 w.r.t. 1 are connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of IEC 60079-11: 2011 to the parameters of the circuit into which it is connected.
	1,3 & 4	6.6 V	28 mA	46.2 mW	negligible	negligible	
	3 w.r.t. 1	1.2 V	4 mA	1.2 mW	negligible	negligible	
	Jack Socket	6.68 V	12 mA	17.7 mW	negligible	negligible	
MTL4581 **MTL5581**	1 & 2	1.1 V	53 mA	15 mW	negligible	0.5	Although the apparatus does not comply with the simple apparatus requirements of Clause 5.7 of IEC 60079-11: 2011, when terminals 1 & 2 are connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of IEC 60079-11: 20116 to the parameters of the circuit into which it is connected.

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Model	Terminals	Uo (V)	Io (mA)	Po (mW)	Ci (µF)	Li (mH)	Notes
MTL4514D **MTL5514D**	1 w.r.t. 2 / 3	10.5 V	14 mA	37 mW	negligible	negligible	
MTL4573 **MTL4573Y** **MTL5573**	1 to 6	6.6 V	76 mA	0.13 W	negligible	negligible	Forming part of the same intrinsically safe circuit
	3 w.r.t. 1	1.1 V	7 mA	2 mW	negligible	negligible	WITHOUT the Cold Junction Compensation (CJC) plug fitted
	3, 2 & 1	6.6 V	10 mA	17 mW	negligible	negligible	with or without CJC plug fitted
	Jack Socket	8 V	14.6mA	26 mW	negligible	negligible	
MTL4582B **MTL5582B**	1, 3, 4 & 5	6.51 V	10 mA	16.1 mW	negligible	negligible	Although the equipment does not comply with the simple apparatus requirements of Clause 5.7 of IEC 60079-11: 2011, when terminals 3 w.r.t. 1 are connected in an intrinsically safe circuit the internal stored energy, voltage and current of the interface will not add more than the values specified in Clause 5.7 of IEC 60079-11: 2011 to the parameters of the circuit into which it is connected.
	1, 3 & 4	6.51 V	6 mA	9.2 mW	negligible	negligible	
	3 w.r.t. 1	1.2 V	4 mA	1.2 mW	negligible	negligible	
	Jack Socket	6.68 V	12 mA	17.7 mW	negligible	negligible	

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LOAD PARAMETERS

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

		GROUP IIC			GROUP IIB*			GROUP IIA			GROUP I		
Model	**Terminals**	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)
MTL5510* MTL5510B* MTL5513	1 w.r.t. 2	2.41	175	983	16.8	680	1,333	75	1,000	1,333	95.0	1,000	1,333
	3 w.r.t. 2	2.41	175	983	16.8	680	1,333	75	1,000	1,333	95.0	1,000	1,333
	4 w.r.t. 5 (models "*" only)	2.41	175	983	16.8	680	1,333	75	1,000	1,333	95.0	1,000	1,333
	6 w.r.t. 5 (models "*" only)	2.41	175	983	16.8	680	1,333	75	1,000	1,333	95.0	1,000	1,333
MTL5511 MTL5514 MTL5516C* MTL5517*	1 w.r.t. 2/3	2.41	175	983	16.8	680	1,333	75	1,000	1,333	95.0	1,000	1,333
	4 w.r.t. 5/6 (models "*" only)	2.41	175	983	16.8	680	1,333	75	1,000	1,333	95.0	1,000	1,333
MTL5521 MTL5523 MTL5523V MTL5524	2/3 w.r.t. 1	0.11	1.4	40	0.84	7.2	159	2.97	14.4	328	4.87	20.2	478

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

		GROUP IIC			GROUP IIB*			GROUP IIA			GROUP I		
Model	**Terminals**	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)
MTL5522	2/3 w.r.t. 1				0.84	5.6	132	2.97	10.4	286	4.87	16.0	428
MTL5523VL	2/3 w.r.t. 1	0.11	3.04	52	0.84	12.19	210	2.97	24.38	421	4.28	40.0	691
MTL5525	2/3 w.r.t. 1	0.11	5.3	68	0.84	21.8	254	2.97	44.7	536	4.87	64.9	814
MTL5541	2 w.r.t. 1	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
	3 w.r.t. 1	100	12.8	2,438	1,000	47.8	8,932	1,000	104.7	18,140	1,000	156.2	28,229
	2 w.r.t. 3	0.083	4.9	59	0.65	20.0	222	2.15	40.9	469	3.76	59.1	710
MTL5544	2 w.r.t. 1	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
	5 w.r.t. 4	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
	3 w.r.t. 1	100	12.8	2,438	1,000	47.8	8,932	1,000	104.7	18,140	1,000	156.2	28,229
	6 w.r.t. 4	100	12.8	2,438	1,000	47.8	8,932	1,000	104.7	18,140	1,000	156.2	28,229
	2 w.r.t. 3	0.083	4.9	59	0.65	20.0	222	2.15	40.9	469	3.76	59.1	710
	5 w.r.t. 6	0.083	4.9	59	0.65	20.0	222	2.15	40.9	469	3.76	59.1	710
MTL5546 **MTL5546Y**	2 w.r.t. 1	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
MTL5549	2 w.r.t. 1	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
MTL5549Y	5 w.r.t. 4	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
MTL5575	1 to 6	22	6.42	288	500	25.6	1,057	1,000	53.0	2,228	1,000	77.2	3,402
	Jack Socket	0.367	153	349	2.15	591	1,355	8.8	1,000	1,453	12.32	1,000	1,453

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

		GROUP IIC			GROUP IIB*			GROUP IIA			GROUP I		
Model	**Terminals**	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)
MTL4501-SR MTL5501-SR	1 &. 2	3.5	39	475	24	145	1829	170	299	3093	320	501	6414
MTL4541A MTL4541AS MTL4544A* MTL4544AS*	2 w.r.t 1	6.2	5.01	1,351	55	20.06	5,406	1,000	40.12	10,813	1,000	65.82	17,740
	5 w.r.t. 4 (models "*" only)	6.2	5.01	1,351	55	20.06	5,406	1,000	40.12	10,813	1,000	65.82	17,740
MTL5541A MTL5541AS MTL5544A* MTL5544AS*	5 w.r.t 1 (models "*" only)	0.36	5.01	675	2.11	20.06	2,703	8.7	40.12	5,406	12.16	65.82	8,870
MTL4561 MTL5561	2&3 w.r.t. 1	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
	5&6 w.r.t. 4	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
MTL4531 MTL5531 MTL4533* MTL5533*	3 w.r.t. 1	0.094	4.02	56	0.73	16.09	227	2.42	32.19	455	4.27	52.81	746
	6 w.r.t 4 (models "*" only)	0.094	4.02	56	0.73	16.09	227	2.42	32.19	455	4.27	52.81	746
	3 w.r.t. 2	100	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
	6 w.r.t 5 (models "*" only)	100	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

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Londonderry NSW 2753 Australia

IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

		GROUP IIC			GROUP IIB*			GROUP IIA			GROUP I		
Model	**Terminals**	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)
MTL4576 MTL5576	1, 2, 3 & 4	22	20.1	513	500	80.6	2,052	1,000	161.2	4,104	1,000	264.5	6,363
	1, 2 & 3	11	22.6	384	250	90.7	1,539	500	181.4	2,121	500	297.6	2,121
	4, 5, & 6	11	22.6	384	250	90.7	1,539	500	181.4	2,121	500	297.6	2,121
	3 w.r.t. 1	50	500	1,666	500	500	1,666	500	500	1,666	500	500	1,666
	6 w.r.t 4	50	500	1,666	500	500	1,666	500	500	1,666	500	500	1,666
	Jack Socket	0.48	79.4	448	2.88	317.9	1412	11.6	635.8	1412	15.8	1000	1412
MTL4541S MTL4544S* MTL4544D MTL5541S MTL5544S* MTL5544D	2 w.r.t 1	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
	5 w.r.t 4 (models "*" only)	0.083	4.2	56	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
	3 w.r.t 1	100	12.8	2,438	1,000	47.8	8,932	1,000	104.7	18,140	1,000	156.2	28,229
	6 w.r.t 4 (models "*" only)	100	12.8	2,438	1,000	47.8	8,932	1,000	104.7	18,140	1,000	156.2	28,229
	2 w.r.t 3	0.083	4.9	59	0.65	20.0	222	2.15	40.9	469	3.76	59.1	710
	5 w.r.t 6 (models "*" only)	0.083	4.9	59	0.65	20.0	222	2.15	40.9	469	3.76	59.1	710

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

		GROUP IIC			GROUP IIB*			GROUP IIA			GROUP I		
Model	**Terminals**	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)
MTL4532 MTL5532	2 w.r.t 1, 6 w.r.t 1 or 6 w.r.t 3	2.41	181.4	967	16.8	725.6	1,333	75	1,000	1,333	95	1,000	1,333
	3 w.r.t. 1	100	12.6	2,439	1,000	50.6	9,757	1,000	101.2	19,515	1,000	166.1	32,018
	5 w.r.t 1	2.41	1,000	12,313	16.8	1,000	49,254	75	1,000	98,508	95	1,000	161,616
	4 w.r.t 3	0.083	4.2	55	0.65	12.6	210	2.15	33.6	444	3.76	53.7	668
	4 & 3 w.r.t 1	0.083	1.66	55	0.65	6.67	210	2.15	13.3	444	3.76	21.8	668
	5 & 4 w.r.t 1	0.083	4.02	55	0.65	16.0	210	2.15	32.1	444	3.76	52.8	668
	Jack Socket	0.367	60.7	360	2.15	243.0	1,441	8.8	486.1	1,484	12.32	797.5	1,484
MTL5582	1, 3, 4 & 5	22	20.1	513	500	80.6	2,052	1,000	161.2	4,104	1,000	264.5	6,363
	1, 3 &4	22	45.3	769	500	181.4	3,078	1,000	362.8	4,242	1,000	595.2	4,242
	3 w.r.t. 1	100	1,000	3,333	1,000	1,000	3,333	1,000	1,000	3,333	1,000	1,000	3,333
	Jack Socket	0.478	79.4	448	2.88	317.9	1,412	11.6	635.8	1,412	15.8	1,000	1,412
MTL4581 MTL5581	1 & 2	100	12.3	2,438	1,000	47.3	8,932	1,000	104.2	18,140	1,000	155.7	28,229
MTL4514D MTL5514D	1 w.r.t. 2 / 3	2.41	175	983	16.8	680	1,333	75	1,000	1,333	95	1,000	1,333
MTL4573 MTL4573Y MTL5573	1 to 6	22	6.42	288	500	25.6	1,057	1,000	53	2,228	1,000	77.2	3,402
	Jack Socket	0.367	153	349	2.15	591	1,355	8.8	1,000	1,453	12.32	1,000	1,453

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

		GROUP IIC			GROUP IIB*			GROUP IIA			GROUP I		
Model	**Terminals**	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)	Capacitance (µF)	Inductance (mH)	L/R Ratio (µH/Ω)
MTL4582B MTL5582B	1, 3, 4 & 5	22	355.5	1,536	500	1,000	1,536	1,000	1,000	1,536	1,000	1,000	1,536
	1, 3 & 4	22	987.6	921	500	1,000	921	1,000	1,000	921	1,000	1,000	921
	3 w.r.t. 1	100	1,000	3,333	1,000	1,000	3,333	1,000	1,000	3,333	1,000	1,000	3,333
	Jack Socket	0.478	79.4	448	2.88	317.9	1,412	11.6	635.8	1,412	15.8	1,000	1,412

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

The above parameters for capacitance and inductance apply when one of the two conditions below is met:
- The total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- The total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

The above parameters for capacitance and inductance are reduced to 50% when both of the two conditions below are met:
- the total Li of the external circuit (excluding the cable) > 1% of the Lo value and
- the total Ci of the external circuit (excluding the cable) > 1% of the Co value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups I, IIA, IIB & and 600nF for Group IIC.

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Drawing list pertaining to Issue 0 of this Certificate:

Drawing Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
MTL5510 / MTL5510B / MTL5513				
CI4510-1	1 of 7	Parts list for MTL4510 and MTL4513	2	2007-06
CI4510-1	2 of 7	Circuit diagram for the MTL 4510 / 4513	2	2007-05
CI4510-1	3 of 7	Circuit diagram for the MTL 4510 / 4513	2	2007-05
CI4510-1	4 of 7	MTL4510 Track Layout	2	2007-05
CI4510-1	5 of 7	MTL4510 Component Layout	3	2013-01
CI4510-1	6 of 7	PCB detail for TPL308	2	2007-01
MTL5511 / MTL5514 / MTL5516C / MTL5517				
CI4516-1	1 of 6	Parts list for MTL4516	2	2008-09
CI4516-1	2 of 6	Circuit diagram for MTL4516	5	2011-10
CI4516-1	3 of 6	MTL4516 Track Layout	3	2007-12
CI4516-1	4 of 6	MTL4516 Component Layout	6	2012-10
CI4516-1	5 of 6	PCB detail for TPL308	2	2007-01
MTL5521 / MTL5522 / MTL5523 / MTL5523V / MTL5523VL / MTL5524 / MTL5525				
CI4521-1	1 of 6	Parts list for MTL452X	2	2014-02
CI4521-1	2 of 6	Circuit Diagram for MTL452X	5	2010-07
CI4521-1	3 of 6	MTL452X Track Layout	3	2010-02
CI4521-1	4 of 6	MTL452X Component Layout	4	2013-01
CI4521-1	5 of 6	PCB Detail for TPL301	2	2007-01
CI4523-1	1 of 6	Parts list for MTL4523V	2	2014-02
CI4523-1	2 of 6	Circuit Diagram for MTL4523V	2	2011-11
CI4523-1	3 of 6	MTL4523V Track Layout	1	2010-08
CI4523-1	4 of 6	MTL4523V Component Layout	2	2013-01
CI4523-1	5 of 6	PCB Detail for TPL301	1	2010-08
CI4523-2	1 of 3	Circuit diagram for MTL4523V	2	2011-11
CI4523-2	2 of 3	MTL4523V Track Layout	1	2010-08
CI4523-2	3 of 3	MTL4523V Component Layout	2	2013-01
MTL5541 / MTL5544				
CI4541-1	1 of 8	Parts List for MTL4541/MTL4544	4	2015-09
CI4541-1	2 of 8	Circuit Diagram for the MTL 4541/4544	5	2009-07
CI4541-1	3 of 8	Circuit Diagram for the MTL 4541/4544	5	2009-07
CI4541-1	4 of 8	MTL4541/MTL4544 Track Layout	5	2018-01
CI4541-1	4A of 8	MTL4541/MTL4544 Track Layout	5	2018-01

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IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Drawing Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
CI4541-1	5 of 8	MTL4541 Component Layout	6	2013-01
CI4541-1	6 of 8	PCB Detail for TPL300	2	2007-01
CI4541-1	7 of 8	PCB Detail for TPL301	2	2007-01
MTL5546 / MTL5546Y				
CI4546-1	1 of 7	Parts list for MTL4546	3	2008-10
CI4546-1	2 of 7	Circuit Diagram for the MTL4546	6	2012-10
CI4546-1	3 of 7	MTL4546 Track Layout	3	2007-06
CI4546-1	4 of 7	MTL4546 Component Layout	6	2012-10
CI4546-1	5 of 7	PCB Detail for TPL300 and TPL302	2	2007-01
CI4546-1	6 of 7	PCB Detail for TPL301	2	2007-01
MTL5549 / MTL5549Y				
CI4549-1	1 of 8	Parts list for MTL4549	2	2008-07
CI4549-1	2 of 8	Circuit Diagram for the MTL4549	4	2008-07
CI4549-1	3 of 8	Circuit Diagram for the MTL4549	4	2008-07
CI4549-1	4 of 8	MTL4549 Track Layout	3	2007-11
CI4549-1	5 of 8	MTL4549 Component Layout	6	2013-01
CI4549-1	6 of 8	PCB Detail for TPL300 and TPL302	2	2007-01
CI4549-1	7 of 8	PCB Detail for TPL301	2	2007-01
MTL5575				
CI4575-1	1 of 6	Parts list for MTL4575	1	2006-11
CI4575-1	2 of 6	Circuit Diagram for the MTL4575	2	2007-05
CI4575-1	3 of 6	MTL4575 Track Layout	2	2007-06
CI4575-1	4 of 6	MTL4575 Component Layout	3	2012-10
CI4575-1	5 of 6	PCB Detail for TPL301	2	2007-01
MTL4526 / MTL5526				
CI4526-1	1 of 5	Parts list for MTL4526	1	2008-04
CI4526-1	2 of 5	MTL4526 Final Assembly	1	2008-03
CI4526-1	3 of 5	MTL4526 Track Layout	1	2008-04
CI4526-1	4 of 5	MTL4526 Component Layout	2	2013-01
MTL4501-SR / MTL5501-SR				
CI4501-1	1 of 6	Parts list for the MTL4501-SR and MTL5501-SR	2	2014-04
CI4501-1	2 of 6	Certification Diagram for MTL4501-SR and MTL5501-SR	1	2008-03
CI4501-1	3 of 6	MTL4501 Track Layout	1	2008-05

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Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Drawing Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
CI4501-1	4 of 6	MTL4501 Component Layout	2	2013-01
CI4501-1	5 of 6	PCB Detail for TPL308	1	2008-04
MTL4541A / MTL4541AS / MTL4544A / MTL4544AS / MTL5541A / MTL5541AS / MTL5544A / MTL5544AS				
CI4541-2	1 of 8	Parts list for MTL4541A / MTL4544A	1	2008-10
CI4541-2	2 of 8	Certification Diagram for MTL4544A & 4541A	1	2008-12
CI4541-2	3 of 8	Certification Diagram for MTL4544A & 4541A	1	2008-12
CI4541-2	4 of 8	MTL4541A and MTL4544A Track Layout	1	2008-11
CI4541-2	5 of 8	MTL4541A and MTL4544A Component Layout	2	2013-01
CI4541-2	6 of 8	PCB Detail for TPL300	1	2008-11
CI4541-2	7 of 8	PCB Detail for TPL301	1	2008-11
MTL4561 & MTL5561				
CI4561-1	1 of 6	Parts list for MTL4561/MTL5561	1	2009-03
CI4561-1	2 of 6	MTL4561 and MTL5561 Circuit Diagram	2	2009-09
CI4561-1	3 of 6	MTL4561 Track Layout	2	2009-09
CI4561-1	4 of 6	MTL4561 Component Layout	3	2013-01
CI4561-1	5 of 6	MTL4561 Two Channel fire/smoke detector interface, loop-powered Transformer winding details	1	2009-03
CI4500-2	1 of 1	MTL4500 Series single Toroid I.S. Transformer	2	2009-08
MTL4531/ MTL4533 / MTL5531 / MTL5533				
CI4533-1	1 of 8	Parts list for MTL4531 & MTL4533	2	2009-10
CI4533-1	2 of 8	MTL4533 Circuit Diagram Safe Area	2	2009-10
CI4533-1	3 of 8	MTL4533 Circuit Diagram Hazardous Area	2	2009-10
CI4533-1	4 of 8	Track layout for MTL4531 & MTL4533	2	2009-10
CI4533-1	5 of 8	Component Layout for MTL4531 & MTL4533	7	2017-01
CI4533-1	5A of 8	Thermal Pad Details	1	2017-01
CI4533-1	6 of 8	PCB Detail for TPL301	1	2009-06
CI4533-1	7 of 8	PCB Detail for TPL308	1	2009-06
MTL4576 / MTL5576				
CI4576-1	1 of 7	Parts list for MTL4576	1	2009-06
CI4576-1	2 of 7	Certification drawing for MTL4576 & 5576	2	2009-08
CI4576-1	3 of 7	Certification drawing for MTL4576 & 5576	2	2009-08
CI4576-1	4 of 7	MTL4576 Track layout	2	2009-10
CI4576-1	5 of 7	MTL4576 Component layout	3	2013-01
CI4576-1	6 of 7	PCB Detail for TPL301	1	2009-05

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Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Drawing Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
MTL4541S / MTL4544S / MTL4544D / MTL5541S / MTL5544S / MTL5544D				
CI4541-3	1 of 8	Parts list for MTL4541S, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D	3	2015-09
CI4541-3	2 of 8	Circuit Diagram for the MTL4541S, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D, MTL 4541T	2	2012-10
CI4541-3	3 of 8	Circuit Diagram for the MTL4541S, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D, MTL 4541T	2	2012-10
CI4541-3	4 of 8	Track layout for MTL4541S, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D	1	2009-06
CI4541-3	5 of 8	Component layout for MTL4541S, MTL4541T, MTL5541S, MTL4544S, MTL5544S, MTL4544D, MTL5544D	3	2014-01
CI4541-3	6 of 8	PCB Detail for TPL300	1	2009-06
CI4541-3	7 of 8	PCB Detail for TPL301	1	2009-06
MTL4532 / MTL5532				
CI4532-1	1 of 8	Parts list for MTL4532	1	2009-12
CI4532-1	2 of 8	Circuit Diagram for the MTL4532 & MTL5532	1	2009-12
CI4532-1	3 of 8	Circuit Diagram for the MTL4532 & MTL5532	1	2009-12
CI4532-1	4 of 8	MTL4532 Track layout	1	2009-12
CI4532-1	5 of 8	MTL4532 Component layout	2	2013-01
CI4532-1	6 of 8	PCB Detail for TPL300	1	2009-05
CI4532-1	7 of 8	PCB Detail for TPL301	1	2009-05
MTL5582				
CI4582-1	1 of 7	Parts list for MTL5582	1	2010-12
CI4582-1	2 of 7	Certification drawing for MTL5582	2	2010-12
CI4582-1	3 of 7	Certification drawing for MTL5582	2	2010-12
CI4582-1	4 of 7	MTL5582 Track layout	1	2010-12-22
CI4582-1	5 of 7	MTL5582 Component layout	2	2013-01
CI4582-1	6 of 7	PCB Detail for TPL301	1	2010-10
MTL4581 / MTL5581				
CI4581-1	1 of 8	Parts list for MTL4581 & MTL5581	2	2011-07
CI4581-1	2 of 8	MTL4581 & MTL5581 Circuit Diagram	2	2011-07
CI4581-1	3 of 8	MTL4581 & MTL5581 Circuit Diagram	3	2014-03
CI4581-1	4 of 8	MTL4581 & MTL5581 Track layout	2	2011-07

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Annexe for Certificate No.:	IECEx TSA 20.0021	Issue No.:	0

Drawing Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
CI4581-1	5 of 8	MTL4581 & MTL5581 Component Layout	4	2016-09
CI4581-1	6 of 8	PCB Detail for TPL300 and TPL302	1	2011-03
CI4581-1	7 of 8	PCB Detail for TPL301	1	2011-03
MTL4514D / MTL5514D				
CI4514D-1	1 of 1	MTL4514D Circuit Diagram	1	2013-10
CI4514D-2	1&2 of 2	MTL4514D Parts List	1	2013-11
CI4514D-3	1 of 1	MTL4514D Track Layout	1	2013-10
CI4514D-4	1 of 1	MTL4514D Component Layout	1	2013-11
CI4514D-5	1 of 1	PCB Detail for TPL308	1	2013-10
MTL4573 / MTL4573Y / MTL5573				
CI4573-1	1 of 1	Circuit Diagram for MTL4573	2	2014-10
CI4573-2	1 to 3 of 3	MTL4573 Parts List	2	2014-10
CI4573-3	1 of 1	MTL4573 Track Layout	2	2014-10
CI4573-4	1&2 of 2	MTL4573 Component Assembly	2	2014-10
CI4573-6	1 of 1	PCB Detail for TPL301	1	2013-10
MTL4582B / MTL5582B				
CI4582B-1	1&2 of 2	Certification drawing for MTL4582B	1	2016-02
CI4582B-2	1 to 3 of 3	MTL4582B Parts List	1	2016-02
CI4582B-3	1 of 1	MT4582B Track Layout	1	2016-02
CI4582B-4	1 of 1	MTL5582B Component Layout	1	2016-02
CI4582B-7	1 of 1	PCB Detail for TPL301	1	2015-09
Common drawings				
CI4500-3	1 of 1	MTL4500 and MTL5500 – Alternative Zener Diode (Panjit)	1	2010-12
CI4500-5	1 of 1	MTL5500 – Alternative DIN rail mechanism	1	2010-11
CI4500-6	1 of 1	MTL4500 AND MTL5500 – Conformal Coating	1	2010-12-20
CI4500-7	1 of 1	MTL4500 Relay Encapsulant	2	2011-01
CI4500-100	1 of 1	MTL4500 Case	2	2013-01
CI5500-100	1 of 1	MTL5500 Outline	3	2013-01
CI4500-101	1 of 1	MTL45xx Certification Label Details	2	2020-08
CI5500-101	1 of 1	MTL55xx Certification Label Details	4	2020-08

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