IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification System for Explosive Atmospheres

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Certificate No.:	**IECEx TSA 05.0036X**	Page 1 of 4	Certificate history:
Status:	**Current**	Issue No: 2	Issue 1 (2010-08-06) Issue 0 (2005-07-20)
Date of Issue:	2020-10-14		

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

Equipment: **MTL7700 Series Shunt Zener Diode Barriers and MTL774x Series Switch / Proximity input Barriers**

Optional accessory:

Type of Protection: **Intrinsic safety "[ia]"**

Marking: [Ex ia Ma] I
-20 °C ≤ Ta ≤ +60 °C

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

Position: **Quality and Certification Manager**

Signature: (for printed version)

Date: 14 October 2020

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IECEx Certificate of Conformity

Certificate No.: **IECEx TSA 05.0036X**

Date of issue: 2020-10-14

Issue No: 2

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

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 Report:

AU/TSA/ExTR20.0033/00

Quality Assessment Reports:

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

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

MTL 7700 Series Shunt Zener Diode Barriers

The MTL 7700 Series Shunt Zener Diode Barriers are designed to restrict the transfer of energy from unspecified safe area equipment to intrinsically safe circuits by limitation of voltage and current. The range consists of single, dual, triple and quad channel barriers covering polarised-positive and negative, non-polarised and star connected barriers and diode return barriers. Certain versions of barriers may have the non-hazardous supply provided by a power bus. Adjacent barriers may be connected together via power bus (PB) terminals. The barriers consist of electronic components on a single printed circuit board encapsulated within a moulded plastic enclosure which incorporates one or two pairs of sockets. Circuits are connected to the sockets via plugs which incorporate a screw terminal. The barrier is connected to earth via a spring mounted foot on to a DIN rail or alternatively a single high integrity screw terminal. The Um for the barriers is 250V. The barriers are asymmetrical and have a blue label defining the hazardous area terminals.

MTL774X Series Switch / Proximity Input Barriers

The MTL774X Series Switch / Proximity Input Barriers are single or dual channel barriers, designed to restrict the transfer of energy from unspecified non-hazardous area equipment to intrinsically safe circuits by limitation of voltage and current. They also provide control of non-hazardous area equipment by using relay or open collector solid state interfaces. The barriers consist of electronic components on a single printed circuit board encapsulated within a moulded plastic enclosure which incorporates one or two pairs of sockets. Circuits are connected to the sockets via plugs which incorporate a screw terminal. The barrier is connected to earth via a spring mounted foot on to a DIN rail or alternatively a single high integrity screw terminal. Adjacent barriers may be connected together via power bus (PB) terminals. The barriers are asymmetrical and have a blue label defining the hazardous area terminals. The MTL7741 (safe area terminals 2, 5, &6), MTL7743 (safe area terminal 1, 2, 5, & 6) and MTL7745 (safe area terminals 2, 5, & 6) are connected to relay change- over contacts which can switch up to 125V a.c /0.5A or 30V d.c. / 1A. The MTL7742 (safe area terminals 5&6) and MTL7744 (safe area terminals 1, 2, &5, 6) are connected to an opto-isolator which may have an input source of up to 35V and 56mA.

SPECIFIC CONDITIONS OF USE: YES as shown below:
See the entity parameters provided in this certificate.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)
Details of change for Issue 1:

1. The barrier certified earlier has been revised to a minor extent - 3 non-safety capacitors have been added. Compliance has been examined in Test Report GB/BAS/ExTR10.0092/00.
2. The marking information has been updated to include the EPL marking 'Ma'.
3. The list of drawings have been provided in the Annexe 'IECEx TSA 05.0036X-1'

Details of change for Issue 2:

1. Change name from Measurement Technology Ltd to Eaton Electric Ltd.
2. Update to latest standards.
3. Add models MTL7710P+, MTL7751AC, MTL7768+ & MTL7772AC.

Annex:

Annexe of IECEx TSA 05.0036X-2.pdf

IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 05.0036X	Issue No.:	2

Drawing list pertaining to Issue 2 of this Certificate:

Drawing/Document Number:	Page/s:	Title:	Revision Level:	Date: (yyyy-mm-dd)
CI7700-1	1 of 4	MTL7700 Series – Shunt Diode Safety Barriers General Arrangement: - External Details	5	2002-09
CI7700-1	2 of 4	MTL7700 Series – Shunt Diode Safety Barriers General Arrangement: - Assembly Details	4	2002-04
CI7700-1	3 of 4	MTL7700 Series – Shunt Diode Safety Barriers General Arrangement: - Component Details	3	2002-09
CI7700-1	4 of 4	*MTL7700 Series Barriers, Diode Pulse and Storage Temperature Test	3	2015-01
CI7700-2	1 of 16	MTL7700 Series PCB947 Track Layout	3	2002-04
CI7700-2	2 of 16	MTL7700 Series PCB948 Track Layout	3	2002-04
CI7700-2	3 of 16	MTL7700 Series PCB949 Track Layout	3	2002-04
CI7700-2	4 of 16	MTL7700 Series PCB950 Track Layout	2	2002-03
CI7700-2	5 of 16	MTL7700 Series PCB951 Track Layout	4	2002-03
CI7700-2	6 of 16	MTL7700 Series PCB952 Track Layout	3	2002-03
CI7700-2	7 of 16	MTL7700 Series PCB953 Track Layout	3	2002-05
CI7700-2	8 of 16	MTL7700 Series PCB954 Track Layout	4	2002-05
CI7700-2	9 of 16	MTL7700 Series PCB955 Track Layout	1	2002-02
CI7700-2	10 of 16	MTL7700 Series PCB956 Track Layout	2	2002-07
CI7700-2	11 of 16	MTL7700 Series PCB964 Track Layout	2	2010-04
CI7700-2	12 of 16	MTL7700 Series PCB965 Track Layout	2	2002-04
CI7700-2	13 of 16	MTL7700 Series PCB966 Track Layout	1	2002-04
CI7700-2	15 of 16	MTL7700 Series PCB968 Track Layout	2	2002-06
CI7700-2	16 of 16	MTL7700 Series PCB969 Track Layout	1	2002-07
CI7700-200	1	*MTL7700 IECEx Group I Label Detail	3	2019-12
CI7706-1	1 of 4	MTL7706+ Parts List	2	2002-04
CI7706-1	2 of 4	MTL7706+ Circuit Diagram	3	2010-04
CI7706-1	3 of 4	*MTL7706+ Component Layout	3	2010-03
CI7707-1	1 of 4	MTL7707+ Shunt Diode Safety Barrier Parts List	1	2002-02
CI7707-1	2 of 4	MTL7707+ Shunt Diode Safety Barrier Circuit Diagram	1	2002-02
CI7707-1	3 of 4	MTL7707+ Shunt Diode Safety Barriers Component Layout	2	2002-10
CI7707-2	1 of 4	MTL7707P+ Shunt Diode Safety Barrier Parts List	2	2002-04
CI7707-2	2 of 4	MTL7707P+ Shunt Diode Safety Barriers Circuit Diagram	1	2002-02

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CI7707-2	3 of 4	MTL7707P+ Shunt Diode Safety Barriers Component Layout	2	2002-05
CI7710-1	1 of 4	MTL7710+, MTL7710- Shunt Diode Safety Barriers Parts List	3	2002-04
CI7710-1	2 of 4	MTL7710+, MTL7710- Shunt Diode Safety Barriers Circuit Diagram	3	2002-04
CI7710-1	3 of 4	MTL7710+, MTL7710- Shunt Diode Safety Barriers Component Layout	3	2002-06
CI7710P+ -1	1 of 5	*MTL7710P+ Shunt Diode Safety Barrier Parts List	1	2018-09-14
CI7710P+ -1	2 of 5	*MTL7710P+ Shunt Diode Safety Barrier Circuit Diagram	1	2018-09-14
CI7710P+ -1	3 of 5	*MTL7710P+ PCB Layout Drawing	1	2018-09-14
CI7710P+ -1	4 of 5	*MTL7710P+ Shunt Diode Safety Barrier Component Layout	1	2018-09-14
CI7715-1	1 of 4	*MTL7715+, MTL7715- Shunt Diode Safety Barriers Parts List	4	2015-01
CI7715-1	2 of 4	*MTL7715+, MTL7715- Shunt Diode Safety Barriers Circuit Diagram	3	2002-04
CI7715-1	3 of 4	*MTL7715+, MTL7715- Shunt Diode Safety Barriers Component Layout	3	2002-06
CI7715-2	1 of 4	*MTL7715P+, MTL7715P- Shunt Diode Safety Barriers Parts List	3	2015-01
CI7715-2	2 of 4	*MTL7715P+, MTL7715P- Shunt Diode Safety Barriers Circuit Diagram	2	2002-04
CI7715-2	3 of 4	*MTL7715P+, MTL7715P- Shunt Diode Safety Barriers Component Layout	2	2002-06
CI7722-1	1 of 4	MTL7722+, MTL7722- Shunt Diode Safety Barriers Parts List	4	2002-10
CI7722-1	2 of 4	MTL7722+, MTL7722- Shunt Diode Safety Barriers Circuit Diagram	4	2002-10
CI7722-1	3 of 4	MTL7722+, MTL7722- Shunt Diode Safety Barriers Component Layout	3	2002-05
CI7728-1	1 of 4	MTL7728+ & MTL7728- Shunt Diode Safety Barriers Parts List	4	2002-05
CI7728-1	2 of 4	MTL7728+ & MTL7728- Shunt Diode Safety Barriers Circuit Diagram	4	2002-05
CI7728-1	3 of 4	MTL7728+, MTL7728- Shunt Diode Safety Barriers Component Layout	3	2002-05
CI7728-2	1 of 4	MTL7728ac Shunt Diode Safety Barrier Parts List	4	2002-05
CI7728-2	2 of 4	MTL7728ac Shunt Diode Safety Barrier Circuit Diagram	4	2002-05
CI7728-2	3 of 4	MTL7728ac Shunt Diode Safety Barrier Component Layout	3	2002-05
CI7728-3	1 of 4	MTL7728P+, MTL7728P- Shunt Diode Safety Barriers Parts List	5	2002-06

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CI7728-3	2 of 4	MTL7728P+, MTL7728P- Shunt Diode Safety Barriers Circuit Diagram	4	2002-06
CI7728-3	3 of 4	MTL7728P+, MTL7728P- Shunt Diode Safety Barriers Component Layout	3	2002-06
CI7729-1	1 of 4	MTL7729P+, MTL7729P- Shunt Diode Safety Barriers Parts List	5	2002-06
CI7729-1	2 of 4	MTL7729P+, MTL7729P- Shunt Diode Safety Barriers Circuit Diagram	4	2002-06
CI7729-1	3 of 4	MTL7729P+, MTL7729P- Shunt Diode Safety Barriers Component Layout	3	2002-06
CI7741-1	1 of 4	*MTL7741 Parts List	2	2015-01
CI7741-1	2 of 4	MTL7741 Circuit Diagram	1	2002-04
CI7741-1	3 of 4	MTL7741 Switch/Proximity Safety Barriers Component Layout	2	2002-07
CI7742-1	1 of 4	*MTL7742 Parts List	2	2015-01
CI7742-1	2 of 4	MTL7742 Circuit Diagram	2	2002-07
CI7742-1	3 of 4	MTL7742 Switch/Proximity Safety Barriers Component Layout	2	2002-07
CI7743-1	1 of 4	*MTL7743 Parts List	3	2015-01
CI7743-1	2 of 4	MTL7743 Circuit Diagram	1	2002-04
CI7743-1	3 of 4	MTL7743 Switch/Proximity Safety Barriers Component Layout	2	2002-07
CI7744-1	1 of 4	*MTL7744 Parts List	3	2015-01
CI7744-1	2 of 4	MTL7744 Circuit Diagram	2	2002-07
CI7744-1	3 of 4	MTL7744 Switch/Proximity Safety Barriers Component Layout	3	2002-07
CI7745-1	1 of 4	*MTL7745 Parts List	2	2015-01
CI7745-1	2 of 4	MTL7745 Circuit Diagram	1	2002-04
CI7745-1	3 of 4	MTL7745 Switch/Proximity Safety Barriers Component Layout	2	2002-07
CI7751-1	1 of 4	*MTL7751ac Shunt Diode Safety Barrier Parts List	1	2017-12-18
CI7751-1	2 of 4	*MTL7751ac Shunt Diode Safety Barrier Circuit Diagram	1	2017-12-18
CI7751-1	3 of 4	*MTL7751ac Shunt Diode Safety Barrier Component Layout	1	2017-12-18
CI7755-1	1 of 4	MTL7755ac Shunt Diode Safety Barrier Parts List	3	2002-04
CI7755-1	2 of 4	MTL7755ac Shunt Diode Safety Barrier Circuit Diagram	3	2002-04
CI7755-1	3 of 4	MTL7755ac Shunt Diode Safety Barrier Component Layout	4	2002-10
CI7756-1	1 of 4	*MTL7756ac Shunt Diode Safety Barrier Parts List	2	2015-01

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CI7756-1	2 of 4	MTL7756ac Shunt Diode Safety Barrier Circuit Diagram	1	2001-07
CI7756-1	3 of 4	MTL7756ac Shunt Diode Safety Barriers Component Layout	2	2002-06
CI7758-1	1 of 4	*MTL7758+, MTL7758- Shunt Diode Safety Barriers Parts List	3	2015-01
CI7758-1	2 of 4	MTL7758+, MTL7758- Shunt Diode Safety Barriers Circuit Diagram	3	2002-05
CI7758-1	3 of 4	MTL7758+, MTL7758- Shunt Diode Safety Barriers Component Layout	3	2002-10
CI7760-1	1 of 4	MTL7760ac, MTL7765ac Shunt Diode Safety Barriers Parts List	3	2002-10
CI7760-1	2 of 4	MTL7760ac, MTL7765ac Shunt Diode Safety Barriers Circuit Diagram	2	2002-06
CI7760-1	3 of 4	MTL7760ac, MTL7765ac Shunt Diode Safety Barriers Component Layout	2	2002-04
CI7761-1	1 of 4	*MTL7761ac Shunt Diode Safety Barriers Parts List	3	2015-01
CI7761-1	2 of 4	MTL7761ac Shunt Diode Safety Barriers Circuit Diagram	3	2002-04
CI7761-1	3 of 4	MTL7761ac Shunt Diode Safety Barriers Component Layout	3	2002-06
CI7761-2	1 of 4	MTL7761Pac, MTL7764ac, MTL7766ac Shunt Diode Safety Barriers Parts List	2	2002-04
CI7761-2	2 of 4	MTL7761Pac, MTL7764ac, MTL7766ac Shunt Diode Safety Barriers Circuit Diagram	2	2002-04
CI7761-2	3 of 4	MTL7761Pac, MTL7764ac, MTL7766ac Shunt Diode Safety Barriers Component Layout	3	2002-06
CI7764-1	1 of 4	MTL7764+, MTL7764- Shunt Diode Safety Barriers Parts List	4	2002-06
CI7764-1	2 of 4	MTL7764+, MTL7764- Shunt Diode Safety Barriers Circuit Diagram	4	2002-06
CI7764-1	3 of 4	MTL7764+, MTL7764- Shunt Diode Safety Barriers Component Layout	4	2002-06
CI7766-1	1 of 4	*MTL7766Pac Shunt Diode Safety Barrier Parts List	5	2015-01
CI7766-1	2 of 4	MTL7766Pac Shunt Diode Safety Barrier Circuit Diagram	3	2002-04
CI7766-1	3 of 4	MTL7766Pac Shunt Diode Safety Barrier Component Layout	3	2002-06
CI7767-1	1 of 4	*MTL7767+, MTL7767- Shunt Diode Safety Barriers Parts List	5	2015-01
CI7767-1	2 of 4	MTL7767+, MTL7767- Shunt Diode Safety Barriers Circuit Diagram	4	2002-06
CI7767-1	3 of 4	MTL7767+, MTL7767- Shunt Diode Safety Barriers Component Layout	4	2002-06
CI7768+ -1	1 of 5	*MTL7768+ Shunt Diode Safety Barrier Parts List	1	2018-09-14

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CI7768+ -1	2 of 5	*MTL7768+ Shunt Diode Safety Barrier Circuit Diagram	1	2018-09-14
CI7768+ -1	3 of 5	*MTL7768+ PCB Layout Drawing	1	2018-09-14
CI7768+ -1	4 of 5	*MTL7768+ Shunt Diode Safety Barrier Component Layout	1	2018-09-14
CI7772ac -1	1 of 4	*MTL7772ac Shunt Diode Safety Barrier Parts List	1	2018-09-14
CI7772ac -1	2 of 4	*MTL7772ac Shunt Diode Safety Barrier Circuit Diagram	1	2018-09-14
CI7772ac -1	3 of 4	*MTL7772ac Shunt Diode Safety Barrier Component Layout	1	2018-09-14
CI7778-1	1 of 4	MTL7778ac Shunt Diode Safety Barrier Parts List	3	2002-10
CI7778-1	2 of 4	MTL7778ac Shunt Diode Safety Barrier Circuit Diagram	3	2002-09
CI7778-1	3 of 4	MTL7778ac Shunt Diode Safety Barrier Component Layout	3	2002-10
CI7779-1	1 of 4	MTL7779+ & MTL7779- Shunt Diode Safety Barriers Parts List	2	2002-04
CI7779-1	2 of 4	MTL7779+ & MTL7779- Shunt Diode Safety Barriers Circuit Diagram	2	2002-04
CI7779-1	3 of 4	MTL7779+, MTL7779- Shunt Diode Safety Barriers Component Layout	2	2002-06
CI7787-1	1 of 4	MTL7787+ & MTL7787- Shunt Diode Safety Barriers Parts List	3	2002-04
CI7787-1	2 of 4	MTL7787+ & MTL7787- Shunt Diode Safety Barriers Circuit Diagram	3	2002-04
CI7787-1	3 of 4	MTL7787+, MTL7787- Shunt Diode Safety Barriers Component Layout	3	2002-05
CI7787-2	1 of 4	MTL7787P+ & MTL7787P- Shunt Diode Safety Barriers Parts List	4	2002-04
CI7787-2	2 of 4	MTL7787P+, MTL7787P- Shunt Diode Safety Barriers Circuit Diagram	4	2002-04
CI7787-2	3 of 4	MTL7787P+, MTL7787P- Shunt Diode Safety Barriers Component Layout	3	2002-05
CI7788-1	1 of 4	MTL7788+, MTL7788-, MTL7788R+, MTL7788R- Shunt Diode Safety Barriers Parts List	5	2002-10
CI7788-1	2 of 4	MTL7788+, MTL7788-, MTL7788R+, MTL7788R- Shunt Diode Safety Barriers Circuit Diagram	5	2002-10
CI7788-1	3 of 4	MTL7788+, MTL7788-, MTL7788R+, MTL7788R- Shunt Diode Safety Barriers Component Layout	5	2002-10
CI7789-1	1 of 4	MTL7789+, MTL7789- Parts List	1	2002-02
CI7789-1	2 of 4	MTL7789+, MTL7789- Shunt Diode Safety Barriers Circuit Diagram	1	2002-02
CI7789-1	3 of 4	MTL7789+, MTL7789- Shunt Diode Safety Barriers Component Layout	3	2002-10

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CI7796-1	1 of 4	MTL7796+ & MTL7796- Shunt Diode Safety Barriers Parts List	2	2002-04
CI7796-1	2 of 4	MTL7796+ & MTL7796- Shunt Diode Safety Barriers Circuit Diagram	2	2002-04
CI7796-1	3 of 4	MTL7796+, MTL7796- Shunt Diode Safety Barriers Component Layout	2	2002-06

Note: An "*" is added before the tittle of documents that are new or revised.

Specific Conditions of use pertaining to Issue 2 of this Certificate:

Input and Output parameters

For all versions of the MTL7700 Shunt Zener Barriers

Single Channel Barrier – Terminal 1 wrt 2 (including DIN Rail Foot)
Dual Channel Barrier – Terminal 1 & 2 wrt DIN Rail Foot
Triple Channel Barrier – Terminals 1, 2 & 5 wrt DIN Rail Foot
Quad Channel Barrier – Terminals 1, 2, 5 & 6 wrt DIN Rail Foot
Um = 250 V

Single Channel Barrier – Terminal 3 wrt 4 (including DIN Rail Foot)
Dual, Triple & Quad Barrier Channel 1 – Terminal 3 wrt DIN Rail Foot
For output parameters Uo, Io & Po, see 'a' or'a1' in the output parameter table below.

Dual, Triple, & Quad Barrier Channel 2 – Terminal 4 wrt DIN Rail Foot
For output parameters Uo, Io & Po see 'a2' in the output parameter table below.

Triple & Quad Barrier Channel 3 – Terminal 7 wrt DIN Rail Foot
For output parameters Uo, Io & Po see 'a3' in the output parameter table below.

Quad Barrier Channel 4 – Terminal 8 wrt DIN Rail Foot
For output parameters Uo, Io & Po, see 'a4' in the output parameter table below.

Refer to Note 2 for other circuit configurations.

The combination of resistive, capacitive and inductive values shown without parentheses are suitable for Group I.

When the external circuit contains no lumped inductance greater than 10 μH i.e. the Li of any attached apparatus is less than 10 μH, the cable inductance may be increased to the values within parentheses.

Output Parameters for Group I Barriers:

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MTL7700 Series, Shunt Zener Diode Barriers
Output/ Load parameters

Type		U_o (V)	I_o (mA)	Po (W)	Rmin (Ω)		Group I		
							C (µF)	L (mH)	L/R (µH/Ω)
MTL7706	+(PB)	28	93	0.65	300	a	2.15	24.4 (33.6)	435
MTL7707	+(PB)	28	93	0.65	300	a1	2.15	24.4 (33.6)	435
	Note 3	28				a2	2.15	-	
		28	93	0.65	300	b	2.15	24.4 (33.6)	
MTL7707P	+(PB)	28	171	1.20	164	a1	2.15	10.73	238
	Note 3	28	-	-		a2	2.15	-	-
		28	171	1.20	164	b	2.15	10.73	238
MTL7710	+/-	10	200	0.50	50	a	100	7.25	569
MTL7715	+/-	15	150	0.56	100	a	14	14.0	505
MTL7715P	+/-	15	291	1.09	50	a	14	2.64	260
MTL7722	+/-	22	147	0.81	150	a	4.2	14	353
MTL7728	+/-/ac	28	93	0.65	300	a	2.15	24.4 (33.6)	435
MTL7728P	+/-	28	119	0.83	234.6	a	2.15	14.5 (20.0)	340
MTL7729P	+(PB)	28	171	1.20	164	a	2.15	11.43	238
MTL7755	ac	3	300	0.225	10	a1	1000	3.66	1264
		3	300	0.225	10	a2	1000	3.66	1264
		3	600	0.45	5	b	1000	1.03	632
		6	300	0.45	20	c	1000	3.28	632
MTL7756	ac	3	300	0.225	10	a1	1000	3.66	1264
		3	300	0.225	10	a2	1000	3.66	1264
		3	300	0.225	10	a3	1000	3.66	1264
		3	600	0.45	5	b1	1000	1.03	632
		3	900	0.675	3.3	b2	1000	0.49	417
		6	300	0.45	20	c1	1000	3.28	632
		6	400	0.60	15	c2	1000	1.86	474
MTL7758	+/-	7.5	750	1.40	10	a1	433	0.250	202
		7.5	750	1.40	10	a2	433	0.250	202
		7.5	1500	2.80	5	b	100	0.080	101
MTL7760	ac (Note 4)	10	200	0.5	50	a1	100	7.25	568
		10	200	0.5	50	a2	100	7.25	568
		10	400	1.00	25	b	100	1.61	284
MTL7761	ac	9	100	0.225	90	a1	500	31	1264
		9	100	0.225	90	a2	500	31	1264
		9	200	0.45	45	b	500	7.2	632

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Londonderry NSW 2753 Australia

IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 05.0036X	Issue No.:	2

MTL7700 Series, Shunt Zener Diode Barriers
Output/ Load parameters

Type		Uo (V)	Io (mA)	Po (W)	Rmin (Ω)		Group I		
							C (µF)	L (mH)	L/R (µH/Ω)
		18	100	0.45	180	c	7.6	31	632
MTL7761P	ac	9	26	0.058	351.5	a1	240	200	4937
		9	26	0.058	351.5	a2	240	200	4937
		9	52	0.115	175.5	b	240	65	2465
		18	26	0.115	702.9	c	7.6	200	2468
MTL7764	+/-	12	12	0.036	1000	a1	36	1000	7901
		12	12	0.036	1000	a2	36	1000	7901
		12	24	0.072	500	b	36	452	3950
MTL7764	ac	12	12	0.036	1000	a1	36	1000	7901
		12	12	0.036	1000	a2	36	1000	7901
		12	24	0.072	500	b	36	452	3950
		24	12	0.072	2000	c	3.35	1000	3950
MTL7765	ac (Note 4)	15	150	0.56	100	a1	14	14.42	505
		15	150	0.56	100	a2	14	14.42	505
		15	300	1.125	50	b	14	2.54	252
MTL7766	ac	12	80	0.24	150	a1	36	48	1185
		12	80	0.24	150	a2	36	48	1185
		12	160	0.48	75	b	36	11	592
		24	80	0.48	300	c	3.35	48	592
MTL7766P	ac	12	157	0.471	76.4	a1	36	11	603
		12	157	0.471	76.4	a2	36	11	603
		12	314	0.942	38.2	b	36	2.71	301
		24	157	0.942	152.9	c	3.35	9.1	302
MTL7767	+/-	15	150	0.56	100	a1	14	14.0	505
		15	150	0.56	100	a2	14	14.0	505
		15	300	1.125	50	b	14	2.54	252
MTL7778	ac (Note 4)	28	47	0.33	600	a1	2.15	130	870
		28	47	0.33	600	a2	2.15	130	870
		28	94	0.654	300	b	2.15	24.4 (33.6)	435
MTL7779	+/-	28	93	0.65	300	a1	2.15	24.4 (33.6)	435
		28	93	0.65	300	a2	2.15	24.4 (33.6)	435
		28	186	1.30	150	b	2.15	8.57	217
MTL7787	+/-(PB)	28	93	0.65	300	a1	2.15	24.4 (33.6)	435

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							C (µF)	L (mH)	L/R (µH/Ω)
	Note 3	28	-		-	a2	2.15	-	-
		28	93	0.65	300	b	2.15	24.4 (33.6)	435
MTL7787P	+/-(PB)	28	119	0.835	234.6	a1	2.15	14.5 (20.0)	340
	Note 3	28	-		-	a2	2.15	-	-
		28	119	0.835	234.6	b	2.15	14.5 (20.0)	340
MTL7788	+/-(PB)	28	93	0.65	300	a1	2.15	24.4 (33.6)	435
		10	200	0.5	50	a2	100	7.25	568
		28	294	0.92	42.85	b	2.15	2.64	308
MTL7788R	+/-(PB)	28	93	0.65	300	a1	2.15	24.4 (33.6)	435
		10	200	0.5	50	a2	100	7.25	568
		28	294	0.92	42.85	b	2.15	2.64	308
MTL7789	+/-(PB)	28	46.5	0.33	600	a1	2.15	133	870
	Note 3	28				a2	2.15	-	-
		28	46.5	0.33	600	a3	2.15	133	870
	Note 3	28				a4	2.15	-	-
		28	93	0.65	300	b3	2.15	24.4 (33.6)	435
		28	46.5	0.33	600	b4	2.15	133	870
MTL7796	+/-	26	87	0.56	300	a1	2.60	40	504
		20	51	0.26	390	a2	5.50	108	1109
		26	138	0.81	169.56	b	2.60	16	352
MTL7751	ac	1	100	0.025	10	a1	1000	28.4	11377
		1	100	0.025	10	a2	1000	28.4	11377
		1	200	0.05	5	b	1000	7.1	5688
		2	100	0.05	20	c	1000	28.4	5688
MTL7710P	+	10	300	0.75	33.3	a	100	3.16	341
MTL7768+	+	22	147	0.81	149.6	a1	4.2	13.16	351
		22	147	0.81	149.6	a2	4.2	13.16	351
		22	294	1.62	74.8	b	4.2	3.29	175
MTL7772	ac	22	73	0.4	301.4	a	2	3.3	707
MTL774x Series Switch / Proximity Input Barriers Output / Load parameters									
MTL7741	+(PB)	10	19	0.039		b	100	696	5984
MTL7742	+(PB)	10	19	0.039		b	100	696	5984
MTL7743	+(PB)	10	19	0.039		b4	100	696	5984
		10	38	0.078		b3	100	193	2992

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MTL7700 Series, Shunt Zener Diode Barriers
Output/ Load parameters

Type		U_o (V)	I_o (mA)	Po (W)	Rmin (Ω)		Group I		
							C (µF)	L (mH)	L/R (µH/Ω)
MTL7744	+(PB)	10	19	0.039		b4	100	696	5984
			38	0.078		b3	100	193	2992
MTL7745	+(PB)	10	19	0.039		b	100	696	5984

Notes for the Group I barriers:

1. The above load parameters apply when one of the two conditions below is given:
   - 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 reduced capacitance of the external circuit (including cable) shall not be greater than 1 µF for Groups I.
2. The above parameters are reduced to 50% when both of the two conditions below are given:
   - the total Li of the external circuit (excluding the cable) is ≥ 1 % of the Lo value and
   - the total Ci of the external circuit (excluding the cable) is ≥ 1 % of the Co value.
3. +/- - shunt zener diode barriers may be of positive or negative polarity dependent on the configuration of the zener diodes. The marking on the barrier will detail the exact type.

   ac - non-polarised barriers

   (PB) - Barriers that are available with a Power Bus connector to allow non-hazardous supply for various adjacent barriers to be connected via power bus.

4. Circuit configuration for output parameters:

   a - Single channel
   a1 - First channel of a dual channel barrier
   a2 - Second channel of a dual/triple channel barrier
   a3 - Third channel of a triple channel barrier
   a4 - Fourth channel of a quad channel barrier
   b - Both channels of a dual channel barrier connected in parallel, w.r.t. earth.
   b1 - Two channels of a triple channel barrier connected in parallel w.r.t earth.
   b2 - Three channels of a triple channel barrier connected in parallel, w.r.t. earth.
   b3 - Four channels of a four channel barrier connected in parallel, w.r.t. earth.
   b4 - Either pair of channels of a four channel barrier interconnected, with earth return.
   (For MTL7743, MTL7744 and MTL7789: CON1,1 and CON1,2 or CON4,1 and ON4,2)
   c - Both channels of a dual channel barrier interconnected, with no earth return
   c1 - Two channels of a triple channel barrier interconnected, with no earth return
   c2 - Three channels of a triple channel barrier interconnected, with no earth return
   (this assumes two of the channels are in parallel).

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5. This is the diode return output. It must be considered to supply the voltage Uo. This is considered as the theoretical maximum to which a capacitive load across the hazardous area terminals could become charged by leakage through the series blocking diodes. This voltage does not contribute to the output current.

6. This is a 'non polarized star connected' barrier. It is similar to the 'ac' barrier, except that the design will not allow Uo greater than that specified for the single channel output, even when both channels are connected with no earth return.