1 # EC-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC-Type Examination Certificate Number : **BAS01ATEX7217**

4 Equipment or Protective System: **MTL7700 SERIES SHUNT ZENER DIODE BARRIERS (IIC)**

5 Manufacturer: **MEASUREMENT TECHNOLOGY LIMITED**

6 Address: **Luton, Bedfordshire, LU1 3JJ**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

00(C)1001 dated 30 July 2001

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

EN 50014: 1997 + Amds 1 & 2 **EN 50020: 1994**

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

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following:-

⟨Ex⟩ II (1) GD [EEx ia] IIC ($-20°C \leq T_a \leq +60°C$)

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0703/02/298

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.

HSE Health & Safety Executive

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I M CLEARE
DIRECTOR
8 August 2001

13 **Schedule**

14 **EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217**

15 **Description of Equipment or Protective System**

The MTL7700 Series Shunt Zener Diode Barriers are designed to restrict the transfer of energy, from unspecified safe area equipment to intrinsically safe circuits, by the limitation of voltage and current. The range consists of single, dual and triple channel barriers covering polarised - positive and negative, non-polarised, connected barriers and diode return barriers. Certain versions of barriers may have the non-hazardous supply provided by a power bus, where adjacent barriers are connected together via a bus power terminals (link).

The barriers consists of electronic components on a single printed circuit board encapsulated within a moulded plastic enclosure which incorporates one or two pairs of sockets at each end of the barrier. Circuits are connected to the socket via plugs which incorporate a screw terminal. When fitted with the screw terminals the enclosure meets the requirements of IP20. 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 barriers are asymmetrical and have a blue label defining the hazardous area terminals. Barriers may be fitted adjacent to each other on the DIN rail.

For all versions of the MTL7700 Shunt Zener Barriers

Single Channel - Terminal 1 wrt 2 (including DIN Rail Foot)
Dual Channel - Terminal 1 & 2 wrt to DIN Rail Foot
Triple Channel - Terminal 1, 2 & 5 wrt to DIN Rail Foot

U_m = 250V

Single Channel - Terminal 3 wrt 4 (including DIN Rail Foot)
Dual Channel - Terminal 3 wrt to DIN Rail Foot
Triple Channel - Terminal 3 wrt to DIN Rail Foot

U_o = See a or a1 below C_i and $L_i = 0$
I_o = See a or a1 below
P_o = See a or a1 below

Dual Channel - Terminal 4 wrt to DIN Rail Foot
Triple Channel - Terminal 4 wrt to DIN Rail Foot

U_o = See a2 below C_i and $L_i = 0$
I_o = See a2 below
P_o = See a2 below

Triple Channel - Terminal 7 wrt to DIN Rail Foot

U_o = See a3 below C_i and $L_i = 0$
I_o = See a3 below
P_o = See a3 below

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Type	Description	DC/AC		U_o (V)	R_{min} (W)	I_o (mA)	P_o (W)
MTL7710	10V, 50R	+/-	a	10	50	200	0.50
MTL7715	15V, 100R	+/-	a	15	100	150	0.56
MTL7722	22V, 150R	+/-	a	22	150	147	0.81
MTL7728	28V, 300R	+/-/ac	a	28	300	93	0.65
MTL7728P	28V, 237R	+/-	a	28	234.6	119	0.83
MTL7755	3V, 10R	ac	a1	3	10	300	0.225
	3V, 10R		a2	3	10	300	0.225
			b	3	5	600	0.45
			c	6	20	300	0.45
MTL7756	3V, 10R	ac	a1	3	10	300	0.225
	3V, 10R		a2	3	10	300	0.225
	3V, 10R		a3	3	10	300	0.225
			b1	3	5	600	0.45
			b2	3	3.3	900	0.675
			c1	6	20	300	0.45
			c2	6	15	400	0.60
MTL7761	9V, 90R	ac	a1	9	90	100	0.225
	9V, 90R		a2	9	90	100	0.225
			b	9	45	200	0.45
			c	18	180	100	0.45
MTL7761P	9V, 350R	ac	a1	9	351.5	26	0.058
	9V, 350R		a2	9	351.5	26	0.058
			b	9	175.5	52	0.115
			c	18	702.9	26	0.115
MTL7764	12V, 1K	+/-	a1	12	1,000	12	0.036
	12V, 1K		a2	12	1,000	12	0.036
			b	12	500	24	0.072
MTL7764	12V, 1K	ac	a1	12	1,000	12	0.036
	12V, 1K		a2	12	1,000	12	0.036
			b	12	500	24	0.072
			c	24	2,000	12	0.072
MTL7766	12V, 150R	ac	a1	12	150	80	0.24
	12V, 150R		a2	12	150	80	0.24
			b	12	75	160	0.48
			c	24	300	80	0.48
MTL7766P	12V, 75R	ac	a1	12	76.4	157	0.471
	12V, 75R		a2	12	76.4	157	0.471
			b	12	38.2	314	0.942
			c	24	152.9	157	0.942
MTL7767	15V, 100R	+/-	a1	15	100	150	0.56
	15V, 100R		a2	15	100	150	0.56
			b	15	50	300	1.125

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Type	Description	DC/AC		U_o (V)	R_{min} (W)	I_o (mA)	P_o (W)
MTL7779	28V, 300R	+/-	a1	28	300	93	0.65
	28V, 300R		a2	28	300	93	0.65
			b	Not permitted ‡			
MTL7787	28V, 300R	+/- (PB)	a1	28	300	93	0.65
	28V (Diode)		a2	28	†	-	-
			b	28	300	93	0.65
MTL7787P	28V, 237R	+/- (PB)	a1	28	234.6	119	0.835
	28V (Diode)		a2	28	†	-	-
			b	28	234.6	119	0.835
MTL7788	28V, 300R	+/- (PB)	a1	28	300	93	0.65
	10V, 50R		a2	10	50	200	0.5
			b	28	42.85	294@12.57V	0.92
MTL7788R	28V, 300R	+/- (PB)	a1	28	300	93	0.65
	10V, 50R		a2	10	50	200	0.5
			b	28	42.85	294@12.57V	0.92
MTL7796	26V, 300R	+/-	a1	26	300	87	0.56
	20V, 390R		a2	20	390	51	0.26
			b	26	169.56	138@23.4V	0.81

Note:

1. +/- - shunt zener diode barriers may be of positive or negative polarity dependent on the configuration of the zener diodes. The certification label will detail the exact type.

   ac - non-polarised barriers

   ac* - non-polarised star connected

   Diode - diode return barrier

   (PB) - shunt zener diode barriers may have the non-hazardous supply provided by a power bus. Adjacent barriers are connected together via a bus power terminals

2. Circuit configuration for output parameters

   a - Single channel
   a1 - First channel of a dual/triple channel barrier
   a2 - Second channel of a dual/triple channel barrier
   a3 - Third channel of a triple channel barrier
   b - Both channels of a dual channel barrier connected in parallel, with respect to earth.

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b1 - Two channels of a triple channel barrier connected in parallel, with respect to earth.
b2 - Three channels of a triple channel barrier connected in parallel, with respect to earth.
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.
c 2 - Three channels of a triple channel barrier interconnected, with no earth return (this assumes two of the channels are in parallel).

3. The intrinsically safe terminals of two channels of any MTL7700 Series dual barrier which are marked ‡, must not be interconnected in Group IIC atmospheres.

4. The hazardous area terminals of each of the barrier outputs marked † must be considered at the voltage U_o. 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 short circuit sparking risk across the hazardous area terminals, but only to the calculation of load capacitance.

5. The MTL7700 Series Shunt Zener Diode Barrier as detailed in this schedule may be considered as a direct replacement for its equivalent MTL700 Series or MTL7000 Series (as detailed on drawing SCI-946) but the load parameters must be limited to the values shown below.

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

Type	ac/dc		FOS	IIC			IIB			IIA		
			IIC	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
MTL7710	+/-	a	25	3	0.91	74	20	2.72	310	100	7.25	627
MTL7715	+/-	a	9	0.58	1.45	66	3.55	7.22	263	14	14	544
MTL7722	+/-	a	2.29	0.165	1.45	45	1.14	7.22	180	4.2	14	373
MTL7728	+/-/ac	a	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
MTL7728P	+/-	a	1.51	0.083	1.82 (2.51)	44	0.65	5.46 (7.53)	168	2.15	14.5 (20.0)	354
MTL7755	ac	a1	16	100	0.46	145	1000	1.37	722	1000	3.66	1442
		a2	16	100	0.46	145	1000	1.37	722	1000	3.66	1442
		b	8	100	0.13	69	1000	0.39	206	1000	1.03	548
		c	16	40	0.41	73	1000	1.23	361	1000	3.28	721
MTL7756	ac	a1	16	100	0.46	145	1000	1.37	722	1000	3.66	1442
		a2	16	100	0.46	145	1000	1.37	722	1000	3.66	1442
		a3	16	100	0.46	145	1000	1.37	722	1000	3.66	1442
		b1	8	100	0.13	69	1000	0.39	206	1000	1.03	548
		b2	5.5	100	0.06	44	1000	0.19	131	1000	0.49	349
		c1	16	40	0.41	73	1000	1.23	361	1000	3.28	721
		c2	12	40	0.23	61	1000	0.70	182	1000	1.86	485
MTL7761	ac	a1	50	4.9	3.72	163	40	15	616	500	31	1299
		a2	50	4.9	3.72	163	40	15	616	500	31	1299
		b	25	4.9	0.91	62	40	2.72	258	500	7.2	522
		c	6.6	0.31	3.72	81	1.78	15	308	7.6	31	649

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Type	ac/dc		FOS	IIC			IIB			IIA		
			IIC	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)	C (µF)	L (mH)	L/R (µH/Ω)
MTL7761P	ac	a1	200	4.9	56	613	40	208	2382	500	419	2778
		a2	200	4.9	56	613	40	208	2382	500	419	2778
		b	100	4.9	14	236	40	55	870	500	116	1747
		c	26	0.31	56	306	1.78	208	1191	7.6	419	1389
MTL7764	+/-	a1	416	1.41	240	1000	9	932	1000	36	1000	1000
		a2	416	1.41	240	1000	9	932	1000	36	1000	1000
		b	208	1.41	61	360	9	226	1398	36	452	1500
MTL7764	ac	a1	416	1.41	240	1000	9	932	1000	36	1000	1000
		a2	416	1.41	240	1000	9	932	1000	36	1000	1000
		b	208	1.41	61	360	9	226	1398	36	452	1500
		c	21	0.125	240	500	0.93	932	500	3.35	1000	500
MTL7766	ac	a1	62	1.41	5.8	151	9	23	556	36	48	1174
		a2	62	1.41	5.8	151	9	23	556	36	48	1174
		b	31	1.41	1.47	58	9	4.4	234	36	11	481
		c	3.26	0.125	5.8	75	0.93	23	278	3.35	48	587
MTL7766P	ac	a1	31	1.41	1.47	78	9	4.4	313	36	11	644
		a1	31	1.41	1.47	78	9	4.4	313	36	11	644
		b	15	1.41	0.34	29	9	1.02	87	36	2.71	231
		c	1.67	0.125	1.15	39	0.93	3.44	156	3.35	9.1	322
MTL7767	+/-	a1	9	0.58	1.45	66	3.55	7.22	263	14	14	544
		a2	9	0.58	1.45	66	3.55	7.22	263	14	14	544
		b	4.5	0.58	0.32	22	3.55	0.95	108	14	2.54	216
MTL7779	+/-	a1	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
		a2	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
		b	-	Not permitted								
MTL7787	+/-	a1	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
		a2	-	0.083	-	-	0.65	-	-	2.15	-	-
		b	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
MTL7787P	+/-	a1	1.51	0.083	1.82 (2.51)	44	0.65	5.46 (7.53)	168	2.15	14.5 (20.0)	354
		a2	-	0.083	-	-	0.65	-	-	2.15	-	-
		b	1.51	0.083	1.82 (2.51)	44	0.65	5.46 (7.53)	168	2.15	14.5 (20.0)	354
MTL7788	+/-	a1	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
		a2	25	3.0	0.91	74	20	2.72	310	100	7.25	627
		b	12	0.083	0.33	25	0.65	0.99	124	2.15	2.64	253
MTL7788R	+/-	a1	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
		a2	25	3.0	0.91	74	20	2.72	310	100	7.25	627
		b	12	0.083	0.33	25	0.65	0.99	124	2.15	2.64	253
MTL7796	+/-	a1	2.47	0.1	4.91	64	0.77	20	239	2.60	40	505
		a2	8.9	0.22	13	136	1.41	51	501	5.50	108	1014
		b	2	0.1	1.94	34	0.77	8.5	136	2.60	16	282

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

VARIATION 0.1

To permit the ambient temperature range of the MTL7755ac and the MTL7756ac to be increased to ($-20°C \leqslant T_a \leqslant +65°C$).

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16 Report No

00(C)1001

17 Special Conditions For Safe Use

None.

18. Essential Health and Safety Requirements

ESSENTIAL HEALTH & SAFETY REQUIREMENTS not covered by standards listed in Section 9		
Clause	**Subject**	**Compliance**
1.1.3	Changes in characteristics of materials and combinations thereof	Report No 00(C)1001 Clause 7.1.1.3
1.2.2	Components for incorporation or replacement	Report No 00(C)1001 Clause 7.1.2.2
1.2.5	Additional means of protection	Report No 00(C)1001 Clause 7.1.2.5
1.2.7	Protection against other hazards	Report No 00(C)1001 Clause 7.1.2.7
1.4.2	Withstanding attack by aggressive substances	Report No 00(C)1001 Clause 7.1.4.2

19 DRAWINGS

Number	Sheet	Issue	Date	Description
*CI7700-1	1 to 4	1	07.01	MTL7700 General Arrangements
*CI7700-2	1	1	07.01	MTL7700 Series PCB947 Track Layout
CI7700-2	2	1	07.01	MTL7700 Series PCB948 Track Layout
CI7700-2	3	1	07.01	MTL7700 Series PCB949 Track Layout
CI7700-2	5	1	07.01	MTL7700 Series PCB951Track Layout
CI7700-2	6	1	07.01	MTL7700 Series PCB952 Track Layout
CI7700-2	8	1	07.01	MTL7700 Series PCB954 Track Layout
CI7710-1	1 to 4	1	07.01	MTL7710 Shunt Diode Safety Barrier
CI7715-1	1 to 4	1	07.01	MTL7715 Shunt Diode Safety Barrier
CI7722-1	1 to 4	1	07.01	MTL7722 Shunt Diode Safety Barrier
CI7728-1	1 to 4	1	07.01	MTL7728 Shunt Diode Safety Barrier
CI7728-2	1 to 4	1	07.01	MTL7728ac Shunt Diode Safety Barrier
CI7728-3	1 to 4	1	07.01	MTL7728P Shunt Diode Safety Barrier
CI7755-1	1 to 4	1	07.01	MTL7755ac Shunt Diode Safety Barrier
CI7756-1	1 to 4	1	07.01	MTL7756ac Shunt Diode Safety Barrier
CI7761-1	1 to 4	1	07.01	MTL7761ac Shunt Diode Safety Barrier

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Number	Sheet	Issue	Date	Description
CI7761-2	1 to 4	1	07.01	MTL7761Pac, 7764ac, 7766ac Shunt Diode Safety Barriers
CI7764-1	1 to 4	1	07.01	MTL7764 Shunt Diode Safety Barrier
CI7766-1	1 to 4	1	07.01	MTL7766Pac Shunt Diode Safety Barrier
CI7767-1	1 to 4	1	07.01	MTL7767 Shunt Diode Safety Barrier
CI7779-1	1 to 4	1	07.01	MTL7779 Shunt Diode Safety Barrier
CI7787-1	1 to 4	1	07.01	MTL7787 Shunt Diode Safety Barrier
CI7787-2	1 to 4	1	07.01	MTL7787P Shunt Diode Safety Barrier
CI7788-1	1 to 4	1	07.01	MTL7788(R) Shunt Diode Safety Barriers
CI7796-1	1 to 4	1	07.01	MTL7796 Shunt Diode Safety Barrier
**SCI-946	1	1	07.01	Correlation between MTL7700/7000/700 Series Barriers

Drawings marked * are associated with BASEEFA Certificate No BAS01ATEX7218
Drawings marked ** are associated with BASEEFA Certificate No Ex 01E2219

BASEEFA List Keywords
2SHUNTZE

1 # SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially explosive atmospheres Directive 94/9/EC**

3 Supplementary EC-Type Examination Certificate Number: **BAS01ATEX7217/1**

4 Equipment or Protective System: **MTL7700 SERIES SHUNT ZENER DIODE BARRIERS (IIC)**

5 Manufacturer: **MEASUREMENT TECHNOLOGY LIMITED**

6 Address: **Luton, Bedfordshire. LU1 3JJ**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS01ATEX7217 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0703/02/298

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.

HSE Health & Safety Executive

Electrical Equipment Certification Service
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DIRECTOR
4 December 2001

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14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/1

Description of the Variation to the Equipment or Protective System

VARIATION 1.1

To permit the addition of the MTL7715P, MTL7760ac and MTL7765ac Shunt Zener Diode Barriers to those listed in the original schedule.

Single Channel - Terminal 1 wrt 2 (including DIN Rail Foot)
Dual Channel - Terminal 1 & 2 wrt to DIN Rail Foot

U_m = 250V

Single Channel - Terminal 3 wrt 4 (including DIN Rail Foot)
Dual Channel - Terminal 3 wrt to DIN Rail Foot

U_o = See a or a1 below C_i and L_i = 0
I_o = See a or a1 below
P_o = See a or a1 below

Dual Channel - Terminal 4 wrt to DIN Rail Foot

U_o = See a2 below C_i and L_i = 0
I_o = See a2 below
P_o = See a2 below

Type	Description	DC/AC		U_o (V)	R_{min} (Ω)	I_o (mA)	P_o (W)
MTL7715P	15V, 50R	+/-	a	15	51.5	291	1.09
MTL7760ac	10V, 50R	ac*	a1	10	50	200	0.5
	10V, 50R		a2	10	50	200	0.5
			b	10	25	400	1.00
MTL7765ac	15V, 100R	ac*	a1	15	100	150	0.56
	15V, 100R		a2	15	100	150	0.56
			b	15	50	300	1.125

See notes as detailed in original schedule

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

Description	ac/dc		FOS	IIC			IIB			IIA		
			IIC	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)
MTL7715P	+/-	a	4.64	0.580	0.33	28	3.55	0.99	140	14.0	2.64	280
MTL7760ac	ac*	a1	25	3.000	0.91	74	20.2	2.72	310	100	7.25	627
		a2	25	3.000	0.91	74	20.2	2.72	310	100	7.25	627
		b	13	3.000	0.20	27	20.2	0.60	82	100	1.61	218

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14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/1

Description	ac/dc		FOS	IIC			IIB			IIA		
			IIC	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)
MTL7765ac	ac*	a1	9	0.580	1.45	66	3.55	7.22	263	14.0	14.42	544
		a1	9	0.580	1.45	66	3.55	7.22	263	14.0	14.42	544
		b	4.5	0.580	0.32	22	3.55	0.95	108	14.0	2.54	216

VARIATION 1.2

To permit the following:

a. The optional fitting of sleeving over components, for operational reasons.
b. Alternative colours for printing the safe area terminal numbers.
c. Minor changes to the solder resist on PCB951.
d. Minor PCB track and cut out changes associated with PCBs 947, 948, 949, 951, 952, 954.
e. Zener diodes D2, D3, D4, D8, D9, D10 used on the MTL7728P to be increased in value from 10V8 to 11V8.
f. Zener diodes D5 to D10, D12 to D17 used on the MTL7787P to be increased in value from 10V8 to 14V8 and the maximum total zener voltage to be increased from 25.5 volts to 27.4 volts. Also resistors R4 and R5 may be decreased in value from 3R3 to 2R7.
g. An alternative routing for link LK10 as used on the MTL7764, MTL7767 and MTL7788(R).
h. Minor drawing and PCB changes associated with the MTL7710, MTL7715, MTL7722, MTL7728, MTL7728ac, MTL7728P, MTL7755ac, MTL7756ac, MTL7761ac, MTL7761Pac, MTL7764, MTL7764ac, MTL7766ac, MTL7766Pac, MTL7787, MTL7787P, MTL7788(R).

Report No.

00(C)1001/1

Special Conditions For Safe Use

None

Essential Health and Safety Requirements

See original certificate

DRAWINGS

Number	Sheet	Issue	Date	Description
Drawings associated with Variation 1.1				
CI7715-2	1 to 4	1	10.01	MTL7715P General Arrangements
CI7760-1	1 to 4	1	10.01	MTL7760ac, 7765ac General Arrangements
CI7700-2	4	1	10.01	MTL7700 Series PCB950/2 Track Layout

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/1

Number	Sheet	Issue	Date	Description
Drawings associated with Variation 1.2				
*CI7700-1	1	2	08.01	MTL7700 General Arrangements
*CI7700-1	2	2	08.01	MTL7700 General Arrangements
*CI7700-2	1	2	10.01	MTL7700 Series PCB947/3 Track Layout
CI7700-2	2	2	10.01	MTL7700 Series PCB948/2 Track Layout
CI7700-2	3	2	10.01	MTL7700 Series PCB949/3 Track Layout
CI7700-2	5	3	10.01	MTL7700 Series PCB951/2 Track Layout
CI7700-2	6	2	10.01	MTL7700 Series PCB952/2 Track Layout
CI7700-2	8	2	10.01	MTL7700 Series PCB954/3 Track Layout
CI7710-1	1 to 3	2	11.01	MTL7710 Shunt Diode Safety Barrier
CI7715-1	1 to 3	2	10.01	MTL7715 Shunt Diode Safety Barrier
CI7722-1	1 to 3	2	11.01	MTL7722 Shunt Diode Safety Barrier
CI7728-1	1 to 3	2	11.01	MTL7728 Shunt Diode Safety Barrier
CI7728-2	1 to 3	2	11.01	MTL7728ac Shunt Diode Safety Barrier
CI7728-3	1	3	11.01	MTL7728P Shunt Diode Safety Barrier
CI7728-3	2 & 3	2	11.01	MTL7728P Shunt Diode Safety Barrier
CI7755-1	1 to 3	2	11.01	MTL7755ac Shunt Diode Safety Barrier
CI7756-1	4	2	09.01	MTL7756ac Shunt Diode Safety Barrier
CI7761-1	3	2	09.01	MTL7761ac Shunt Diode Safety Barrier
CI7761-2	3	2	09.01	MTL7761Pac, 7764ac, 7766ac Shunt Diode Safety Barriers
CI7764-1	1 & 2	2	11.01	MTL7764 Shunt Diode Safety Barrier
CI7764-1	3	3	11.01	MTL7764 Shunt Diode Safety Barrier
CI7766-1	3	2	09.01	MTL7766Pac Shunt Diode Safety Barrier
CI7767-1	1 & 2	2	11.01	MTL7767 Shunt Diode Safety Barrier
CI7767-1	3	3	11.01	MTL7767 Shunt Diode Safety Barrier
CI7787-1	1 to 3	2	10.01	MTL7787 Shunt Diode Safety Barrier
CI7787-2	1	3	10.01	MTL7787P Shunt Diode Safety Barrier
CI7787-2	2 & 3	2	10.01	MTL7787P Shunt Diode Safety Barrier
CI7788-1	1 & 2	2	10.01	MTL7788(R) Shunt Diode Safety Barriers
CI7788-1	3	3	10.01	MTL7788(R) Shunt Diode Safety Barriers
**SCI-946	1 & 2	2	11.01	Correlation between MTL7700/7000/700 Series Barriers

Drawings marked * are associated with BASEEFA Certificate No BAS01ATEX7218/1
Drawings marked ** are associated with BASEEFA Certificate No Ex 01E2219/1

1 **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially explosive atmospheres Directive 94/9/EC**

3 Supplementary EC-Type Examination Certificate Number: **BAS01ATEX7217/2**

4 Equipment or Protective System: **MTL7700 SERIES SHUNT ZENER DIODE BARRIERS (IIC)**

5 Manufacturer: **MEASUREMENT TECHNOLOGY LIMITED**

6 Address: **Luton, Bedfordshire, LU1 3JJ**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS01ATEX7217 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: EECS 0703/02/298

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.

HSE Health & Safety Executive

Electrical Equipment Certification Service
Health and Safety Executive
Harpur Hill, Buxton, Derbyshire, SK17 9JN, United Kingdom
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I M CLEARE
DIRECTOR
28 March 2002

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/2

Description of the Variation to the Equipment or Protective System

VARIATION 2.1

To permit the addition of the MTL7706+, MTL7707+, MTL7758± and MTL7789± Shunt Zener Diode Barriers to those listed in the original schedule.

Single Channel - Terminal 1 wrt 2 (including DIN Rail Foot)
Dual Channel - Terminal 1 & 2 wrt to DIN Rail Foot
Triple Channel - Terminal 1, 2 & 5 wrt to DIN Rail Foot
Quad Channel - Terminal 1, 2, 5, & 6 wrt to DIN Rail Foot

U_m = 250V

Single Channel - Terminal 3 wrt 4 (including DIN Rail Foot)
Dual, Triple, Quad Channel - Terminal 3 wrt to DIN Rail Foot

U_o = See a or a1 below
I_o = See a or a1 below
P_o = See a or a1 below

Dual, Triple, Quad Channel - Terminal 4 wrt to DIN Rail Foot

U_o = See a2 below
I_o = See a2 below
P_o = See a2 below

Triple, Quad Channel - Terminal 7 wrt to DIN Rail Foot

U_o = See a3 below
I_o = See a3 below
P_o = See a3 below

Quad Channel - Terminal 8 wrt to DIN Rail Foot

U_o = See a4 below
I_o = See a4 below
P_o = See a4 below

Type	Description	AC/DC		U_o (V)	R_{min} (Ω)	I_o (mA)	P_o (W)
MTL7706	28V, 300R	+ (PB)	a	28	300	93	0.65
MTL7707	28V, 300R	+ (PB)	a1	28	300	93	0.65
	Diode		a2	28	†	-	-
			b	28	300	93	0.65
MTL7758	7.5V, 10R	+/-	a1	7.5	10	750	1.40
	7.5V, 10R		a2	7.5	10	750	1.40
			b	7.5	5	1500	2.80

13 **Schedule**

14 **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/2**

Type	Description	AC/DC		U_o (V)	R_{min} (Ω)	I_o (mA)	P_o (W)
MTL7789	28V, 600R	+/- (PB)	a1	28	600	46.5	0.33
	Diode		a2	28	†	-	-
	28V, 600R		a3	28	600	46.5	0.33
	Diode		a4	28	†	-	-
			b3	28	300	93	0.65
			c	28	600	46.5	0.33

Note:

1. +/- - shunt zener diode barriers may be of positive or negative polarity dependent on the configuration of the zener diodes. The certification label will detail the exact type.

   ac - non-polarised barriers

   ac* - non-polarised star connected

   Diode - diode return barrier

   (PB) - shunt zener diode barriers may have the non-hazardous supply provided by a power bus. Adjacent barriers are connected together via a bus power terminals

2. Circuit configuration for output parameters

   a - Single channel
   a1 - First channel of a dual/triple channel barrier
   a2 - Second channel of a dual/triple channel barrier
   a3 - Third channel of a triple channel barrier
   a4 - Third channel of a triple channel barrier
   b - Both channels of a dual channel barrier connected in parallel, with respect to earth.
   b1 - Two channels of a triple channel barrier connected in parallel, with respect to earth.
   b2 - Three channels of a triple channel barrier connected in parallel, with respect to earth.
   b3 - Four channels of a four channel barrier connected in parallel, with respect to earth.
   c - Both channels of a dual channel barrier interconnected, with no earth return or either pair of channels of a four channel barrier interconnected, with no earth return.
   c1 - Two channels of a triple channel barrier interconnected, with no earth return.
   c 2 - Three channels of a triple channel barrier interconnected, with no earth return (this assumes two of the channels are in parallel).

3. The intrinsically safe terminals of two channels of any MTL7700 Series dual barrier which are marked ‡, must not be interconnected in Group IIC atmospheres.

4. The hazardous area terminals of each of the barrier outputs marked † must be considered at the voltage U_o. 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 short circuit sparking risk across the hazardous area terminals, but only to the calculation of load capacitance.

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/2

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

Description	AC/DC		FOS	IIC			IIB			IIA		
			IIC	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)
MTL7706	+	a	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
MTL7707	+	a1	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
		a2	-	0.083	-	-	0.65	-	-	2.15	-	-
		b	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
MTL7758	+/-	a1	6.7	11.1	0.07	26	174	0.20	77	1000	0.54	206
		a2	6.7	11.1	0.07	26	174	0.20	77	1000	0.54	206
		b	3.3	11.1	0.02	10	174	0.05	30	1000	0.14	81
MTL7789	+/-	a1	3.87	0.083	16	106	0.65	63	393	2.15	133	781
		a2	-	0.083	-	-	0.65	-	-	2.15	-	-
		a3	3.87	0.083	16	106	0.65	63	393	2.15	133	781
		a4	-	0.083	-	-	0.65	-	-	2.15	-	-
		b3	1.94	0.083	3.05 (4.2)	56	0.65	9.15 (12.6)	210	2.15	24.4 (33.6)	444
		c	3.87	0.083	16	106	0.65	63	393	2.15	133	781

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

VARIATION 2.2

To permit the following:

a. The tolerance of resistors R1 and R2, used on the MTL7760ac and the MTL7765ac, to be increased from 2% to 5%. These components remain two-thirds rated and the output parameters are not affected.
b. The tolerance of resistor R4, used on the MTL7788 and the MTL7788R, to be increased from 2% to 5%. This component remain two-thirds rated and the output parameters are not affected.
c. Minor drawing changes associated with the MTL7787P.
d. Minor drawing changes associated with the General Arrangement drawing.

Report No.

01(C)1169

Special Conditions For Safe Use

None.

Essential Health and Safety Requirements

See original certificate.

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/2

DRAWINGS

Number	Sheet	Issue	Date	Description
Drawings associated with Variation 2.1				
CI7706-1	1 to 4	1	02.02	MTL7706 General Arrangements
*CI7707-1	1 to 4	1	02.02	MTL7707 General Arrangements
CI7758-1	1 to 4	1	02.02	MTL7758 General Arrangements
CI7789-1	1 to 4	1	02.02	MTL7789 General Arrangements
CI7700-2	7	2	03.02	MTL7700 Series PCB953/2 Track Layout
CI7700-2	9	1	02.02	MTL7700 Series PCB955/2 Track Layout
CI7700-2	11	1	02.02	MTL7700 Series PCB964/5 Track Layout
*CI7700-2	12	1	02.02	MTL7700 Series PCB965/3 Track Layout
Drawings associated with Variation 2.2				
*CI7700-1	1	3	02.02	MTL7700 General Arrangements
*CI7700-1	2	3	02.02	MTL7700 General Arrangements
CI7760-1	1	2	11.01	MTL7760ac & MTL7765ac Shunt Diode Safety Barriers
CI7787-2	2	3	01.02	MTL7787P Shunt Diode Safety Barriers
CI7788-1	1	3	12.01	MTL7788 & MTL7788R Shunt Diode Safety Barriers
**SCI-946	1 & 2	3	02.02	Correlation between MTL7700/7000/700 Series Barriers (IIC)

Drawings marked * are associated with BASEEFA Certificate No BAS01ATEX7218/2
Drawings marked ** are associated with BASEEFA Certificate No Ex 01E2219/2

1 # SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially explosive atmospheres Directive 94/9/EC**

3 Supplementary EC-Type Examination Certificate Number: **BAS01ATEX7217/3**

4 Equipment or Protective System: **MTL7700 SERIES SHUNT ZENER DIODE BARRIERS (IIC)**

5 Manufacturer: **MEASUREMENT TECHNOLOGY LIMITED**

6 Address: **Luton, Bedfordshire, LU1 3JJ**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS01ATEX7217 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

File No: EECS 0703/02/298

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.

HSE Health & Safety Executive

Electrical Equipment Certification Service
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I M CLEARE
DIRECTOR
9 July 2002

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/3

Description of the Variation to the Equipment or Protective System

VARIATION 3.1

To permit the addition of the MTL7741, MTL7742, MTL7743, MTL7744, MTL7745 and MTL7778 Shunt Zener Diode Barriers to those listed in the original schedule.

The input parameters for the MTL7741, MTL7742, MTL7743, MTL7744, MTL7745 and MTL7778 Shunt Zener Diode Barriers are identical to those detailed in the original schedule.

The output parameters are as follows:

Type	Description	AC/DC		U_o (V)	R_{min} (Ω)	I_o (mA)	P_o (W)	C_i (µF)
MTL7741	10V, 19mA	+ (PB)	b	10	-	19	0.039	0.135
MTL7742	10V, 19mA	+ (PB)	b	10	-	19	0.039	0.135
MTL7743	10V, 19mA	+ (PB)	b4	10	-	19	0.039	0.135
	10V, 19mA		b4	10	-	19	0.039	0.135
			b3	10	-	38	0.078	0.270
MTL7744	10V, 19mA	+ (PB)	b4	10	-	19	0.039	0.135
	10V, 19mA		b4	10	-	19	0.039	0.135
			b3	10	-	38	0.078	0.270
MTL7745	10V, 19mA	+ (PB)	b	10	-	19	0.039	0.135
MTL7778	28V, 600R	ac*	a1	28	600	47	0.33	0
	28V, 600R		a2	28	600	47	0.33	0
			b	28	300	94	0.654	0

Note - the following definitions should be included with the notes as detailed in the original schedule:

2. Circuit configuration for output parameters

b3 - Four channels of a four channel barrier connected in parallel, with respect to earth.
b4 - Either pair of channels of a four channel barrier interconnected, with earth return.
(for the MTL7743 and MTL7744 CON1,1 and CON1,2 or CON4,1 and CON4,2)

The MTL7741 (safe terminals 2, 5 & 6), MTL7743 (safe terminals 1, 2, 5 & 6) and the MTL7745 (safe 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.

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

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/3

Description	AC/DC		FOS	IIC			IIB			IIA		
			IIC	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)	C (μF)	L (mH)	L/R (μH/Ω)
MTL7741	+	b	263	2.86	96	742	20.0	365	1900	100	696	1900
MTL7742	+	b	263	2.86	96	742	20.0	365	1900	100	696	1900
MTL7743	+	b4	263	2.86	96	742	20.0	365	1900	100	696	1900
		b4	263	2.86	96	742	20.0	365	1900	100	696	1900
		b3	131	2.73	25	184	19.9	91	694	100	193	1323
MTL7744	+	b4	263	2.86	96	742	20.0	365	1900	100	696	1900
		b4	263	2.86	96	742	20.0	365	1900	100	696	1900
		b3	131	2.73	25	184	19.9	91	694	100	193	1323
MTL7745	+	b	263	2.86	96	742	20.0	365	1900	100	696	1900
MTL7778	ac*	a1	3.38	0.083	16	107	0.65	62	398	2.15	130	789
		a2	3.38	0.083	16	107	0.65	62	398	2.15	130	789
		b	1.94	0.083	3.05 (4.2)	42	0.65	9.15 (12.6)	158	2.15	24.4 (33.6)	333

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

VARIATION 3.2

To permit the following:

a. Minor drawing changes associated with the General Arrangement drawing.
b. The alternative fuse arrangement to be deleted from the MTL7706, MTL7710, MTL7715, MTL7715P, MTL7722, MTL7728, MTL7728ac, MTL7728P, MTL7755ac, MTL7761ac, MTL7761Pac, MTL77644ac, MTL7766ac, MTL7764, MTL7766Pac, MTL7767, MTL7779, MTL7787, MTL7787P, MTL7778(R) and MTL7796
c. An alternative PCB arrangement for the MTL7788 and the MTL7788R, and to allow a salvage scheme for existing PCBs
d. Minor drawing changes associated with the MTL7758, MTL7761Pac, MTL7787P and the MTL7789.
e. Minor mechanical changes to the General Arrangement

Report No.

01(C)1169/1

Special Conditions For Safe Use

None.

Essential Health and Safety Requirements

See original certificate.

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/3

DRAWINGS

Number	Sheet	Issue	Date	Description
Drawings associated with Variation 3.1 of BAS01ATEX7127/3				
CI7741-1	1	1	06.02	MTL7741 Shunt Diode Safety Barriers
CI7741-1	2	1	04.02	MTL7741 Shunt Diode Safety Barriers
CI7741-1	3	1	06.02	MTL7741 Shunt Diode Safety Barriers
CI7741-1	4	1	06.02	MTL7741 Shunt Diode Safety Barriers
CI7742-1	1	1	06.02	MTL7742 Shunt Diode Safety Barriers
CI7742-1	2	1	04.02	MTL7742 Shunt Diode Safety Barriers
CI7742-1	3	1	06.02	MTL7742 Shunt Diode Safety Barriers
CI7742-1	4	1	06.02	MTL7742 Shunt Diode Safety Barriers
CI7743-1	1	1	06.02	MTL7743 Shunt Diode Safety Barriers
CI7743-1	2	1	04.02	MTL7743 Shunt Diode Safety Barriers
CI7743-1	3	1	06.02	MTL7743 Shunt Diode Safety Barriers
CI7743-1	4	1	06.02	MTL7743 Shunt Diode Safety Barriers
CI7744-1	1	1	06.02	MTL7744 Shunt Diode Safety Barriers
CI7744-1	2	1	04.02	MTL7744 Shunt Diode Safety Barriers
CI7744-1	3	1	06.02	MTL7744 Shunt Diode Safety Barriers
CI7744-1	4	1	06.02	MTL7744 Shunt Diode Safety Barriers
CI7745-1	1	1	06.02	MTL7745 Shunt Diode Safety Barriers
CI7745-1	2	1	04.02	MTL7745 Shunt Diode Safety Barriers
CI7745-1	3	1	06.02	MTL7745 Shunt Diode Safety Barriers
CI7745-1	4	1	06.02	MTL7745 Shunt Diode Safety Barriers
CI7778-1	1	1	06.02	MTL7778ac Shunt Diode Safety Barriers
CI7778-1	2	1	06.02	MTL7778ac Shunt Diode Safety Barriers
CI7778-1	3	1	06.02	MTL7778ac Shunt Diode Safety Barriers
CI7778-1	4	1	06.02	MTL7778ac Shunt Diode Safety Barriers
CI7700-2	10	1	05.02	MTL7700 Series PCB956/2 Track Layout
CI7700-2	13	1	04.02	MTL7700 Series PCB966/2 Track Layout
CI7700-2	15	2	06.02	MTL7700 Series PCB968/3 Track Layout
Drawings associated with Variation 3.2 of BAS01ATEX7127/3				
*CI7700-1	2	4	04.02	MTL7700 General Arrangements
*CI7700-1	3	2	04.02	MTL7700 General Arrangements

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/3

Number	Sheet	Issue	Date	Description
CI7700-2	1	3	04.02	MTL7700 Series PCB947/4 Track Layout
CI7700-2	2	3	04.02	MTL7700 Series PCB948/3 Track Layout
CI7700-2	3	3	04.02	MTL7700 Series PCB949/4 Track Layout
CI7700-2	4	2	03.02	MTL7700 Series PCB950/3 Track Layout
CI7700-2	5	4	03.02	MTL7700 Series PCB951/3 Track Layout
CI7700-2	6	3	03.02	MTL7700 Series PCB952/3 Track Layout
CI7700-2	7	3	05.02	MTL7700 Series PCB953/3 Track Layout
CI7700-2	8	4	05.02	MTL7700 Series PCB954/5 Track Layout
CI7700-2	12	2	04.02	MTL7700 Series PCB965/4 Track Layout
CI7706-1	1	2	04.02	MTL7706 Shunt Diode Safety Barriers
CI7706-1	2	2	04.02	MTL7706 Shunt Diode Safety Barriers
CI7706-1	3	2	04.02	MTL7706 Shunt Diode Safety Barriers
CI7706-1	4	2	06.02	MTL7706 Shunt Diode Safety Barriers
CI7707-1	4	2	06.02	MTL7707 Shunt Diode Safety Barriers
CI7710-1	1	3	04.02	MTL7710 Shunt Diode Safety Barriers
CI7710-1	2	3	04.02	MTL7710 Shunt Diode Safety Barriers
CI7710-1	3	3	06.02	MTL7710 Shunt Diode Safety Barriers
CI7710-1	4	2	06.02	MTL7710 Shunt Diode Safety Barriers
CI7715-1	1	3	04.02	MTL7715 Shunt Diode Safety Barriers
CI7715-1	2	3	04.02	MTL7715 Shunt Diode Safety Barriers
CI7715-1	3	3	06.02	MTL7715 Shunt Diode Safety Barriers
CI7715-1	4	2	06.02	MTL7715 Shunt Diode Safety Barriers
CI7715-2	1	2	04.02	MTL7715P Shunt Diode Safety Barriers
CI7715-2	2	2	04.02	MTL7715P Shunt Diode Safety Barriers
CI7715-2	3	2	06.02	MTL7715P Shunt Diode Safety Barriers
CI7715-2	4	2	06.02	MTL7715P Shunt Diode Safety Barriers
CI7722-1	1	3	04.02	MTL7722 Shunt Diode Safety Barriers
CI7722-1	2	3	04.02	MTL7722 Shunt Diode Safety Barriers
CI7722-1	3	3	05.02	MTL7722 Shunt Diode Safety Barriers
CI7722-1	4	2	06.02	MTL7722 Shunt Diode Safety Barriers
CI7728-1	1	4	05.02	MTL7728 Shunt Diode Safety Barriers
CI7728-1	2	4	05.02	MTL7728 Shunt Diode Safety Barriers

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/3

Number	Sheet	Issue	Date	Description
CI7728-1	3	3	05.02	MTL7728 Shunt Diode Safety Barriers
CI7728-1	4	2	06.02	MTL7728 Shunt Diode Safety Barriers
CI7728-2	1	4	05.02	MTL7728ac Shunt Diode Safety Barriers
CI7728-2	2	4	05.02	MTL7728ac Shunt Diode Safety Barriers
CI7728-2	3	3	05.02	MTL7728ac Shunt Diode Safety Barriers
CI7728-2	4	2	06.02	MTL7728ac Shunt Diode Safety Barriers
CI7728-3	1	5	06.02	MTL7728P Shunt Diode Safety Barriers
CI7728-3	2	4	06.02	MTL7728P Shunt Diode Safety Barriers
CI7728-3	3	3	06.02	MTL7728P Shunt Diode Safety Barriers
CI7728-3	4	2	06.02	MTL7728P Shunt Diode Safety Barriers
CI7755-1	1	3	04.02	MTL7755ac Shunt Diode Safety Barriers
CI7755-1	2	3	04.02	MTL7755ac Shunt Diode Safety Barriers
CI7755-1	3	3	05.02	MTL7755ac Shunt Diode Safety Barriers
CI7755-1	4	2	06.02	MTL7755ac Shunt Diode Safety Barriers
CI7756-1	3	2	06.02	MTL7756ac Shunt Diode Safety Barriers
CI7756-1	4	3	06.02	MTL7756ac Shunt Diode Safety Barriers
CI7758-1	1	2	05.02	MTL7758 Shunt Diode Safety Barriers
CI7758-1	2	3	05.02	MTL7758 Shunt Diode Safety Barriers
CI7758-1	3	2	05.02	MTL7758 Shunt Diode Safety Barriers
CI7758-1	4	2	06.02	MTL7758 Shunt Diode Safety Barriers
CI7760-1	2	2	06.02	MTL7760ac, MTL7765ac Shunt Diode Safety Barriers
CI7760-1	4	2	06.02	MTL7760ac, MTL7765ac Shunt Diode Safety Barriers
CI7761-1	1	2	04.02	MTL7761ac Shunt Diode Safety Barriers
CI7761-1	2	3	04.02	MTL7761ac Shunt Diode Safety Barriers
CI7761-1	3	3	06.02	MTL7761ac Shunt Diode Safety Barriers
CI7761-1	4	2	06.02	MTL7761ac Shunt Diode Safety Barriers
CI7761-2	1	2	04.02	MTL7761Pac, MTL7764ac, MTL7766ac Shunt Diode Safety Barriers
CI7761-2	2	2	04.02	MTL7761Pac, MTL7764ac, MTL7766ac Shunt Diode Safety Barriers
CI7761-2	3	3	06.02	MTL7761Pac, MTL7764ac, MTL7766ac Shunt Diode Safety Barriers

13 Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/3

Number	Sheet	Issue	Date	Description
CI7761-2	4	3	06.02	MTL7761Pac, MTL7764ac, MTL7766ac Shunt Diode Safety Barriers
CI7764-1	1	4	06.02	MTL7764 Shunt Diode Safety Barriers
CI7764-1	2	4	06.02	MTL7764 Shunt Diode Safety Barriers
CI7764-1	3	4	06.02	MTL7764 Shunt Diode Safety Barriers
CI7764-1	4	2	06.02	MTL7764 Shunt Diode Safety Barriers
CI7766-1	1	4	06.02	MTL7766Pac Shunt Diode Safety Barriers
CI7766-1	2	3	04.02	MTL7766Pac Shunt Diode Safety Barriers
CI7766-1	3	3	06.02	MTL7766Pac Shunt Diode Safety Barriers
CI7766-1	4	2	06.02	MTL7766Pac Shunt Diode Safety Barriers
CI7767-1	1	4	06.02	MTL7767 Shunt Diode Safety Barriers
CI7767-1	2	4	06.02	MTL7767 Shunt Diode Safety Barriers
CI7767-1	3	4	06.02	MTL7767 Shunt Diode Safety Barriers
CI7767-1	4	2	06.02	MTL7767 Shunt Diode Safety Barriers
CI7779-1	1	2	04.02	MTL7779 Shunt Diode Safety Barriers
CI7779-1	2	2	04.02	MTL7779 Shunt Diode Safety Barriers
CI7779-1	3	2	06.02	MTL7779 Shunt Diode Safety Barriers
CI7779-1	4	2	06.02	MTL7779 Shunt Diode Safety Barriers
CI7787-1	1	3	04.02	MTL7787 Shunt Diode Safety Barriers
CI7787-1	2	3	04.02	MTL7787 Shunt Diode Safety Barriers
CI7787-1	3	3	05.02	MTL7787 Shunt Diode Safety Barriers
CI7787-1	4	2	06.02	MTL7787 Shunt Diode Safety Barriers
CI7787-2	1	4	04.02	MTL7787P Shunt Diode Safety Barriers
CI7787-2	2	4	04.02	MTL7787P Shunt Diode Safety Barriers
CI7787-2	3	3	05.02	MTL7787P Shunt Diode Safety Barriers
CI7787-2	4	2	06.02	MTL7787P Shunt Diode Safety Barriers
CI7788-1	1	5	05.02	MTL7788 & MTL7788R Shunt Diode Safety Barriers
CI7788-1	2	4	06.02	MTL7788 & MTL7788R Shunt Diode Safety Barriers
CI7788-1	3	4	06.02	MTL7788 & MTL7788R Shunt Diode Safety Barriers
CI7788-1	4	2	06.02	MTL7788 & MTL7788R Shunt Diode Safety Barriers
CI7788	1	1	03.02	MTL7788 & MTL7788R Salvage Scheme for PCB954/3
CI7789-1	3	2	04.02	MTL7789 Shunt Diode Safety Barriers

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14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS01ATEX7217/3

Number	Sheet	Issue	Date	Description
CI7789-1	4	2	06.02	MTL7789 Shunt Diode Safety Barriers
CI7796-1	1	2	04.02	MTL7796 Shunt Diode Safety Barriers
CI7796-1	2	2	04.02	MTL7796 Shunt Diode Safety Barriers
CI7796-1	3	2	06.02	MTL7796 Shunt Diode Safety Barriers
CI7796-1	4	2	06.02	MTL7796 Shunt Diode Safety Barriers
**SCI-946	1 & 2	4	05.02	Correlation between MTL7700/7000/700 Series Barriers (IIC)

Drawings marked * are associated with BASEEFA Certificate No BAS01ATEX7218/3
Drawings marked ** are associated with BASEEFA Certificate No Ex 01E2219/3

Dimensions in mm | Do Not Scale | Third Angle Projection

Module Number	Bussed Power ?	MTL7000 equivalent	MTL7000 Original Certificate Numbers	MTL7000 ATEX Certificate Numbers	MTL700 equivalent	MTL700 Original Certificate Numbers	MTL700 ATEX Certificate Numbers	Typical Application
MTL7706+	Yes	MTL7106 MTL7206	Ex95C2261	BAS99ATEX7285	MTL706	Ex87B2428	BAS01ATEX7202	"Smart" 2-wire 4/20mA Tx
MTL7707+	Yes	MTL7207+	Ex95C2261	BAS99ATEX7285	MTL707+	Ex832469	BAS01ATEX7202	Switch I/P & D/P
MTL7710+ MTL7710-	No	Half of MTL7162+, MTL7162-	Ex95C2261	BAS99ATEX7285	MTL710+, MTL710-	Ex832452	BAS01ATEX7202	4, 6V Systems
MTL7715+ MTL7715-	No	N/A	N/A	N/A	MTL715+, MTL715-	Ex832452	BAS01ATEX7202	12V Systems
MTL7715P+ MTL7715P-	No	N/A	N/A	N/A	MTL715P+	Ex92C2373	BAS01ATEX7202	12V dc Systems
MTL7722+ MTL7722-	No	MTL7122+, MTL7122-	Ex95C2261	BAS99ATEX7285	MTL722+, MTL722-	Ex832452	BAS01ATEX7202	General Purpose
MTL7728+ MTL7728-	No	MTL7028+, MTL7128+ MTL7028- MTL7128-	Ex95C2261	BAS99ATEX7285	MTL728+, MTL728-	Ex832452	BAS01ATEX7202	Analogue/ Digital
MTL7728ac	No	N/A	N/A	N/A	MTL728ac	Ex832452	BAS01ATEX7202	General Purpose
MTL7728P+ MTL7728P-	No	MTL7128P+, MTL7128P-	Ex95C2261	BAS99ATEX7285	MTL728P+	Ex92C2373	BAS01ATEX7202	Analogue/ Digital
MTL7741	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Namur
MTL7742	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Namur
MTL7743	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Namur
MTL7744	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Namur
MTL7745	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Namur
MTL7755ac	No	MTL7055ac	Ex95C2261	BAS99ATEX7285	MTL755ac	Ex832452	BAS01ATEX7202	RTD, Grounded
MTL7756ac	No	MTL7056ac	Ex95C2261	BAS99ATEX7285	N/A	N/A	N/A	RTD, Isolated
MTL7758+ MTL7758-	No	N/A	N/A	N/A	MTL758+ MTL758-	Ex832452	BAS01ATEX7202	Strain Gauges
MTL7760ac	No	N/A	N/A	N/A	MTL760ac	Ex832452	BAS01ATEX7202	Active Sensors, Thermocouples
MTL7761ac	No	MTL7261ac	Ex95C2261	BAS99ATEX7285	MTL761ac	Ex832452	BAS01ATEX7202	Strain Gauges
MTL7761Pac	No	MTL7061Pac, MTL7161Pac	Ex95C2261	BAS99ATEX7285	MTL761Pac	Ex92C2373	BAS01ATEX7202	Load Cell

Iss	Date	Drn	Modification
1	7.01	SM	Added MTL7715P+, ...15P-, ..60ac & ..65ac
2	11.01	SB	Added MTL7706+, 7707+, 7758+ & -. Moved MTL7767+ & -, 7779+ & -, 7787+ & - to sheet 2.
3	2.02	SB	MTL7741 to 45 added, MTL7764+ to 66Pac moved to sheet 2.
4	5.02	SB	

This document forms part of the BASEEFA Certification Information and must not be modified without reference to the certification authority.

Scale N/A

Sheet 1 of 2

Title: Correlation between MTL7700 Barriers and MTL7000 and MTL700 Barriers (IIC)

Drg. No. SCI-946

SOLID EDGE

A4

AL

Dimensions in mm | Do Not Scale | Third Angle Projection

Module Number	Bussed Power ?	MTL7000 equivalent	MTL7000 Original Certificate Numbers	MTL7000 ATEX Certificate Numbers	MTL700 equivalent	MTL700 Original Certificate Numbers	MTL700 ATEX Certificate Numbers	Typical Application
MTL7764+, MTL7764-	No	MTL7164+, MTL7164-	Ex95C2261	BAS99ATEX7285	MTL764+, MTL764-	Ex832452	BAS01ATEX7202	High Resistance
MTL7764ac	No	MTL7264ac	Ex95C2261	BAS99ATEX7285	MTL764ac	Ex832452	BAS01ATEX7202	Strain/Level Gauges
MTL7765ac	No	N/A	N/A	N/A	MTL765ac	Ex832452	BAS01ATEX7202	General Purpose
MTL7766ac	No	N/A	N/A	N/A	MTL766ac	Ex832452	BAS01ATEX7202	Strain Gauges
MTL7766Pac	No	MTL7066Pac, MTL7166Pac	Ex95C2261	BAS99ATEX7285	MTL766Pac	Ex92C2373	BAS01ATEX7202	Strain Gauges
MTL7767+, MTL7767-	No	MTL7167+, MTL7167-	Ex95C2261	BAS99ATEX7285	MTL767+, MTL767-	Ex832452	BAS01ATEX7202	Dual 715
MTL7778ac	No	MTL7278ac	Ex95C2261	BAS99ATEX7285	MTL778ac	Ex832452	BAS01ATEX7202	Sensors
MTL7779+, MTL7779-	No	N/A	N/A	N/A	MTL779+ MTL779-	Ex832452	BAS01ATEX7202	Dual 728
MTL7787+ MTL7787-	Yes	MTL7087+, MTL7187+ MTL7087- MTL7187-	Ex95C2261	BAS99ATEX7285	MTL787S+	Ex832452	BAS01ATEX7202	Analogue or Digital
MTL7787P+, MTL7787P-	Yes	MTL7087P+, MTL7187P+	Ex95C2261	BAS99ATEX7285	MTL787SP+	Ex92C2373	BAS01ATEX7202	A or D
MTL7788+, MTL7788-	Yes	N/A	N/A	N/A	MTL788+ MTL788-	Ex832452	BAS01ATEX7202	Transmitters
MTL7788R+, MTL7788R-	Yes	N/A	N/A	N/A	MTL788R+ MTL788R-	Ex832452	BAS01ATEX7202	1-5V systems
MTL7789+, MTL7789-	Yes	2 off MTL7087+ MTL7187+ MTL7087- MTL7187-	Ex95C2261	BAS99ATEX7285	2 off MTL787S+	Ex832452	BAS01ATEX7202	Analogue or Digital
MTL7796+, MTL7796-	No	MTL7096-, MTL7196-	Ex95C2261	BAS99ATEX7285	MTL796+, MTL796-	Ex832452	BAS01ATEX7202	Gas Metering

Iss	Date	Drn	Modification	Chd
2	11.01	SB	Contents transferred from sheet 1.	
3	2.02	SB	Added MTL7767+ & -, 7779+ & - 7787+ & -, 7789+ & -.	
4	5.02	SB	MTL7764+ to 66Pac moved from sheet 1. MTL7778ac added.	

This document forms part of the BASEEFA Certification Information and must not be modified without reference to the certification authority.

Scale N/A

Sheet 2 of 2

Title: Correlation between MTL7700 Barriers and MTL7000 and MTL700 Barriers (IIC)

Drg. No. SCI-946

SOLID EDGE

A4

A4