

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM16US0708X
3. **Equipment:** *MTL7700 Series Shunt Diode Barriers*
(Type Reference and Name) *MTL7798 Power Feed Module*
4. **Name of Listing Company:** Eaton Electric Limited
5. **Address of Listing Company:** Great Marlings, Butterfield, Luton, Bedfordshire LU2 8DL, United Kingdom
6. The examination and test results are recorded in confidential report number:

3010737 dated 8th October 2001
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2011, FM Class 3610:2010, FM Class 3611:2004, FM Class 3810:2005
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.
10. Equipment Ratings:

MTL7700 Series Shunt Diode Barriers

Associated intrinsically safe apparatus with connections for Class I, II and III, Division 1, applicable Groups A, B, C, D, E, F and G; AEx [ia] IIC per "Entity" requirements in accordance with installation drawing SCI-942.

Nonincendive for installation in Class I, Division 2, Groups A, B, C and D, T4 at Ta = 60°C or 65°C; Class I, Zone 2, Group IIC, T4 at Ta = 60°C or 65°C hazardous (classified) indoor locations.

Certificate issued by:

J.E. Marquedant
Manager, Electrical Systems

21 November 2016

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

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US Certificate Of Conformity No: FM16US0408X

MTL7798 Power Feed Module

Nonincendive apparatus for installation in Class I, Division 2, Groups A, B, C and D, T4 at Ta = 60°C or 65°C; Class I, Zone 2, Group IIC, T4 at Ta = 60°C or 65°C hazardous (classified) indoor locations

11. The marking of the equipment shall include:

MTL7700 Series Shunt Diode Barriers

AIS / I,II,III / 1 / ABCDEFG - SCI-942 Entity; NI / I / 2 / ABCD / T* Ta = *
 [I/0] AEx [ja] / IIC - SCI-942 Entity; NI / I / 2 / IIC / T* Ta = *

MTL7798 Power Feed Module

NI / I / 2 / ABCD / T4 Ta = 60°C
 NI / I / 2 / IIC / T4 Ta = 60°C

12. **Description of Equipment:**

General – Model MTL7700 Series Shunt Diode Barriers are passive energy limiting assemblies used to separate intrinsically safe apparatus located in Division 1, Zone 0 or Zone 1 hazardous locations and non-intrinsically safe apparatus located in non-hazardous, Division 2 or Zone 2 hazardous locations.

The Model MTL7798 Power Feed Module is designed to receive DC power on the non-hazardous side of the MTL7700 Series barriers and distributes that power to the non-hazardous side of a number of MTL7700 or compatible barriers. The MTL7798 Power Feed Module performs a monitoring and trip function only.

Construction - The Model MTL7700 Series barrier is a DIN rail mounted barrier. The Model MTL7798 Power Feed Module has the same basic construction as the MTL7700 barrier and mounts on the DIN rails along side the MTL7700 Series barrier. The MTL7700 and MTL7798 are fixed installation mounted within a final equipment enclosure. The requirements of this enclosure may be found in ANSI/ISA 82.01 Standards or other applicable ordinary location standards.

MTL7700 Series - Barrier Model Terminals with Entity Parameters

Single channel barrier to one device with ground return:

Barrier Model Terminals	V _{oc} or U _o (V)	I _{sc} or I _o (mA)	P _o (W)	C _a or C _o (μF)	L _a or L _o (mH)	L _a /R _a or L _o /R _o (μH/Ω)	Division 2/Zone 2 Temp. Code	
							T *	Ta *
MTL7706+ 3 & 4	28	93	0.65	0.83	4.2	56	T4	60°C
MTL7710+/- 3 & 4	10	200	0.5	3.0	0.91	74	T4	60°C
MTL7715+/- 3 & 4	15	150	0.56	0.58	1.45	66	T4	60°C
MTL7715P+/- 3 & 4	15	291	1.09	0.58	0.33	28	T4	60°C

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MTL7722+/- 3 & 4	22	147	0.81	0.165	1.45	45	T4	60°C
MTL7728+/-/ac 3 & 4	28	93	0.65	0.083	4.2	56	T4	60°C
MTL7728P+/- 3 & 4	28	119	0.83	0.083	2.51	44	T4	60°C

Dual, three or four channel barrier, each channel to separate devices, with separate ground returns:

Barrier Model Terminals	V_{oc} or U_o (V)	I_{sc} or I_o (mA)	P_o (W)	C_a or C_o (μ F)	L_a or L_o (mH)	L_a/R_a or L_o/R_o (μ H/ Ω)	Division 2/Zone 2 Temp. Code	
							T^*	T_a^*
MTL7707+ 3 & GND	28	93	0.65	0.083	4.2	56	T4	60°C
MTL7707+ 4 & GND	28	0	–	0.083	–	–	T4	60°C
MTL7707P+ 4 & GND	28	0	–	0.083	–	–	T4	60°C
MTL7755ac 3 & GND or 4 & GND	3	300	0.225	100	0.46	145	T4	65°C
MTL7756ac 3 & GND or 4 & GND or 7 & GND	3	300	0.225	100	0.46	145	T4	65°C
MTL7758+/- 3 & GND or 4 & GND	7.5	750	1.4	11.1	0.07	26	T4	60°C
MTL7760ac 3 & GND or 4 & GND	10	200	0.5	3.0	0.91	74	T4	60°C
MTL7761ac 3 & GND or 4 & GND	9	100	0.225	4.9	3.72	163	T4	60°C
MTL7761Pac 3 & GND or 4 & GND	9	26	0.058	4.9	56	613	T4	60°C
MTL7764+/- 3 & GND or 4 & GND	12	12	0.036	1.41	240	1000	T4	60°C
MTL7764ac 3 & GND or 4 & GND	12	12	0.036	1.41	240	1000	T4	60°C
MTL7765ac 3 & GND or 4 & GND	15	150	0.56	0.58	1.45	66	T4	60°C

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MTL7766ac 3 & GND or 4 & GND	12	80	0.24	1.41	5.8	151	T4	60°C
MTL7766Pac 3 & GND or 4 & GND	12	157	0.471	1.41	1.47	78	T4	60°C
MTL7767+/- 3 & GND or 4 & GND	15	150	0.56	0.58	1.45	66	T4	60°C
MTL7778ac 3 & GND or 4 & GND	28	47	0.33	0.083	16	107	T4	60°C
MTL7779+/- 3 & GND or 4 & GND	28	93	0.65	0.083	4.2	56	T4	60°C
MTL7787+/- 3 & GND	28	93	0.65	0.083	4.2	56	T4	60°C
MTL7787+/- 4 & GND	28	0	–	0.083	–	–	T4	60°C
MTL7787P+/- 3 & GND	28	119	0.83	0.083	2.51	44	T4	60°C
MTL7787P+/- 4 & GND	28	0	–	0.083	–	–	T4	60°C
MTL7788+/- 3 & GND	28	93	0.65	0.083	4.2	56	T4	60°C
MTL7788+/- 4 & GND	10	200	0.5	3.0	0.91	74	T4	60°C
MTL7788R+/- 3 & GND	28	93	0.65	0.083	4.2	56	T4	60°C
MTL7788R+/- 4 & GND	10	200	0.5	3.0	0.91	74	T4	60°C
MTL7789+/- 3 & GND or 7 & GND	28	46.5	0.33	0.083	16	106	T4	60°C
MTL7789+/- 4 & GND or 8 & GND	28	0	–	0.083	–	–	T4	60°C
MTL7796+/- 3 & GND	26	87	0.56	0.1	4.91	64	T4	60°C
MTL7796+/- 4 & GND	20	51	0.26	0.22	13	136	T4	60°C

Dual, three or four channel barrier two channels to same device with or without ground returns:

<i>Barrier Model Terminals</i>	<i>V_i or U_o (V)</i>	<i>I_i or I_o (mA)</i>	<i>P_o (W)</i>	<i>C_a or C_o (μF)</i>	<i>L_a or L_o (mH)</i>	<i>L_a/R_a or L_o/R_o</i>	<i>Division 2/Zone 2 Temp. Code</i>
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						($\mu\text{H}/\Omega$)	T *	Ta *
MTL7707+ 3 & 4	29.4	93	0.65	0.071	4.2	56	T4	60°C
MTL7741 3 & 4	10	19	0.039	2.86	96	742	T4	60°C
MTL7742 3 & 4	10	19	0.039	2.86	96	742	T4	60°C
MTL7743 3 & 4 or 7 & 8	10	19	0.039	2.86	96	742	T4	60°C
MTL7744 3 & 4 or 7 & 8	10	19	0.039	2.86	96	742	T4	60°C
MTL7745 3 & 4	10	19	0.039	2.86	96	742	T4	60°C
MTL7755ac 3 & 4	6	600	0.45	40	0.13	69	T4	65°C
MTL7756ac 3 & 4 or 4 & 7 or 3 & 7	6	600	0.45	40	0.13	69	T4	65°C
MTL7758+/- 3 & 4	7.9	1500	2.8	8.8	0.02	10	T4	60°C
MTL7760ac 3 & 4	10	400	1.0	3.0	0.2	35.6	T4	60°C
MTL7761ac 3 & 4	18	200	0.45	0.31	0.91	62	T4	60°C
MTL7761Pac 3 & 4	18	52	0.115	0.31	14	236	T4	60°C
MTL7764+/- 3 & 4	13	24	0.072	1.0	61	360	T4	60°C
MTL7764ac 3 & 4	24	24	0.072	0.125	61	360	T4	60°C
MTL7765ac 3 & 4	15	300	1.12	0.58	0.32	31.6	T4	60°C
MTL7766ac 3 & 4	24	160	0.48	0.125	1.47	58	T4	60°C
MTL7766Pac 3 & 4	24	314	0.942	0.125	0.34	29	T4	60°C
MTL7767+/- 3 & 4	15	300	1.125	0.58	0.32	22	T4	60°C
MTL7778ac 3 & 4	28	93	0.654	0.083	4.2	56	T4	60°C
MTL7787+/- 3 & 4	29.4	93	0.65	0.071	4.2	56	T4	60°C
MTL7787P+/- 3 & 4	28.5	119	0.835	0.078	2.51	44	T4	60°C

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MTL7788+/- 3 & 4	28	294	0.92	0.083	0.33	25	T4	60°C
MTL7788R+/- 3 & 4	28	294	0.92	0.083	0.33	25	T4	60°C
MTL7789+/- 3 & 4 or 7 & 8	28	46.5	0.33	0.083	16	106	T4	60°C
MTL7796+/- 3 & 4	26.4	138	0.81	0.096	1.94	34	T4	60°C

Three channel barrier three channel to same device with or without ground return:

Barrier Model Terminals	V_i or U_o (V)	I_i or I_o (mA)	P_o (W)	C_a or C_o (μ F)	L_a or L_o (mH)	L_a/R_a or L_o/R_o (μ H/ Ω)	Division 2/Zone 2 Temp. Code	
							T *	Ta *
MTL7756ac 3 & 4 & 7	6	900	0.675	40	0.06	44	T4	65°C

Four channel barrier, four channel to same device, with or without ground return:

Barrier Model Terminals	V_i or U_o (V)	I_i or I_o (mA)	P_o (W)	C_a or C_o (μ F)	L_a or L_o (mH)	L_a/R_a or L_o/R_o (μ H/ Ω)	Division 2/Zone 2 Temp. Code	
							T *	Ta *
MTL7743 3 & 4 & 7 & 8	10	38	0.078	2.73	25	184	T4	60°C
MTL7744 3 & 4 & 7 & 8	10	38	0.078	2.73	25	184	T4	60°C
MTL7789+/- 3 & 4 & 7 & 8	28	93	0.65	0.083	4.2	56	T4	60°C

13. **Specific Conditions of Use:**

MTL7700 Series Shunt Diode Barriers

1. The MTL7700 Series barriers shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.

MTL7798 Power Feed Module

1. The MTL7798 Power Feed Module shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate application.

2. The MTL7798 Power Feed Module may be installed with MTL7700 Series Shunt Diode Barriers as auxiliary nonincendive apparatus.

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14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
8 th October 2001	Original Issue.
21 st November 2016	Supplement 5: Report Reference: – RR207009 dated 21 st November 2016 Description of the Change: Company name change. Certificate format updated.

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