

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM16US0443X**
3. **Equipment:**
(Type Reference and Name) **TPa-b. TP Series Surge Protectors.**
TP-ACa-b. TP Series Surge Protectors.
TPa-b. TP Series Surge Protectors.
FP32. FP Series Surge Protectors.
IOPab. IOP Series Surge Protectors.
SLPab. SLP Series Surge Protectors.
4. **Name of Listing Company:** **Eaton Electric Limited**
5. **Address of Listing Company:** **Great Marlings, Butterfield**
Luton, Bedfordshire, LUS 8DL
United Kingdom
6. The examination and test results are recorded in confidential report number:

3011208 dated 13th March 2002
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 3615:2006, FM 3810:1989
including Supplement #1:1995, ANSI/NEMA 250: 1991, ISA-S12.0.01:1998, ANSI/ISA 60079-0:2009,
ANSI/ISA 60079-11:2009
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.

Certificate issued by:



J. E. Marquedant

VP, Manager - Electrical Systems

10 March 2019

Date

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

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC. 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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SCHEDULE



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10. Equipment Ratings:

TP Series:

Intrinsically safe for use in Class I, II, III Division 1, Groups A, B, C, D, E, F, G and Class I, Zone 0, Group IIC in accordance with manufacturer's Control Drawing; Explosionproof for Class I, Division 1, Groups A, B, C, and D; Dust-ignitionproof for Class II and III, Division 1, Groups E, F, and G; Nonincendive for Class I, Division 2, Groups A, B, C, D and Class I, Zone 2, Group IIC, Special Protection for Class II, Division 2, Groups F, G, Hazardous (Classified) Indoor/Outdoor (TYPE 4X) Locations

TP-AC Series:

Explosionproof for Class I, Division 1, Groups A, B, C, and D; Dust-ignitionproof for Class II and III, Division 1, Groups E, F, and G; Nonincendive for Class I, Division 2, Groups A, B, C, D and Class I, Zone 2, Group IIC, Special Protection for Class II, Division 2, Groups F, G, Hazardous (Classified) Indoor/Outdoor (TYPE 4X) Locations

FP, IOP, SLP Series:

Intrinsically safe for use in Class I, Division 1, Groups A, B, C and D and Class I, Zone 0, Groups IIC and IIB in accordance with manufacturer's Control Drawing; Nonincendive for Class I, Division 2, Groups A, B, C, D and Class I, Zone 2, Group IIC Hazardous (Classified) Indoor Locations.

11. The marking of the equipment shall include:

TPa-b. TP Series Surge Protectors.

IS / I,II,III / 1 / ABCDEFG / T* Ta = 60°C - 801640**; Entity;
I / 0 / AEx ia / IIC / T* Ta = 60°C - 801640**; Entity;
XP / I / 1 / ABCD / T6 Ta = 60°C; DIP / II,III / 1 / EFG / T6 Ta = 60°C;
NI / I / 2 / ABCD / T6 Ta = 60°C;
NI / I / 2 / IIC / T6 Ta = 60°C; S / II / 2 / FG / T6 Ta = 60°C; Type 4X

TP-ACa-b. TP-AC Series Surge Protectors.

XP / I / 1 / ABCD / T6 Ta = 70°C; DIP / II,III / 1 / EFG / T6 Ta = 70°C;
NI / I / 2 / ABCD / T6 Ta = 70°C;
NI / I / 2 / IIC / T6 Ta = 70°C; S / II / 2 / FG / T6 Ta = 70°C; Type 4X

FP32. FP Series Surge Protectors.

IS / I, / 1 / ABCD / T4 Ta=60°C - 500182; Entity, Fisco
I / 0 / AEx ia / IIC / T4 Ta = 60°C - 500182; Entity, Fisco
I / 0 / AEx ia / IIB / T3 Ta = 60°C - 500182; Entity, Fisco
NI / I / 2 / ABCD / T6 Ta = 60°C;
NI / I / 2 / IIC / T6 Ta = 60°C

IOPab. IOP Series Surge Protectors.

IS / I, / 1 / ABCD / T4 Ta=60°C - 801689; Entity,
I / 0 / AEx ia / IIC / T4 Ta = 60°C - 801689; Entity,
I / 0 / AEx ia / IIB / T3 Ta = 60°C - 801689; Entity,
NI / I / 2 / ABCD / T6 Ta = 60°C,
NI / I / 2 / IIC / T6 Ta = 60°C

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SLPab. SLP Series Surge Protectors.

IS / I, / 1 / ABCD / T4 Ta=60°C - 801744; Entity,
I / 0 / AEx ia / IIC / T4 Ta = 60°C - 801744; Entity,
I / 0 / AEx ia / IIB / T3 Ta = 60°C - 801744; Entity,
NI / I / 2 / ABCD / T6 Ta = 60°C,
NI / I / 2 / IIC / T6 Ta = 60°C

12. **Description of Equipment:**

General – The TP, TP-AC, FP, IOP, and SLP Series surge suppression devices attenuate voltage and current spikes that are commonly experienced in industrial environments. These suppression devices protect the electronic circuitry in process environments.

Construction – The TP and TP-AC Series have explosionproof enclosures. The enclosures used by the FP Series Surge Protection device, and the similarly constructed IOP and SLP Series devices, consist of a two part plastic enclosure that houses the electronics.

Ratings – The TP Series has a T4 Temperature Class, connection dependent, or T6. The TP-AC Series has a T6 Temperature Class. The FP, IOP, and SLP Series protector's T3, T4, or T6 Temperature Class rating is equipment marking dependent.

TPa-b. TP Series Surge Protectors.

Entity Parameter Models 48, 48-3, 48-4, P48: Vmax = 60V, Imax = 250 mA, Pi = 1.2W, Ci = 0, Li = 0
Entity Parameter Models 24/7, 32, P32: Vmax = 17.5V, Imax = 183 mA, Pi = 2.56W, Ci = *, Li = 0

* For b = T-, Ci = 1.1 µf, T* = T4 else Ci = 0, T* = T6

a = Model: 24/7, 32, 48, 48-3, 48-4, P32, P48,

b = Connection: N, N-NDI, I, I-NDI, T-N, T-I, T-N-NDI, T-I-NDI, G-NDI

TP-ACa-b. TP-AC Series Surge Protectors.

a = Model: 420, 485, FF

b = Connection: N, I

FP32. FP Series Surge Protectors.

Entity Parameter: Vmax = 17.5V, Imax = 183 mA, Pi = 2.56W, Ci = 0, Li = 0

Fisco Parameter: Vmax = 17.5V, Imax = 380 mA, Pi = 5.32W, Ci = 0, Li = 0

IOPab. IOP Series Surge Protectors.

a = Model: 32

b = D, Blank

Entity Parameter: Ui = 32V, Ii = 250 mA, Pi = 1.2W, Ci = 0, Li = 0

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SLPab. SLP Series Surge Protectors.

a = Model: 7, 16, 32

b = D, Blank

Entity Parameter Model 7: $U_i = 7V$, $I_i = 250\text{ mA}$, $P_i = 1.2W$, $C_i = 0$, $L_i = 0$

Entity Parameter Model 16: $U_i = 16V$, $I_i = 250\text{ mA}$, $P_i = 1.2W$, $C_i = 0$, $L_i = 0$

Entity Parameter Model 32: $U_i = 32V$, $I_i = 250\text{ mA}$, $P_i = 1.2W$, $C_i = 0$, $L_i = 0$

13. Specific Conditions of Use:

FP32. FP Series Surge Protectors.

The FP series shall be installed in compliance with the enclosure, mounting, and spacing, and segregation requirement of the ultimate application.

IOPab. IOP Series Surge Protectors.

The IOP series shall be installed in compliance with the enclosure, mounting, and spacing, and segregation requirement of the ultimate application.

SLPab. SLP Series Surge Protectors.

The SLP series shall be installed in compliance with the enclosure, mounting, and spacing, and segregation requirement of the ultimate application.

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
13 th March 2002	Original Issue.
9 th December 2016	Supplement 10: Report Reference: – RR207224 dated 9 th December 2016. Description of the Change: Company name change. Reformat of Certificate.
1 st February 2019	Supplement 11: Report Reference: – RR217059 dated 1 st February 2019. Description of the Change: Added TP-AC series.
10 th March 2019	Supplement 12: Report Reference: – RR217979 dated 10 th March 2019 Description of the Change: Correction to TP-AC series model code list and increased the ambient temperature for the TP-AC Series Surge Protectors.

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