

# MTL TP range

## Transmitter mounting surge protector

### Introduction

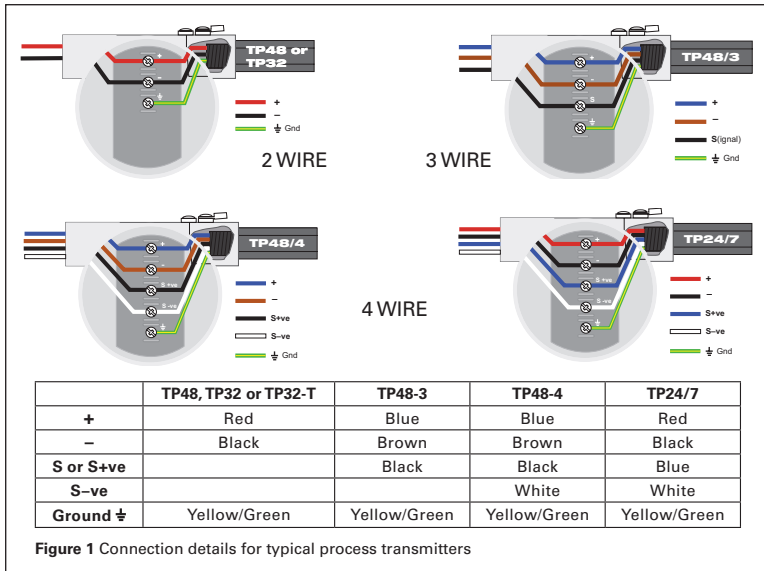
The TP range of surge protectors provides surge protection for field mounted process transmitters and is available for 1/2" NPT, 20mm ISO and G1/2" threaded conduit entries. The TP range is certified and approved for use in hazardous areas. More details of this are shown throughout this installation guide.

### Important safety information



#### WARNING

- In EEx d / explosion proof applications where explosive gases may be present, the loop must be isolated before any EEx d / explosion proof covers are removed.
- The TP range must be installed, operated and maintained by trained competent personnel.
- The TP unit must not be subjected to mechanical or thermal stresses in excess of those outlined in the ATEX and FM specifications.
- The TP range must not be installed in an area where it may be attacked by aggressive substances.
- Where hazardous area protection concepts are being applied the product must be installed in accordance with the requirements of the EC Type Examination and FM guidelines in this document.
- The 'transmitter' must be electrically isolated during the installation procedure.
- All installation and maintenance must be carried out in accordance with all appropriate international, national and local standard codes of practice and site regulations and in accordance with the instructions contained within this manual.



## Installation

Select conduit entry to be used for installation, and remove any blanking plug.

### NOTE

If direct installation onto the apparatus itself is impossible e.g. because all conduit entries are in use already, an external junction box or conduit hub can be used. The TP range is supplied with 300mm leads, which should be sufficient for them to reach the transmitter terminals from a junction box. If these leads are not long enough then use supplementary terminals and wiring. Installation should be within 1m of, and bonded to, the transmitter.

Ensure that the TP body thread matches the conduit entry. Thread types are not interchangeable, but adapters may be used where necessary. For explosionproof (EEx d) installations, only certified or approved adapters are permitted.

Remove apparatus terminal housing cover.

Insert connecting wires into apparatus body and start threading unit into conduit entry using moderate hand force, with lubricants as necessary.

Tighten fully (hand-tight plus 1/2 turn of 23mm A/F spanner). The steel body of the TP48 is not used as part of the electrical circuit, therefore sealing of the thread with PTFE tape or other sealing compounds will not affect the performance of the TP48.

### NOTE

In Explosionproof (EEx d) applications, sealing of the thread is not permitted - the TP should be treated in the same way as any other cable gland/hub into similar equipment.

For effective protection, the leads of the TP should be as short as possible. Before wiring to the transmitter terminals, cut the leads to the appropriate length and strip back 10mm of insulation.

Do not try to coil excess lengths of cable into the transmitter housing as this will degrade the protection given by the surge protector.

Connect the flying leads to the terminals as indicated in Figure 1.

**NOTE**

The protection circuit needs to be connected in parallel with the transmitter 4-20mA current loop, not in series. Many transmitters offer linked terminals to avoid installation with multiple wires in each terminal. If your transmitter does not, then use an appropriate termination method e.g. ring-tag, piggy-back Faston tab, split ferrule etc. to complete the connection satisfactorily.

Ensure that all connections are tight, particularly the earth bonding connection, which is likely to be via a stud within the apparatus terminal housing.  
 Refit apparatus terminal housing cover.  
 Reconnect circuit if it was previously isolated.

**TP32-T only:** The TP32-T is a FISCO/Fieldbus terminator. It can be used as a spur terminator and surge protective device. Make sure no other terminating blocks are in use for the spur.

**Earthing / grounding**



**WARNING**

The enclosure does not provide an external or internal connection for earthing or grounding the enclosure. It is the user's responsibility to provide adequate earth continuity via the mounting arrangements for all locations and all protection methods.

The TP earth wire (Green/Yellow) should be connected to the earth terminal or stud usually provided inside the transmitter housing. In the unlikely event that no such stud exists, make the connection to a structural mounting part, such as a terminal block fixing screw.

**Maintenance**

At intervals of not more than one year (more frequently for particularly harsh environments) visually check the installation and ensure that:

- i) Device and/or enclosure is firmly attached to mounting
- ii) There are no signs of external damage or corrosion
- iii) Interconnecting cables are not frayed or otherwise damaged
- iv) All connections are properly made with clear labelling

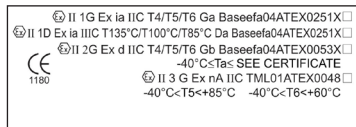
If this unit suffers damage send back to Eaton for evaluation which should only be carried out by MTL product line. This product is not field repairable.

**Approvals**

In hazardous locations check the marking on the device to ensure that it is appropriate for the application. Mark the appropriate box (Figure 2) to indicate the type of protection being utilised. For marking use a punch mark. The product range has been designed to meet the fault tolerant requirements of Electrical Apparatus for Category 'ia'.

Entity parameters: See Certificate number Baseefa04ATEX0251X

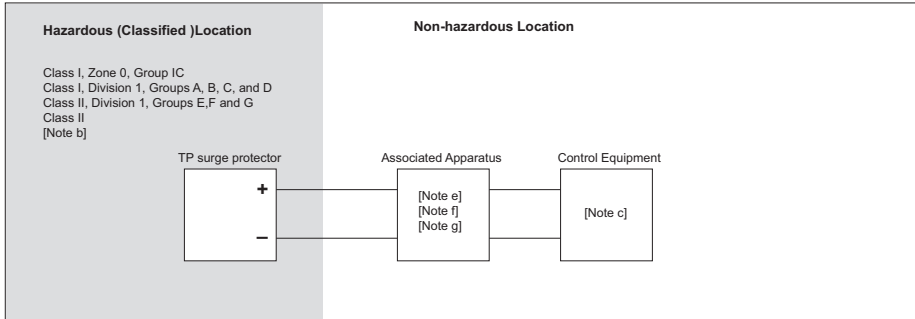
ATEX Special Conditions for Safe Use:



**Figure 2** ATEX certification details

1. The permanently attached cables shall be suitably protected against pulling, mechanical damage and must be terminated within a terminal or junction facility suitable for the conditions of use.
2. These devices are not provided with an external connection facility for an earthing or bonding conductor. It is the user's responsibility to ensure adequate earth continuity via the mounting arrangements.
3. The equipment is also afforded Intrinsically Safe Certification to BASEEFA04ATEX0251, and hence the equipment is dual marked. It is the user's responsibility to determine the protection concept to be applied and permanently mark the equipment in the space provided for guidance in installation and maintenance.
4. The apparatus is to be installed such that the flying leads are afforded a degree of protection of at least IP54.

**US/CAN Installation notes**



- Although all versions of the TP48-\*\*-\*\* and TP32-\*\*-\*\* Range Surge Protection Devices meet the 500V test to the metal case the electrical circuit within the Surge Protection Devices are not capable of withstanding the 500V voltage withstand test for one minute without breakdown to the Green/Yellow wire. This must be taken into consideration in any installation.
- These devices are not provided with an external connection facility for an earthing or bonding conductor. It is the user's responsibility to ensure adequate earth continuity via the mounting arrangement.
- This apparatus is also afforded Flameproof Certification to Baseefa04ATEX0053X and is dual marked. It is the user's responsibility to determine the relevant protection concept and to permanently mark the apparatus in the space provided for guidance on installation and maintenance.

NOTE: Items 1-3 relate to installations to Baseefa04ATEX0053X and items 4-7 relate to installations to Baseefa04ATEX0251X.

Ex ia: The three wires must be afforded a degree of protection of at least IP20 when the apparatus is installed.  
 Ex d: The flying leads must be suitably protected against mechanical damage and terminated in a suitable facility.  
 The device is not provided with an external earthing facility, adequate earthing should be ensured. Mounting directly in an earthed metal enclosure should meet this requirement.

For U.S./CAN installations, the TP Surge Protectors are Approved for Class I, Zone 0 applications. If connecting AEx [ib]/Ex [ib] Associated Apparatus or AEx [ib]/Ex [ib] I.S. Apparatus to the TP Surge Protectors the I.S. circuit is only suitable for Class I, Zone 1, or Class I, Zone 2,

**Notes:**

- The Intrinsic Safety Entity concept allows the interconnection of two FM Approved Intrinsically Safe devices with entity parameters not specifically examined in combination as a system when:  $V_{oc} \text{ or } U_o \text{ or } V_i \leq V_{max}$ ,  $I_{sc} \text{ or } I_o \text{ or } I_i \leq I_{max}$ ,  $C_a \text{ or } C_o, C_i + C_{cable}, L_a \text{ or } L_o, L_i + L_{cable}$ , and for FM only:  $P_o \leq P_i$ .
- Dust-tight conduit seal must be used when installed in Class II and Class III environments.
- Control equipment connected to the Associated Apparatus must not use or generate more than 250Vrms or Vdc.
- Installation in the U.S./CAN should be in accordance with ANSI/ISA RP12.6 "Installation of Intrinsically Safe Systems for Hazardous (Classified) Locations" and the National Electrical Code® (ANSI/NFPA 70) Sections 504 and 505, Canadian Electrical Code, CE code or CSA C22.1
- The configuration of associated Apparatus must be Factory Mutual Research Approved under Entity Concept.
- Associated Apparatus manufacturer's installation drawing must be followed when installing this equipment.
- For U.S./CAN installations, the TP Surge Protectors are Approved for Class I, Zone 0 applications. If connecting AEx [ib]/Ex [ib] Associated Apparatus or AEx [ib]/Ex [ib] I.S. Apparatus to the TP Surge Protectors the I.S. circuit is only suitable for Class I, Zone 1, or Class I, Zone 2, and is not suitable for Class I, Zone 0 or Class I, Division 1, Hazardous (Classified) Location.



**Eaton Electric Limited,**  
 Great Marlings, Butterfield, Luton  
 Beds, LU2 8DL, UK.  
 Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283  
 E-mail: [mtl-enquiry@eaton.com](mailto:mtl-enquiry@eaton.com)  
[www.mtl-inst.com](http://www.mtl-inst.com)  
 © 2018 Eaton  
 All Rights Reserved  
 Publication No. INS 801-640 Rev D 021118  
 November 2018

**EUROPE (EMEA):**  
 +44 (0)1582 723633  
[mtl-enquiry@eaton.com](mailto:mtl-enquiry@eaton.com)  
**THE AMERICAS:**  
 +1 800 835 7075  
[mtl-us-info@eaton.com](mailto:mtl-us-info@eaton.com)  
**ASIA-PACIFIC:**  
 +65 6 645 9888  
[sales.mtlsing@eaton.com](mailto:sales.mtlsing@eaton.com)

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.