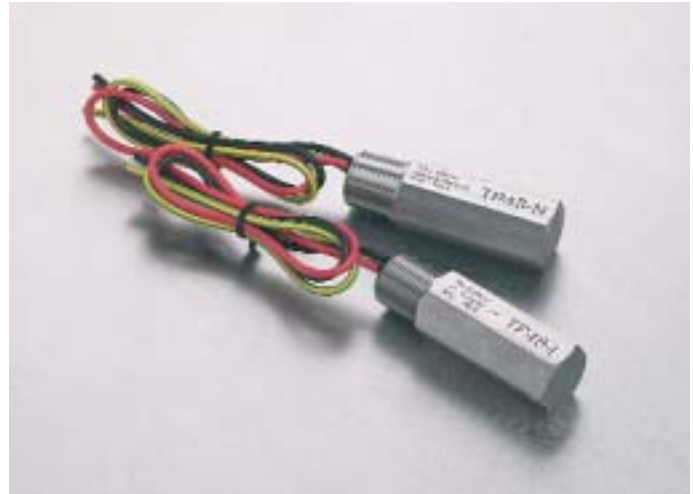


# TP48

Safeguards electronic process transmitters against induced surges and transients from field cabling



- **Easy and direct mounting - simply screws into spare conduit entry**
- **Straightforward and simple installation**
- **Intrinsically safe and flameproof to CENELEC standards**
- **Parallel connection avoids introduction of any resistance into loop**



**The TP48 surge protection device** is a unique unit providing a level of protection for field-mounted transmitters that is far in excess of the optional transient protection facilities available from the transmitter manufacturers - without involving any additional wiring, conduit modifications or other expensive extras.

**The TP48 protection network** consists of high-power, solid-state electronics and a gas-filled discharge tube capable of diverting 10kA impulses. The whole unit is encased in an ANSI 316 stainless steel housing, threaded for the common conduit entries used on process transmitters. Versions are available for 1/2" NPT, 20mm ISO, and G1/2" (BSP 1/2 inch) threaded entries.

**Installation is very simple** and can easily be carried out retrospectively to existing installations. The TP48 is screwed into any unused conduit entry on the transmitter case and flying leads are connected to the

terminal block (+ve, -ve) and the internal earth stud. They operate without in any way affecting normal operation - passing ac or dc signals without attenuation while diverting surge currents safely to earth and clamping output voltages to specific levels.

**The all important earthing connection** is made to the local casing of the transmitter with no separate earth connection or ground stake at the transmitter being needed. In operation, the TP48 makes sure that the transmitter electronics are never exposed to damaging transients between lines or between lines and casing/earth. Any surge current appearing as a series-mode or common-mode transient is converted into a common-mode voltage - whereupon the transmitter electronics are temporarily raised to some higher voltage level before 'floating' down automatically (and without damage) to resume normal operation.

**For hazardous-area use**, approvals for both intrinsically safe and flameproof (explosionproof) operation are available, in all gas groups and apparatus temperature classification up to T4. Where transmitters are used in circuits suitable for Div 2/Zone 2 installations, the TP48 can be added without adversely affecting the level of safety.

**For fieldbus applications**, use the TP32 which meets the requirements of IEC61158-2:2000 and ANSI/ISA-50.02-2 1992 for 31.25kbit/s systems as used by FOUNDATION™ Fieldbus, PROFIBUS-PA and WorldFIP.

## Data & Signal Protection

# Specification

[all figures typical at 25°C unless otherwise stated]

- Maximum surge current
- 10kA peak current (8/20µs waveform)
- Leakage current
- Less than 10µA at maximum working voltage
- Working voltage
- 48V dc maximum
- Bandwidth
- 1MHz
- Resistance
- No resistance introduced into loop
- Ambient temperature limits
- 20°C to +60°C (working)
- 40°C to +80°C (storage)
- Humidity
- 5% to 95% RH (non-condensing)
- Electrical connections
- 3 flying leads (line1, line 2 & earth)
- Wire size 32/0.2 (1.0mm², 18 AWG)
- Lead length 250mm (minimum)
- Casing
- ANSI 316 stainless steel hexagonal barstock, male thread
- Threads
- TP48-N1/2" NPT
- TP48-I20mm ISO (M20 x 1.5)
- TP48-GG 1/2" (BSP 1/2 inch)
- Weight
- 175g
- Dimensions
- See figure 1
- EMC compliance
- To Generic Immunity Standards EN50082, part 2 for industrial environments
- Electrical safety
- EEx ia IIC T4, Ceq=0, Leq=0; the unit can be connected without further certification into any intrinsically safe loop with open circuit voltage <60V and input power <1.2W.
- EEx d IIC T4; the unit is apparatus-approved to flameproof (explosionproof) standards, and can be fitted into a similarly approved housing.

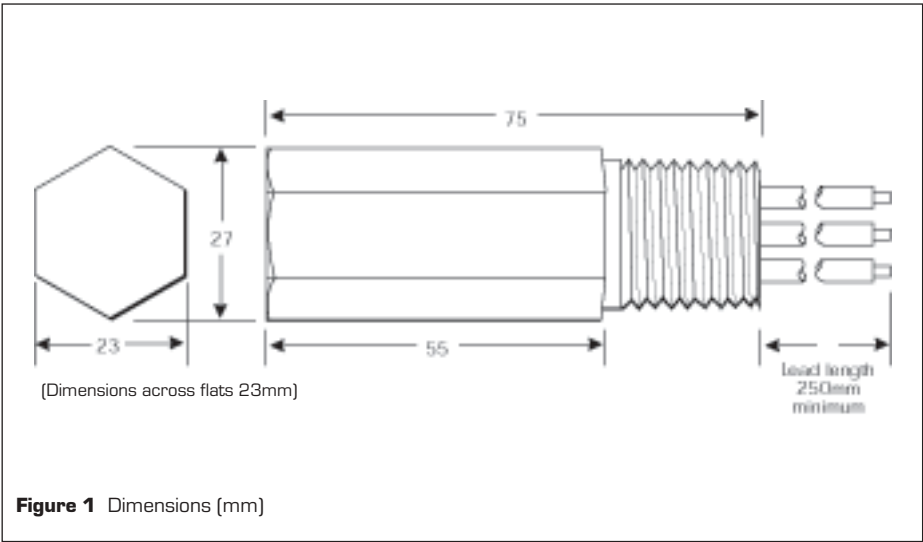


Figure 1 Dimensions (mm)

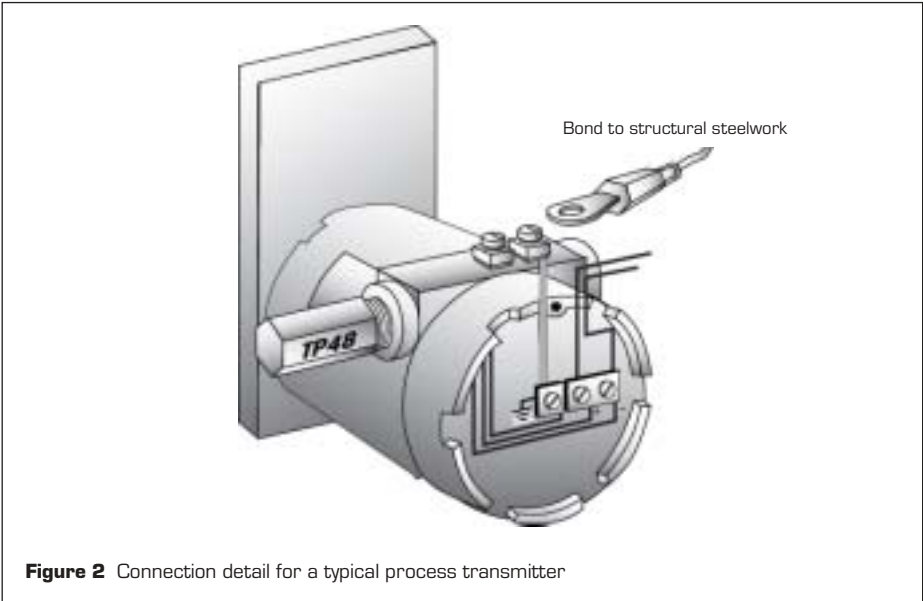


Figure 2 Connection detail for a typical process transmitter

## Installation

The TP48 is designed for mounting directly into an unused conduit entry on a process transmitter housing. Generally, two such entries are provided, one of which is used for the loop wiring. On the unused entry, the blanking plug or other closure device is removed and an appropriately threaded TP48 screwed into its place. The transmitter specification should provide information indicating the required thread type. TP48 units can be installed using thread adaptors if necessary, including certified adaptors in hazardous area applications. For applications where two conduit entries are not provided or where both are used for electrical connections, TP48 units can be housed in conventional conduit hub or junction boxes, provided access to the loop terminals is possible. Figure 2 shows connection details for a typical process transmitter.

Note: In accordance with our policy of continuous improvement, MTL Surge Technologies reserves the right to change the product's specification without notice.

## Approvals

Country (Authority)	Standard	Certificate/File No.	Approved for	Product
UK (BASEEFA)	EN 50014, 020 & 018	Ex 93C2151X & Ex 93C1307X	EEx ia IIC T4 & EEx d IIC T4	TP48-N-NDI TP48-I-NDI TP48-P-NDI TP48-G-NDI
Canada (CSA)	C22.2 No. 30 C22.2 No. 142	LR103652-2	Class I, Grp A-D Class II, Grp E-G	TP48-N-NDI

Note: TP48-N-NDI is CSA approved for IS, non-incendive and explosion proof installation

## To order specify -

- TP48-N-NDI
- Certified process transmitter surge protection device - 1/2" NPT thread
- TP48-I-NDI
- Certified process transmitter surge protection device - 20mm ISO thread
- TP48-G-NDI
- Certified process transmitter surge protection device - G 1/2" (BSP 1/2 inch)
- TP48-N
- Non-certified process transmitter surge protection device - 1.2" NPT thread
- TP48-I
- Non-certified process transmitter surge protection device - 20mm ISO thread
- TP48-G
- Non-certified process transmitter surge protection device - G 1/2" (BSP 1/2 inch)