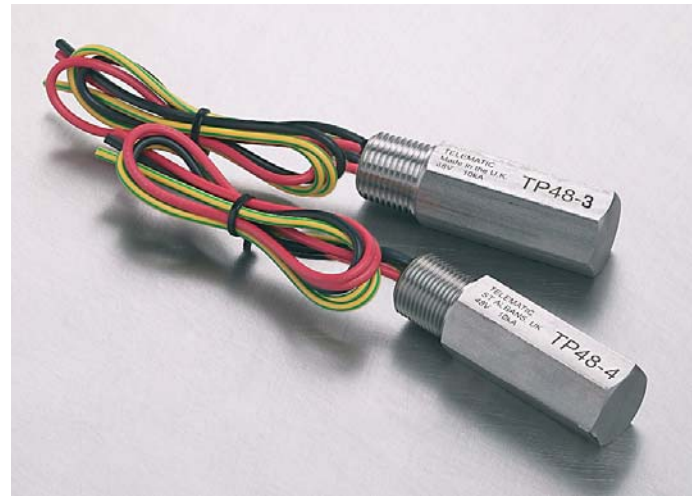


TP48 Series

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

- Protects 2, 3 and 4 wire transmitters
- Easy and direct mounting - simply screws into spare conduit entry
- Models for intrinsically safe and explosionproof to installations available
- Parallel connection avoids introduction of any resistance into loop
- FM for US and Canada and ATEX approved
- 10 year product warranty



The TP48 Series of surge protection devices uniquely provide a level of protection for 2, 3, and 4 wire 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 Series 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 TP is screwed into any unused conduit entry on the transmitter case and flying leads are connected to the terminal block and the internal ground stud. The 3-wire TP protects +ve, -ve and

signal. The 4-wire TP protects +ve, -ve, and signal +ve and -ve. The TPs operate without in any way affecting normal operation - passing ac or dc signals without attenuation while diverting surge currents safely to ground and clamping output voltages to specific levels.

The all important grounding connection is made to the local casing of the transmitter with no separate ground connection or ground stake at the transmitter being needed. In operation, the TP makes sure that the transmitter electronics are never exposed to damaging transients between lines or between lines and casing/ground. 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 for the TP48 3 & 4 wire and T6 for the 2 wire. Where transmitters are used in circuits suitable for Div 2/Zone 2 installations, the TP 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.

Specification

All figures typical at 77°F (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

TP48

3 flying leads (line 1, line 2 & ground)

TP48 3 Wire

4 flying leads (+ve, -ve, signal & ground)

TP48 4 Wire

5 flying leads (+ve, -ve, signal +ve, signal -ve, ground)

Wire size 32/0.2 (1.0mm², 18 AWG)

Lead length 250mm (minimum)

Casing

ANSI 316 stainless steel hexagonal barstock, male thread

Threads

TP48-N, TP48-3-N & TP 48-4-N 1/2" NPT

TP48-I, TP48-3-I & TP48-4-I 20mm ISO (M20 x 1.5)

TP48-G, TP48-3-G & TP48-4-G G 1/2" (BSP 1/2")

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 T6; the unit is apparatus-approved to flameproof (explosionproof) standards, and can be fitted into a similarly approved housing.

Installation

The TP units are 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 TP screwed into its place. The transmitter specification should provide information indicating the required thread type. TP 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, TP 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.

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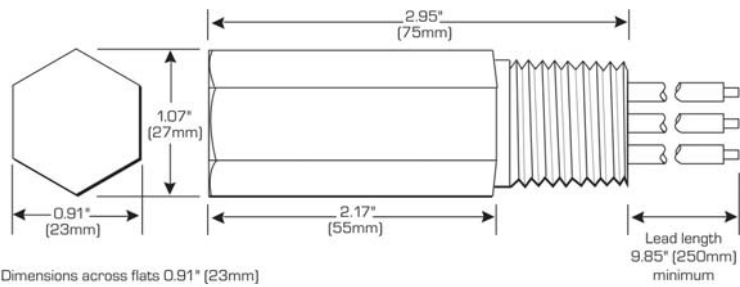


Figure 1 Dimensions

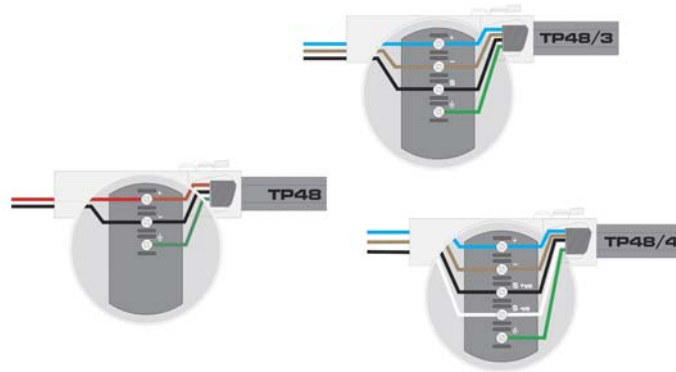


Figure 2 Connection detail for 3 & 4 Wire process transmitters

Approvals

Country (Authority)	Standard	Certificate/File No.	Approved for	Product
EC (BASEEFA)	EN 50014:1997 + Amendments 1 & 2 EN 50020:1994, EN 50284:1999	BASEEFA04ATEX0251X	EEx ia IIC T6 (T _{amb} = -40 to 60°C) EEx ia IIC T5 (T _{amb} = -40 to 85°C) EEx ia IIC T4 (T _{amb} = -40 to 60°C)	TP48-X-Y-Z
EC (BASEEFA)	EN 50014:1997 + Amendments 1 & 2 EN 50018:2000 + Amendment 1	BASEEFA04ATEX0053X	EEx d IIC T6 (T _{amb} = -40 to 60°C) EEx d IIC T5 (T _{amb} = -40 to 80°C) EEx d IIC T4 (T _{amb} = -40 to 85°C)	TP48-X-Y-Z
Atex Directive 94/9/EC	BS EN 50021:1999	TML02ATEX0032X	Ex n II T6 (-40°C<T _{amb} <+60°C) EEx n II T5 (-40°C<T _{amb} <+85°C)	TP48-X-Y-Z
USA (FM)	Class Nos. 3600 (1998), 3610 (1999), 3611 (1999), 3615 (1989), 3810 incl. Supp 1 (1995-07 (1989-03), ANSI/NEMA 250 (1991), ISA-S12.0.01 (1999)	3022293	Intrinsically Safe: I, II, III/1/A-G, I/O/IIC Explosionproof: I/1/A-D Non incandive: I/2/A-D, I/2/IIC Dust ignition proof: II,III/1/EFG Special protection: II/2/FG	TP48-X-Y-Z
Canada (FM)	C22.2 No. 157 C22.2 No. 213 C22.2 No. 142 C22.2 No. 94 C22.2 No. 30	3025374	Intrinsically Safe: I, II, III/1/A-G, I/O/IIC Explosionproof: I/1/A-D Nonincandive: I/2/A-D, I/2/IIC Dust ignition proof: II, III/1/EFG Special protection: II/2/FG	TP48-X-Y-Z

To order specify-

Key: X = 3 or 4 or blank
Y = N, I or G
Z = NDI

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)

TP48-3-N-NDI

Certified process transmitter surge protection device - 1/2" NPT thread

TP48-3-I-NDI

Certified process transmitter surge protection device - 20mm ISO thread

TP48-3-G-NDI

Certified process transmitter surge protection device - G 1/2" (BSP 1/2 inch)

TP48-3-N

Non-certified process transmitter surge protection device - 1.2" NPT thread

TP48-3-I

Non-certified process transmitter surge protection device - 20mm ISO thread

TP48-3-G

Non-certified process transmitter surge protection device - G 1/2" (BSP 1/2 inch)

TP48-4-N-NDI

Certified process transmitter surge protection device - 1/2" NPT thread

TP48-4-I-NDI

Certified process transmitter surge protection device - 20mm ISO thread

TP48-4-G-NDI

Certified process transmitter surge protection device - G 1/2" (BSP 1/2 inch)

TP48-4-N

Non-certified process transmitter surge protection device - 1.2" NPT thread

TP48-4-I

Non-certified process transmitter surge protection device - 20mm ISO thread

TP48-4-G

Non-certified process transmitter surge protection device - G 1/2" (BSP 1/2 inch)

Note: In accordance with our policy of continuous improvement, we reserve the right to change the product's specification without notice.

