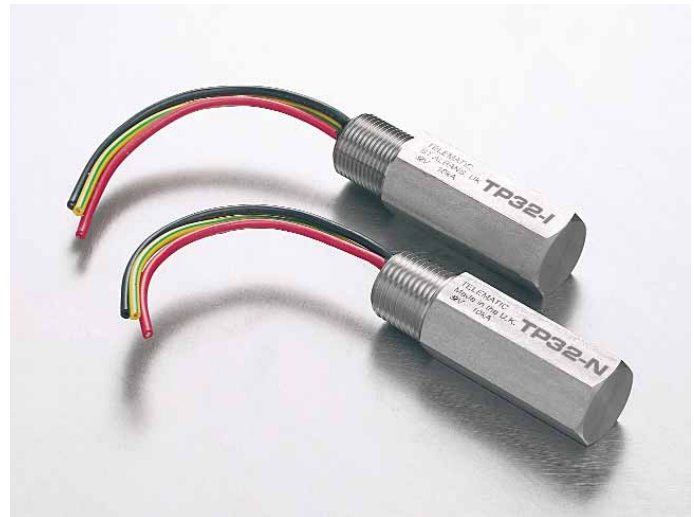


TP32 Series

Protects transmitters and smart transmitters from induced surges and transients on fieldbus cabling.



- **Fieldbus specific - designed to meet the requirements of IEC 61158-2:2000 & ANSI/ISA-50.02-2 1992**
- **Easy and direct mounting – simply screws into a spare conduit entry on the transmitter**
- **Parallel connection ensures ‘transparent’ operation - zero voltage drop across device**
- **FM, CSA and ATEX approved**
- **10 year product warranty**



The TP32 surge protection device is specifically designed to protect process transmitters and devices on Fieldbus systems. The TP32 builds on the high specification of the acclaimed TP48 range to provide a level of surge protection for fieldbus transmitters that is well in excess of the optional transient protection available from some transmitter manufactures.

The all important earth connection is made via the casing of the transmitter negating the need for a separate earth connection or ground stake at the transmitter. In operation, the TP32 makes sure that the transmitter electronics are never exposed to damaging transients between the lines and 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.

The TP32 protection network is a hybrid design consisting of high-power, solid state electronics and a gas discharge tube which are capable of diverting surges up to 10kA. Encased in an ANSI 16 stainless steel enclosure, the TP32 exhibits unparalleled mechanical durability providing years of maintenance free operation in harsh environments. The enclosure is available threaded for all the common conduit entries. Versions are available for 1/2" NPT, 20mm ISO, and G 1/2" (BSP 1/2 inch) threaded entries.

Installation is very simple and can easily be carried out retrospectively to existing installations. The TP32 is screwed into any unused conduit entry on the transmitter case allowing flying leads to connect the device to the terminal block (+ve, -ve) and the internal earth stud within the transmitter housing. By connecting in parallel to the transmitter circuit the TP32 does not interfere with the normal operation of the bus – passing ac or dc

signals without adding increased voltage drop across the segment while consistently diverting surge currents safely to earth and clamping output voltages to safe levels.

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 T6. CSA and FM approval is also available.

The TP32 is designed to meet the requirements of IEC 61158-2:2000 and ANSI/ISA-50.02-2 1992 for 31.25kB/sec systems as used by FOUNDATION Fieldbus, PROFIBUS-PA and WorldFIP.

Data & Signal Protection

Specification

All figures typical at 25°C (77°F) unless otherwise stated

Maximum surge current

10kA peak (8/20µs waveform)

Leakage current

Line-line: < 1µA at working voltage

Line-earth: < 1µA at 120V common-mode

Working voltage

±32V dc maximum

±120V peak (or DC) maximum common-mode

Maximum continuous operating voltage

35V

Limiting voltage

Line-line with 250mm cable:

< 49V (10A, 10/1000µs pulse)

Line-earth with 75mm cable:

< 635V (3kA, 8/20µs waveform)

< 635V (6kV, 1.2/50µs waveform)

Line resistance

No resistance introduced into the loop

Capacitance

Line-line: < 50pF

Line-earth: < 100pF

Attenuation

78KHz-75MHz monotonic & better than -1dB

typical bandwidth, 150MHz on 100Ω system

Ambient temperature limits

T6 -40°F to +140°F (-40°C to +60°C)

T5 -40°F to +185°F (-40°C to +85°C)

Humidity

5% to 95% RH (non-condensing)

Electrical connections

3 flying leads: line 1 & line 2 plus

non-polarised earth

Wire size: 32 / 0.2 (1.0mm², 18 AWG)

Lead length: 250mm minimum supplied

≤ 75mm recommended

Casing

ANSI 316 stainless steel hexagonal barstock,

male thread

Threads

TP32-N 1/2" NPT

TP32-I 20mm ISO (M20 x 1.5)

TP32-G G 1/2" (BSP 1/2 inch)

Weight

175g (6.18oz)

Dimensions

See figure 1

ATEX compliance

See Approvals table for details

EMC compliance

BS EN 61643-1

Electrical Safety

EEx ia IIC T6, 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 explosionproof (flameproof) standards, and can be fitted into a similarly approved housing.

Installation

The TP32 is designed for mounting directly into an unused conduit entry on a fieldbus transmitter housing (see figure 2). Generally, two such entries are provided, one of which is used for the bus wiring. On the unused entry, the blanking plug or other closure device is removed and an appropriately threaded TP32 screwed into its place. The transmitter specification should provide information indicating the required thread type. TP32 units can be installed using thread adaptors (such as a tee piece) 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, TP32 units can be housed in conventional conduit hub or junction boxes, provided access to the loop terminals is possible.

Telematic and Atlantic Scientific surge protection devices are designed and manufactured by MTL Surge Technologies.

MTL Surge Technologies

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A member of the MTL Instruments Group plc

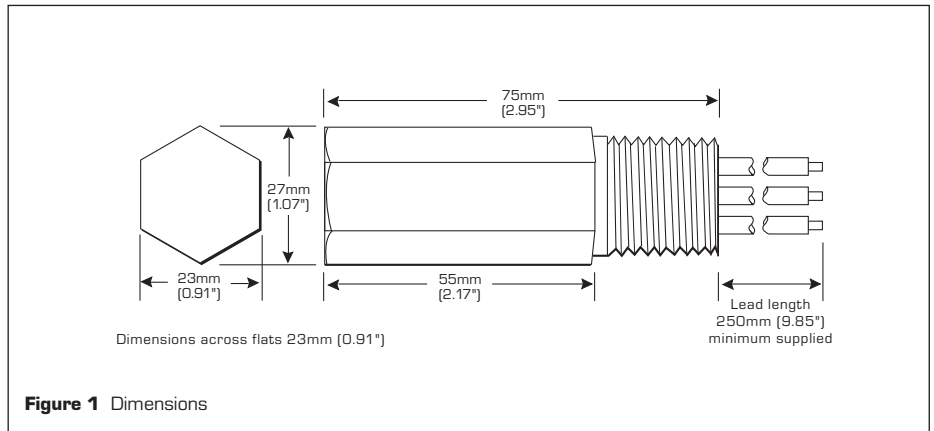


Figure 1 Dimensions

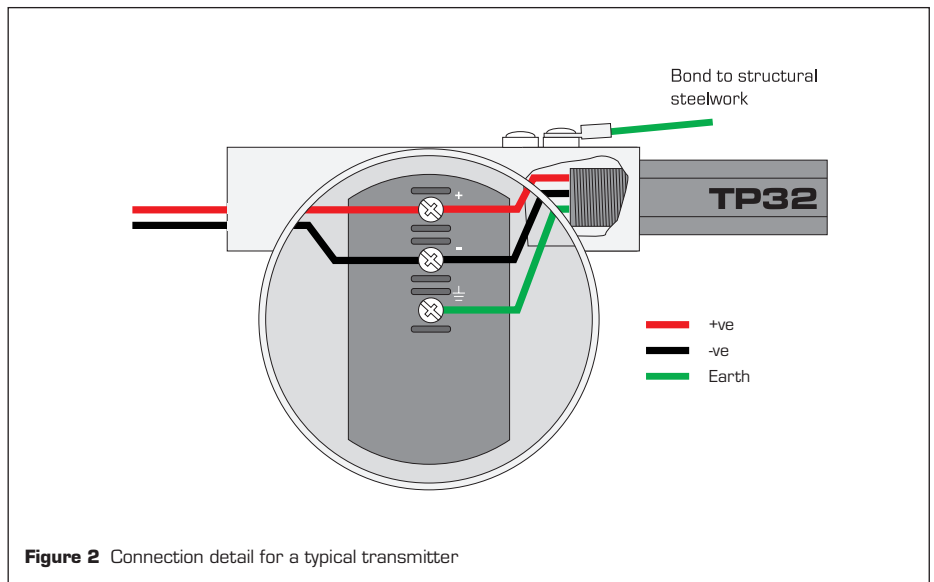


Figure 2 Connection detail for a typical transmitter

Approvals

Country (Authority)	Standard No.	Certificate/File	Approved for	Product
UK (BASEEFA)	EN 50014:1997 + Amendments 1 & 2 EN 50020:1994, EN 50284:1999	BAS00ATEX1258X	EEx ia IIC T6 (T _{amb} = -40 to 60°C) EEx ia IIC T5 (T _{amb} = -40 to 85°C)	TP32-N-NDI TP32-I-NDI TP32-G-NDI
UK (BASEEFA)	EN 50014:1997 + Amendments 1 & 2 EN 50018:2000	BAS00ATEX2146X	EEx d IIC T6 (T _{amb} = -40 to 60°C) EEx d IIC T5 (T _{amb} = -40 to 85°C)	TP32-N-NDI TP32-I-NDI TP32-G-NDI
Atex Directive 94/9/EC	To be confirmed	TML02ATEX0032X	Ex n II T6 (-40°C < T _{amb} < +60°C) Eex n II T5 (-40°C < T _{amb} < +85°C)	TP32-N TP32-I TP32-G
USA (FM)	Class Nos. 3600 (1998), 3610 (1999), 3611 (1999), 3615 (1989), 3810 incl. Supp 1 (1995-07 (1989-03), ANSI/NEMA 250 (1999), ISA0512.0.01 (1998)	311208	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/EFEG Special protection: II/2/FG	TP32-N-NDI TP32-I-NDI TP32-G-NDI
Canada (CSA)	C22.2 No. 30 C22.2 No. 1010	152423 (LR 36637)	Class I, Grp A-D Class II, Grp E-G	TP32-N-NDI TP32-I-NDI TP32-G-NDI

To order specify -

TP32-N	1/2" NPT thread
TP32-N-NDI	1/2" NPT thread, with EEx ia, EEx d, FM and CSA approval
TP32-I	20mm ISO thread
TP32-I-NDI	20mm ISO thread, with EEx ia, EEx d, FM and CSA approval
TP32-G	G 1/2" (BSP 1/2 inch)
TP32-G-NDI	G 1/2" (BSP 1/2 inch), with EEx ia, EEx d, FM and CSA approval

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

