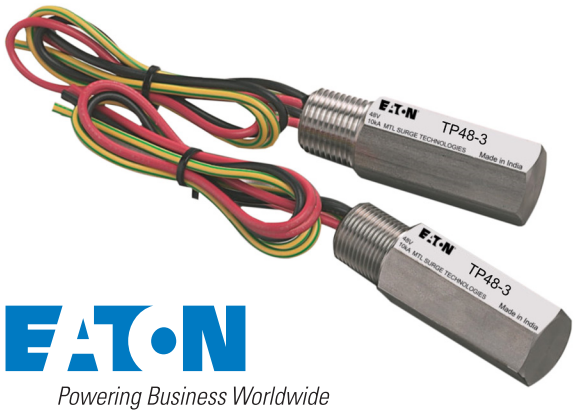
AMETEK®

DREXELBROOK®

DATA SHEET

AC Surge Protection
MTL TP-AC Range

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



EATON
Powering Business Worldwide

Features

- Corrosion resistant
- Protects AC power and signal line
- 120V & 240V
- Models for Foundation fieldbus™ 4-20mA
- Parallel connection avoids resistance in loop
- Easy and direct mounting – screws into spare conduit entry
- FM Approved
- 10 year product warranty

The TP-AC range of surge protection devices uniquely provides a level of protection for AC powered, field-mounted transmitters that is far in excess of the optional transient protection facilities available from the transmitter manufacturers - and achieved without any additional wiring modifications or costly additions.

The TP protection network consists of high power, solid state electronics and a gas-filled discharge tube (GDT) capable of diverting 20kA impulses. The whole unit is encased in ANSI 316 stainless steel housing, threaded for attachment in conduit entries used on process transmitters. Versions are available with ½" NPT and 20mm ISO threaded entries.

Installation can easily be carried out retrospectively to existing installations. The TP-AC is screwed into any unused conduit entry on the transmitter case and flying leads are connected to the terminal block signal, power and earth terminals. The TPs operate – passing AC and 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 TP 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.

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Specifications

Maximum surge current
20kA peak current (8/20µs waveform)
Leakage current
Less than 10µA at max. working voltage
Resistance: No resistance introduced into loop
Ambient temperature limits
-40°C to +85° (-40°F to +185°F) (working)
-40°C to +85°C -(40°F to +185°F) (storage)
Humidity: 5% to 95% RH (non-condensing)

Casing ANSI 316 stainless steel hexagonal bar stock, male thread
Ingress Protection IP66 (NEMA4X)
Threads: 1/2" NPT, 20mm ISO
EMC compliance
To Generic Immunity Standards EN61326-1, part 2 for industrial environments
Dimensions: See figure 1
Weight: 204g (7.2oz)

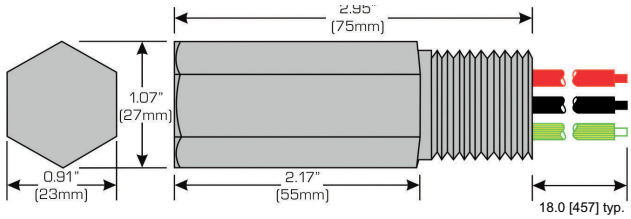
Model		TP-AC 240VAC 120VAC Pair (All models)	TP-AC420 4-20mA Pair
Nominal Voltage	U_n	240VAC	48VDC
Rated Voltage (MCOV)	U_c	275VAC	58VDC
Nominal Current	I_n	N/A	N/A
Nominal Discharge Current (8/20µs)	i_{sn}	3kA	3kA
Max. Discharge Current (8/20µs)	I_{max}	20kA	20kA
Residual Voltage @ isn	U_p	800V	95V
Voltage Protection Level @ 1kV/µs	U_p	500V	<76V
Bandwidth	f_G	400Hz	1MHz
Capacitance	C	N/A	100pF
Series Resistance	R	N/A	N/A
Operation Temperature Range (Safe Area)		-40°C to +85°C	-40°C to +85°C

To order specify:

1/2" NPT	Ametek Part Number: 377-0006-001 Description: TP-AC420-N
M20 Thread	Ametek Part Number: 377-0006-002 Description: TP-AC420-I

Dimensions

Figure 1



Approvals

Country (Authority)	Standard No.	Certifcate/File	Approved for	Product
USA (FM)	Class 3600 (1998), Class 3611 (1999), Class 3615 (1989), Class 3810 (1989) Incl Suppl #1 (1995) ANSI/NEMA 250 (1991) ISA-S12.0.01 (1998) ANSI/ISA 60079-0 (2009)	FM16US0443X	Explosion-proof: I/1/A-D Non-incendive: I/2/A-D, I/2/IIC Dust ignition proof: II,III/1/EFG Special protection: II/2/FG Ta: -30 to +70°C	Ametek Part Number: 377-0006-001 Description: TP-AC420-N Ametek Part Number: 377-0006-002 Description: TP-AC420-I

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