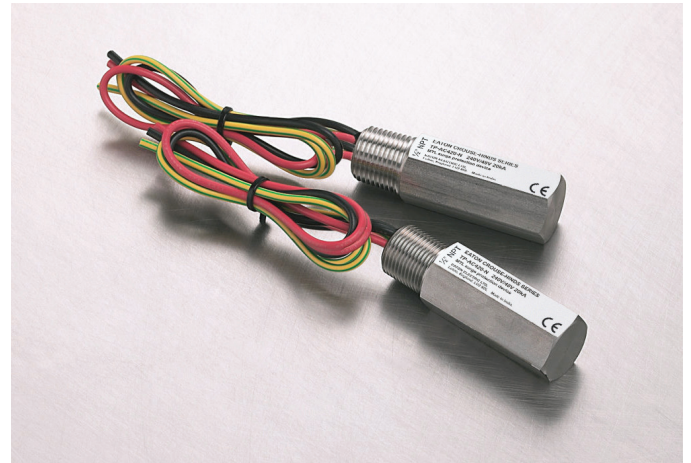


## MTL TP-AC range

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

- **Corrosion resistant**
- **Protects AC power and signal line**
- **120V & 240V**
- **Models for Foundation fieldbus™ 4-20mA and Profibus DP**
- **Parallel connection avoids resistance in loop**
- **Easy and direct mounting – screws into spare conduit entry**
- **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 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.

**For Fieldbus applications**, the TP-AC Fieldbus models meet the requirement of IEC61158-2:2004 and ANSI/ ISA-50.02-2 1992 for 31.25kbit systems as used by Foundation Fieldbus™, Profibus PA and WorldFIP.

# MTL TP-AC range

January 2017

## SPECIFICATION

### 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°C
- (-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

### 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-ACFF Foundation Fieldbus Pair	TP-AC420 4-20mA Pair	TP-AC485 Profibus DP RS485 Pair
Nominal Voltage	$U_n$	240VAC	32VDC	48VDC	7VDC
Rated Voltage (MCOV)	$U_c$	275VAC	36VDC	58VDC	9VDC
Nominal Current	$I_n$	N/A	N/A	N/A	N/A
Nominal Discharge Current (8/20µs)	$i_{sn}$	3kA	3kA	3kA	3kA
Max. Discharge Current (8/20µs)	$I_{max}$	20kA	20kA	20kA	20kA
Residual Voltage @ $i_{sn}$	$U_p$	800V	65V	95V	19V
Voltage Protection Level @ 1kV/µs	$U_p$	500V	<50V	<76V	<12V
Bandwidth	$f_G$	400Hz	7.5MHz	1MHz	1MHz
Capacitance	C	N/A	50pF	100pF	100pF
Series Resistance	R	N/A	N/A	N/A	N/A
Operation Temperature Range		-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C

TO ORDER SPECIFY:	TP-ACFF-N	AC power & Foundation Fieldbus 1/2" NPT Thread
	TP-AC420-N	AC power & 4-20mA 1/2" NPT Thread
	TP-AC485-N	AC power & Profibus DP (RS485) 1/2" NPT Thread

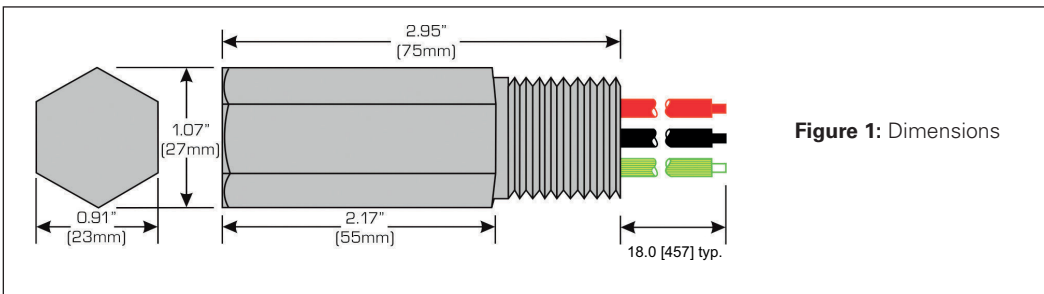


Figure 1: Dimensions



**Eaton Electric Limited,**  
Great Marlings, Butterfield, Luton  
Beds, LU2 8DL, UK.  
Tel: + 44 (0)1582 723633 Fax: + 44 (0)1582 422283  
E-mail: [mtlenquiry@eaton.com](mailto:mtlenquiry@eaton.com)  
[www.mtl-inst.com](http://www.mtl-inst.com)

© 2017 Eaton  
All Rights Reserved  
Publication No. EPS 901-177 Rev G 240117  
January 2017

**EUROPE (EMEA):**  
+44 (0)1582 723633  
[mtlenquiry@eaton.com](mailto:mtlenquiry@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.