



## Features

- 15 sizes from 15 to 500mm (½ to 20")
- Wide variety of process connections
  - BSP / NPT male to 50mm (2")
  - ANSI or DIN flanges
- Pressure to 250 bar (3675 psi)
- Standard range of -50 to 120°C (-58 to 250°F)
- Long life tungsten carbide bearings
- +/- 0.5% linearity (10:1 turndown)

## Options

- +/- 0.15% linearity (10:1 turndown) for sizes 100mm (4") and larger
- Explosionproof or intrinsically safe pickoffs
- Integral preamplifier, frequency to current convertor (4-20 mA output) or flowrate / totaliser with various outputs.
- Integral or remote self powered flow rate-totaliser with scaled pulse, analog and flow alarm outputs ( see separate data sheet )
- Integral or remote high speed preset batch controller ( see separate data sheet )

# Turbopulse Industrial Series Turbine Flowmeters



## Overview

Turbopulse turbine flowmeters are precise, reliable and robust units for the volumetric flow measurement of clean low viscosity liquids.

Stainless steel construction with tungsten carbide bearings provides long life with a wide range of aggressive and non-lubricating liquids in petrochemical and general industrial applications.

Fifteen sizes cover flows from 0.11 to 7000 m<sup>3</sup>/hr (0.5 to 30000 USGPM) with +/- 0.5% linearity. Enhanced linearity is available in larger sizes where custody transfer performance is required.

The standard pick-off coil is supplied with either a military style plug or a junction box with terminal strip.

Integral preamplifiers are available for harsh environments, to extend transmission distance or to interface with secondary instruments that require a conditioned signal input.

An integral RT100 series flowrate totaliser is optionally available to provide local indication with 4-20mA and Hi/Lo flow alarm outputs and/or scaleable pulse output.

## Calibration

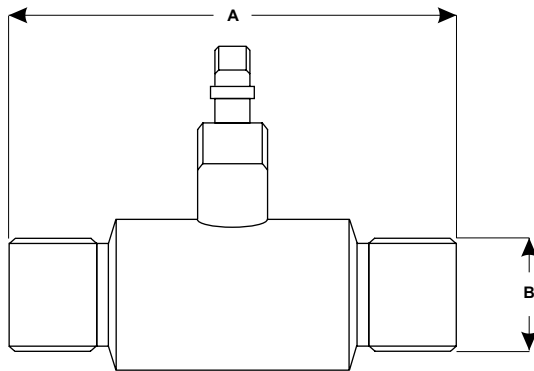
Sizes 25mm (1") and larger are calibrated on positive displacement prover loops in accordance with current API standards.

For each meter size calibration is performed at five points across the nominal flow range to ensure optimum performance in every application.

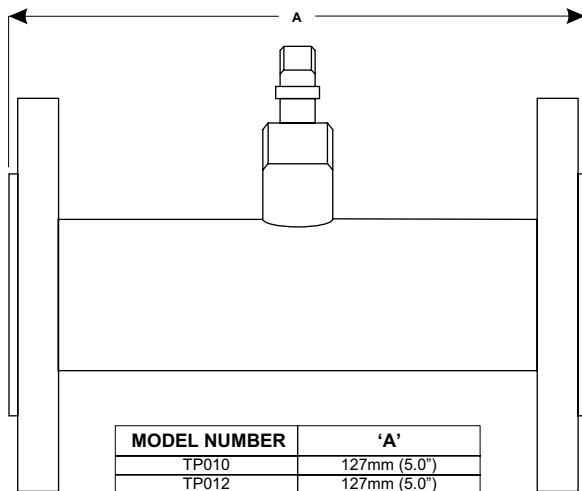
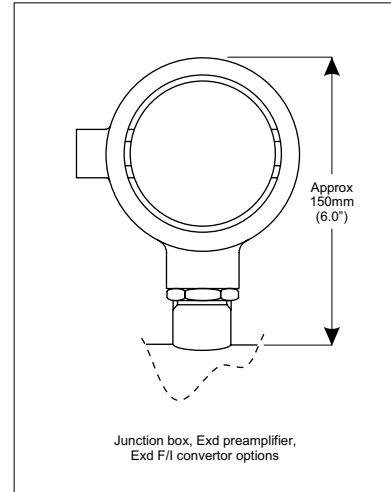
Data Sheet No. SLTP000-1001

QUALITY AND SIMPLICITY IN FLOW MEASUREMENT

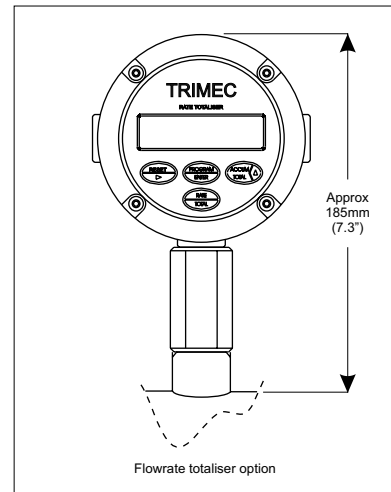
# DIMENSIONS



| MODEL NUMBER | 'A'          | 'B'                      |
|--------------|--------------|--------------------------|
| TP010        | 64mm (2.5")  | 1/2" (15mm) BSP or NPT   |
| TP012        | 64mm (2.5")  | 3/4" (20mm) BSP or NPT   |
| TP015        | 64mm (2.5")  | 3/4" (20mm) BSP or NPT   |
| TP020        | 83mm (3.3")  | 3/4" (20mm) BSP or NPT   |
| TP025        | 89mm (3.5")  | 1" (25mm) BSP or NPT     |
| TP040        | 115mm (4.5") | 1 1/2" (40mm) BSP or NPT |
| TP050        | 133mm (5.2") | 2" (50mm) BSP or NPT     |



| MODEL NUMBER | 'A'           |
|--------------|---------------|
| TP010        | 127mm (5.0")  |
| TP012        | 127mm (5.0")  |
| TP015        | 127mm (5.0")  |
| TP020        | 140mm (5.5")  |
| TP025        | 152mm (6.0")  |
| TP040        | 178mm (7.0")  |
| TP050        | 197mm (7.8")  |
| TP080        | 254mm (10.0") |
| TP100        | 356mm (14.0") |
| TP150        | 368mm (14.5") |
| TP200        | 457mm (18.0") |
| TP250        | 457mm (18.0") |
| TP300        | 457mm (18.0") |
| TP400        | 610mm (24.0") |
| TP500        | 610mm (24.0") |



Note: All dimensions are nominal

## SPECIFICATIONS

|                          |  |
|--------------------------|--|
| Connection Size          | 15 models from 15 to 500mm (1/2 to 20", DN15 to DN500)<br>(see ordering information for available sizes)   |
| Process Connections      | BSP or NPT male threads to 50mm (2", DN50)<br>All sizes flanged to ANSI or DIN specifications in carbon steel, 304 or 316 stainless steel, other flange types on request   |
| Nominal Flow Range*      | 0.11 - 1.1 m <sup>3</sup> /hr to 700 - 7000 m <sup>3</sup> /hr (0.5 - 5 USGPM to 3000 - 30000 USGPM)<br>(see ordering information for flow range of each model)<br><i>* For non lubricating liquids, the maximum flow should be reduced by 25%</i> |
| Viscosity Range          | 10 cSt recommended maximum to maintain linear range  |
| Linearity                | +/- 0.5% over 10:1 range as standard, +/- 0.15% over 10:1 range optional for sizes 100mm (4", DN100) and larger  |
| Repeatability            | +/- 0.02 to 0.05% under steady flow conditions   |
| Temperature Range        | -50 to 120°C (-58 to 250°F) as standard, optionally to 240°C (465°F)   |
| Maximum Pressure         | Threaded versions to 250 bar (3675 psi), flanged meters according to flange specification  |
| Pressure Drop            | Approximately 0.28 bar (4 psi) at maximum flow (SG=1, viscosity =1 cSt)  |
| Body Material            | 304 stainless steel (1.4301) standard, 316 stainless steel (1.4401) optional   |
| Rotor Material           | ANSI 431 or SS 430/410 where cast  |
| Bearing Support Material | 304 stainless steel (1.4301) standard, 316 stainless steel (1.4401) optional   |
| Bearings                 | Tungsten carbide sleeve  |
| Output                   | Reluctance type pick-off coil (20 mV P/P minimum), max. 50m transmission.  |
| Preamplifier Output      | Two wire 4-20mA current pulse (12-28 VDC), max. 3000m transmission   |

### Remote Mounting Options for 100 Series Electronics



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QUALITY AND SIMPLICITY IN FLOW MEASUREMENT

# ORDERING INFORMATION

| TP  | CONNECTION SIZE |        | FLOW RANGE         |              |
|-----|-----------------|--------|--------------------|--------------|
|     | DN (mm)         | inches | m <sup>3</sup> /hr | USGPM        |
| 010 | 15              | ½"     | 0.11 - 1.1         | 0.5 - 5      |
| 012 | 20              | ¾"     | 0.22 - 2.2         | 0.9 - 9      |
| 015 | 20              | ¾"     | 0.4 - 4            | 1.8 - 18     |
| 020 | 20              | ¾"     | 0.8 - 8            | 3.6 - 36     |
| 025 | 25              | 1"     | 1.6 - 16           | 7 - 70       |
| 040 | 40              | 1½"    | 3.4 - 34           | 15 - 150     |
| 050 | 50              | 2"     | 6.8 - 68           | 30 - 300     |
| 080 | 80              | 3"     | 13.5 - 135         | 60 - 600     |
| 100 | 100             | 4"     | 27 - 270           | 120 - 1200   |
| 150 | 150             | 6"     | 55 - 550           | 240 - 2400   |
| 200 | 200             | 8"     | 110 - 1100         | 480 - 4800   |
| 250 | 250             | 10"    | 190 - 1900         | 840 - 8400   |
| 300 | 300             | 12"    | 270 - 2700         | 1200 - 12000 |
| 400 | 400             | 16"    | 400 - 4000         | 1800 - 18000 |
| 500 | 500             | 20"    | 700 - 7000         | 3000 - 30000 |

## BODY MATERIAL

|   |                     |
|---|---------------------|
| S | 304 stainless steel |
| V | 316 stainless steel |

## PROCESS

|   |   |
|---|---|
| 1 | BSPP threaded   |
| 2 | NPT threaded  |
| 3 | * Tri-clamp ferrules (body material 316ss [ V ] only) |
| 4 | ANSI 150 RF flanges                                   |
| 5 | ANSI 300 RF flanges                                   |
| 6 | PN10 flanges  |
| 7 | PN16 flanges  |
| 8 | PN25 flanges  |
| 9 | Special   |

## PROCESS CONNECTION MATERIAL

|   |   |
|---|---|
| T | Threaded stainless steel as per body material     |
| S | 304 stainless steel flanges                       |
| V | 316 stainless steel flanges or Tri-clamp ferrules |
| C | Carbon steel flanges                              |

## NO. OF PICK-OFFS

|   |                           |
|---|---------------------------|
| 1 | One                       |
| 2 | Two, 90°Electrical Offset |

## PICK-OFF STYLE

|     |              |
|-----|--------------|
| - 1 | MS connector |
| - 2 | Flying lead  |

## PICK-OFF TYPE

|   |                                      |
|---|--------------------------------------|
| 1 | Standard (120°C, 250°F)              |
| 2 | High temperature (240°C, 465°F)      |
| 3 | Intrinsically safe (85°C, 170°F)     |
| 4 | Integral pre-amplifier (60°C, 140°F) |

## LINEARITY

|   |                     |
|---|---------------------|
| 1 | +/- 0.5% (standard) |
| 2 | +/- 0.15%           |

## OPTIONS

|    |  |
|----|--|
| 00 | None   |
| JB | Exd junction box   |
| PA | Exd preamplifier   |
| FI | Exd frequency to current (F/I) convertor, 4-20 mA output |
| R1 | RT11 rate / totaliser (scaleable pulse output)           |
| R2 | RT12 rate / totaliser (RT11 + 4-20 mA output & alarms)   |
| EB | EB10 High Speed Preset Batch Controller                  |

**TRIMEC**  
INDUSTRIES

## HEAD OFFICE & FACTORY

2/1 KOONYA CIRCUIT,  
TAREN POINT,  
SYDNEY, N.S.W.  
AUSTRALIA

Tel : +61 2 9540 4433  
Fax : +61 2 9525 9411  
Email : sales@trimecind.com.au  
Website : www.trimecind.com

## TRIMEC EUROPE LTD

Floor 3, 5A Boltro Road  
HAYWARDS HEATH  
WEST SUSSEX  
UNITED KINGDOM RH16 1BP

Tel : +44 144 441 7880  
Fax : +44 144 441 7668  
Website : www.trimecind.com

## TRIMEC USA LLC

2603 CAMINO RAMON, 2nd Fl.  
SAN RAMON,  
CALIFORNIA 94583  
U.S.A.

Tel : 925-242-2510  
Fax : 925-736-8497  
Email : schriefer@trimecusa.com  
Website : www.trimecind.com