

# DIFFERENTIAL PRESSURE TRANS (TR-PD)

0-10V, 4-20mA (13-27V AC/DC)

## DIMENSIONS

Height 158mm | Width 112mm | Depth 58mm

## TECHNICAL SPECIFICATION

Power Supply	13-27V AC/DC
Power Consumption	80mA Max
Analogue Outputs	0-10V (3 Wire) or 4-20mA (3 Wire)
Pressure Type	Differential
Sensor Type	Piezo-resistive
Overload Pressure	2x Transmitter Rating (2, 10 or 40 Bar)
Media Temp Range	-30 ~ 80°C
Accuracy	<±0.50%* FS
Repeatability	<±0.02% FS / Year
Thermal Coefficient	<±0.02% FS / °C
Process Connections	G1/4 Male (BSPP)
Wetted Parts	Stainless Steel (316L)
Operating Conditions	Temp 0 ~ 50°C Humidity 0 ~ 95% (NC)
IP Rating	IP65
Housing Material	PC/ABS
Colour	Black/Clear
Approval	CE, UKCA



## OVERVIEW |

The new range of Flamefast Differential Pressure Transmitters provide a cost-effective, unconventional solution, for differential pressure monitoring, and the 316L Stainless Steel wetted parts offer compatibility with a wide range of media.

With a user selectable 0-10V or 3 wire 4-20mA output, and 4 selectable output scales for each full-scale pressure range, only three units covering the full range.

Installation could not be easier - the two independent transmitters can be remotely screwed into the pipework or ports, then simply fix the enclosure to the wall, and plug in the 1m M12 cable connectors, so there is no need to work with small bore copper pipework.

Unlike traditional differential pressure transmitters, the differential pressure rating is based on the line pressure, rather than the differential, so there is no concern with over pressure.

With an optional LCD readout, commissioning and ongoing testing is simplified, with the upstream, downstream and differential pressures all visible.

## KEY FEATURES |

- 13-27V AC/DC Supply
- User selectable 0-10V or 4-20mA output
- Optional LCD readout
- Piezo-resistive pressure sensors
- Stainless Steel (316L) Wetted Parts for excellent compatibility
- Option for 2, 10 and 40 Bar Line Pressure
- User selectable Differential Pressure Ranges
- Push Button Calibration for long term accuracy
- Simple installation with remote transmitters
- UK MANUFACTURED

## PRESSURE RANGES

Rather than being defined by the differential pressure range, please select the range based on the line pressure. Each unit then has 4 user selectable differential ranges:

PRODUCT	TR-PD02	TR-PD10	TR-PD40
Range 1	1.0	0.6	16.0
Range 2	0.6	4.0	10.0
Range 3	0.4	2.5	6.0
Range 4	0.2	1.0	4.0

## PART NUMBERS & COMMON ACCESSORIES

PART NO	DESCRIPTION
TR-PD02	Transmitter - Differential Pressure - 2 Bar (0.2 ~ 1 Bar Diff)
TR-PD10	Transmitter - Differential Pressure - 10 Bar (1 ~ 6 Bar Diff)
TR-PD40	Transmitter - Differential Pressure - 40 Bar (4 ~ 16 Bar Diff)
TR-PD02L	Transmitter - Differential Pressure - 2 Bar (0.2 ~ 1 Bar Diff) c/w LCD
TR-PD10L	Transmitter - Differential Pressure - 10 Bar (1 ~ 6 Bar Diff) c/w LCD
TR-PD40L	Transmitter - Differential Pressure - 40 Bar (4 ~ 16 Bar Diff) c/w LCD

# INSTALLATION & CONFIG

## TRP & TRPD RANGE

### TECHNICAL SPECIFICATION

Power Supply	13-27V AC/DC
Power Consumption	80mA Max
Analogue Outputs	0-10V (3 Wire) or 4-20mA (3 Wire)
Pressure Type	Static / Differential
Sensor Type	Piezo-resistive
Overload Pressure	2x Full Scalex
Media Temp Range	-30 ~ 80°C
Accuracy	<±0.50%* FS
Repeatability	<±0.02% FS / Year
Thermal Coefficient	<±0.02% FS / °C
Process Connections	G1/4 Male (BSPP)
Wetted Parts	Stainless Steel (316L)
Operating Conditions	Temp 0 ~ 50°C Humidity 0 ~ 95% (NC)
IP Rating	IP65
Housing Material	PC/ABS
Colour	Black/Grey/Clear
Approval	CE, UKCA

### IMPORTANT – Please read carefully:

- This product must be installed by a competent/qualified person in accordance with all relevant regulations and legislations.
- Ensure the High and Low Pressure ports are correct prior to pressurisation.
- Isolate the supply to the unit before removing the cover.
- This product is designed for indoor use with standard atmospheric conditions.

### INSTALLATION

The pressure transmitters are to be screwed directly into a 1/4" BSPP port or inlet on the pipework. The M12 electrical connection should be removed prior to installation, and the connector should never be used to tighten or loosen the transmitter – this must be done with a suitable size spanner, with care taken to not overtighten.

The transmitters are fitted with a seal that will seat directly onto the majority of fittings, however additional seals may be required for some installations – please ensure any materials used do not obstruct the pressure inlet port.

Each transmitter is supplied with a 1m cable, so consideration must be made as to a suitable mounting location for the PCB housing.

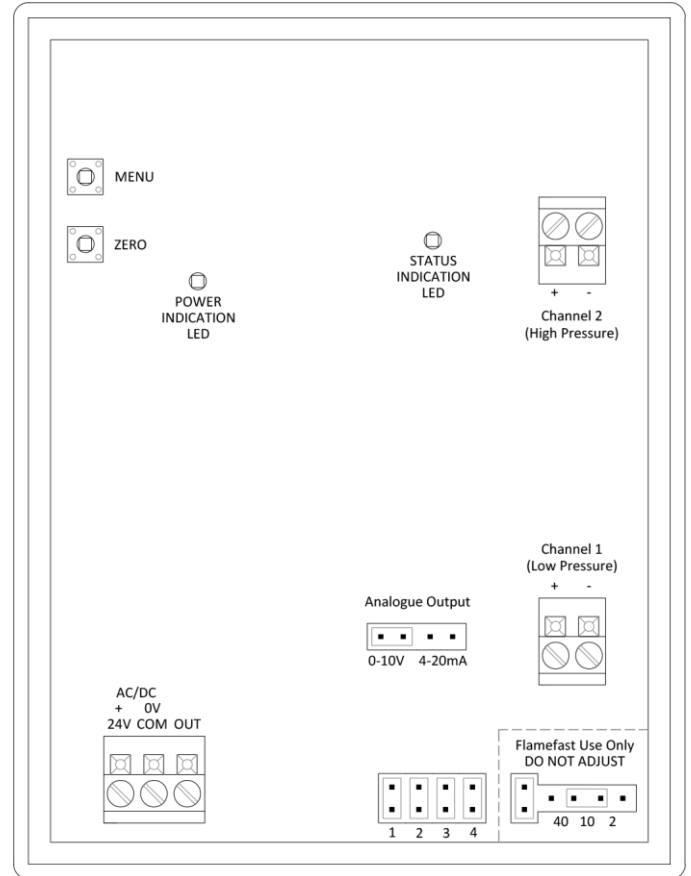
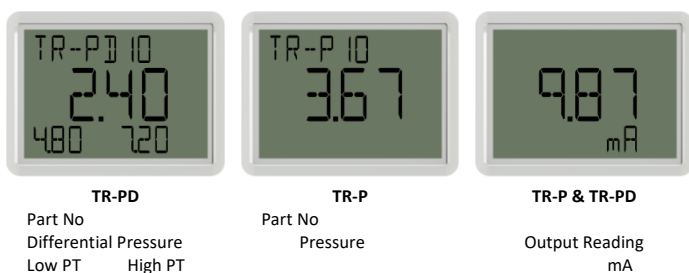
It is recommended that screened cable is used when wiring externally to the unit.

### OPERATION

On Powerup, the LCD (if fitted) will provide the unit details and configuration, including the Part No, Firmware Version, and Output Scaling.

During operation, the sensor will display show the relevant pressures in Bar, and output will provide a full-scale linear output from 0.0 Bar, to the specified pressure value depending on the unit range and configuration. For the differential range (TR-PD), the differential is calculated based on the HP-LP.

The Display as default will show the pressure for the static units, and the differential will also show the high and low port line pressures for ease of commissioning and on-site diagnostics. Pressing the **MENU** button will cycle through all readings, including an indication of the analogue output value.



### ANALOGUE OUTPUT CONFIGURATION

Moving the Output jumper will select either V or mA. These will be 0-10V or 4-20mA, full scale linear as standard, however if an LCD is fitted, other outputs can be selected:

- V = 0-5, 1-5, 0-10 or 2-10V
- mA = 0-20 or 4-20mA

### OUTPUT SCALING SELECTION

Each product has 4 selectable output scales. Moving the Scale jumper will rescale/trim the output to the below pressures (all pressures measured in BAR):

#### Static Range (TR-P)

Program	TR-P02	TR-P10	TR-P40
1	2.0	10.0	40.0
2	1.6	8.0	32.0
3	1.2	6.0	24.0
4	0.8	4.0	16.0

#### Differential Range (TR-PD)

Program	TR-PD02	TR-PD10	TR-PD40
1	1.0	6.0	16.0
2	0.6	4.0	10.0
3	0.4	2.5	6.0
4	0.2	1.0	4.0

### STATUS & TROUBLESHOOTING

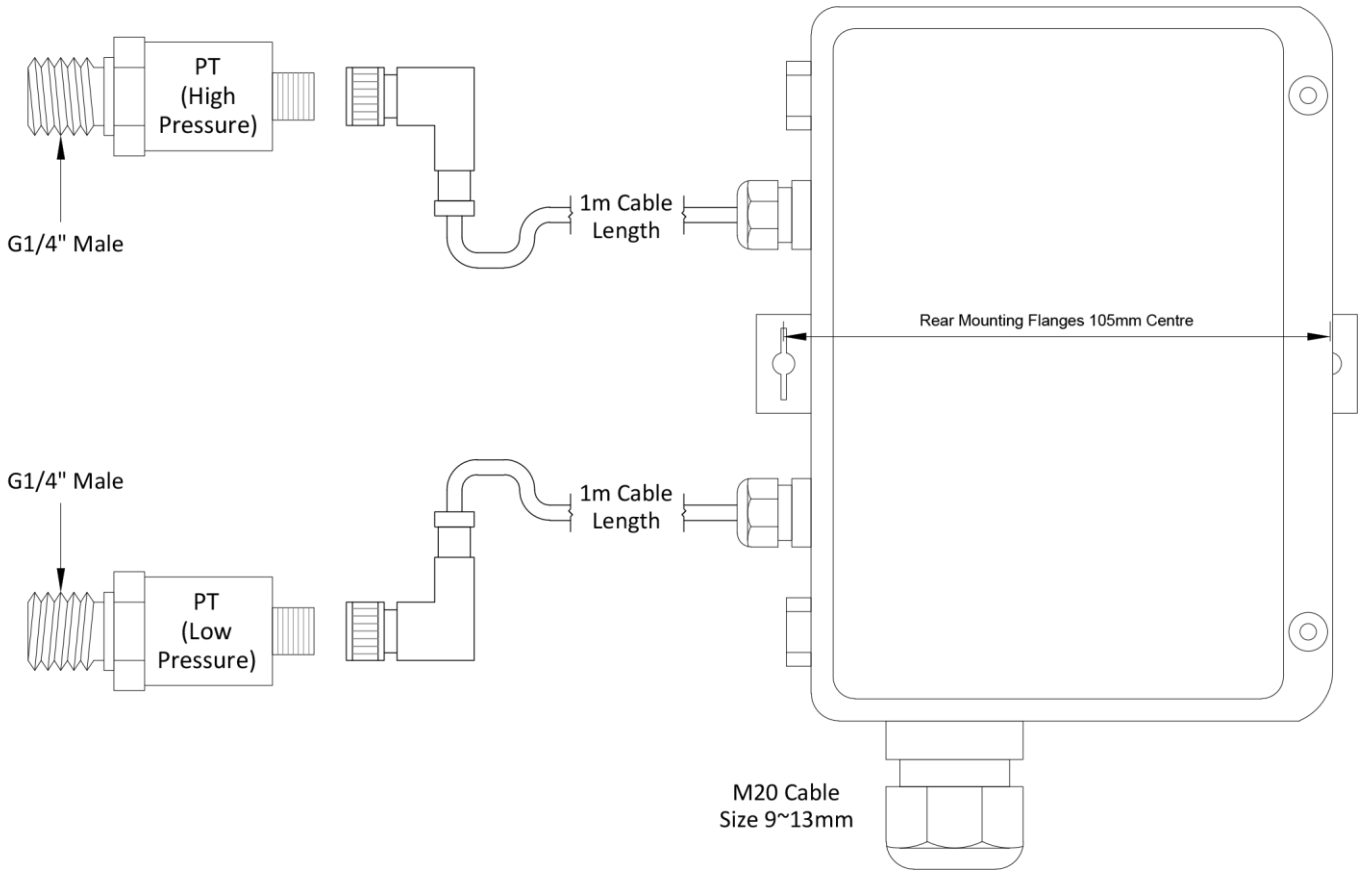
If the unit is powered the POWER LED will illuminate Green. The Status LED will provide an indication of any sensor issues, and provide feedback:

LED	Fault Description
AMBER	TR-PD only detecting 1no Pressure Transmitter
RED	No Pressure Transmitters detected
GREEN (3 Flashes)	Zero Calibration Fail
RED (3 Flashes)	Zero Calibration Successful

If the unit does not detect a pressure transmitter fitted, and the unit has an LCD, any measurement associated with that pressure transmitter will display "Err".

# OPERATION & MENU OPTIONS

## TRP & TRPD RANGE



### MENU AND ASSOCIATED SETTINGS CAN ONLY BE ACCESSED IF AN LCD IS FITTED

#### ENTERING CONFIG MENU

When the unit is fitted with an LCD, holding the **MENU** button for 3 seconds will enter config mode. This allows the installer to customise:

- Range
- Output
- Buffer (Dampening/Filter)
- High / Low Pressure Port Channel
- Factory Reset

Once in the config menu, pressing the **ZERO** button will change the value, and the **MENU** button will move to the next parameter, and the menu will timeout after 2 minutes of inactivity.

#### RANGE

Although the units include 4 jumper selectable output scaling options, the Range can be fully customised with the following increments:

- Up to 1 Bar      0.1 Bar Increments
- Up to 5 Bar      0.5 Bar Increments
- Up to 40 Bar     1.0 Bar Increments

#### OUTPUT

When the output jumper is set to **V**, the output can be changed between: 0-5, 1-5, 0-10 or 2-10V.

When the output jumper is set to **mA**, the output can be changed between: 4-20 or 0-20mA.

#### BUFFER

The buffer, provides a digital filter that averages the differential pressure reading to increase or decrease the reaction speed of the control function. This is applied to the display and analogue output.

As default, this is set to 4 seconds and can be set anywhere between 1 and 32 seconds.

#### HIGH PRESSURE PORT (TR-PD ONLY)

If the High and Low pressure ports are the wrong way around, the M12 connectors can simply be swapped, or if preferred, this setting allows this to be changed to Channel 1 at the PCB end.

#### PRESSURE PORT (TR-P ONLY)

As default, the Pressure Transmitter is wired into Channel 1. This setting allows this to be changed to Channel 2.

#### FACTORY RESET

The factory reset function will reset all parameters, including for all output scaling jumper positions.

This will also reset any Manual Zero functions that have been performed.

#### ZERO FUNCTION

Holding the **ZERO** button for 3 seconds will perform a Zero calibration.

- TR-P will set the present reading to 0 Bar.
- TR-PD will set the differential reading to 0 Bar.

To perform a Zero Calibration, the present reading must be within 5% of the true zero to prevent accidental calibration.

If the calibration is successful, the PCB mounted LED will flash Green 3 times. If the calibration is unsuccessful, the PCB mounted LED will flash Red 3 times.