TITAN PRODUCTS

Simplify the Complex®

SMART DIFFERENTIAL PRESSURE SENSORS

with BACnet MS/TP & Modbus RTU communications

- No Long Term Drift
- No Temperature Shift
- Reduce on-site wiring and installation costs through monitoring over BACnet MS/TP or Modbus RTU networks

The TPDPT8-COM range of Air Differential Pressure sensors are designed to offer increased accuracy and stability within HVAC applications such as ventilation systems, fume cupboards, operating theatres, fan speed control, air pressure monitoring and leak detection systems, while offering smart BACnet MS/TP and Modbus RTU communications for direct connection to your building network.

All sensors offer +/- range selection for low pressure applications, zero calibration via the network and IP65 protection as standard.

With no long term drift and temperature shift the TPDPT8-HA-COM sensors offer extremely high levels of stability and accuracy.

SPECIFICATION

Power Supply:	24V AC/DC +/-15%
Power Consumption:	100mA
Selectable Ranges:	TPDPT8/125: +/- 0-25, 0-50, 0-100, 0-125 TPDPT8/500: +/- 0-200, 0-300, 0-400, 0-500
Communications:	BACnet MS/TP or Modbus RTU (selectable)
BACnet Baud Rates:	9600, 19200, 38400, 76800
Modbus Baud Rates:	9600, 19200, 38400, 57600
Outputs:	0-5V, 0-10V with 4-20mA
Accuracy @ 25˚C:	3.5% of reading + 0.15Pa
Response Time:	5ms typical
Burst Pressure:	> 5bar
Operating Temperature:	-20 to 70°C
Operating Humidity:	0-80% non-condensing
Protection:	IP65
Connections:	Screw terminals for 0.3mm² to 1.5mm² cable
Recommended Cable type:	Screened Twisted Pair 0.75mm -1mm, screen earthed at controller end only
Country of Origin:	UK
Product Code:	TPDPT8/125-HA-COM TPDPT8/500-HA-COM

DIMENSIONS

113mm

90mm

157mm

CONNECTIONS

DIP Switches for
Range Selection

24V AC/DC
0V
V output (load 3mA)
mA output (load 100Ω to 500 Ω)
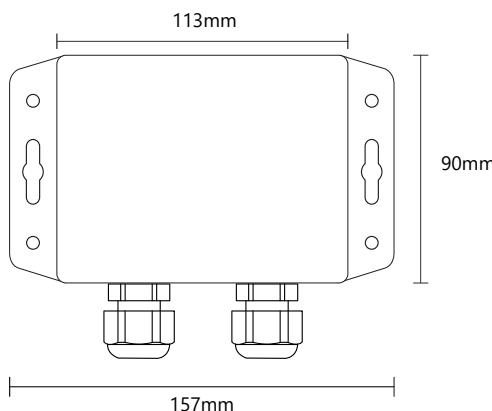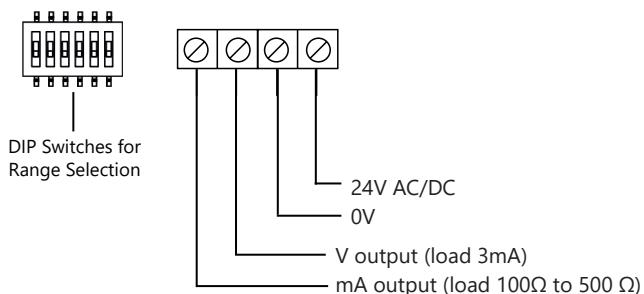
DIP SWITCH SETTINGS (PCB Base Board)

Range Selection TPDPT8/125-HA-COM

Range	SW1	SW2	SW3	SW4	SW5	SW6
0-25Pa	ON	OFF	ON	ON	ON	ON
0-50Pa	ON	OFF	ON	OFF	ON	ON
0-100Pa	ON	OFF	ON	ON	OFF	ON
0-125Pa	ON	OFF	ON	OFF	OFF	ON
For +/- Range Selection SW3 OFF For 0-5V output Range Selection SW6 OFF						

Range Selection TPDPT8/500-HA-COM

Range	SW1	SW2	SW3	SW4	SW5	SW6
0-200Pa	ON	OFF	ON	ON	ON	ON
0-300Pa	ON	OFF	ON	OFF	ON	ON
0-400Pa	ON	OFF	ON	ON	OFF	ON
0-500Pa	ON	OFF	ON	OFF	OFF	ON
For +/- Range Selection SW3 OFF For 0-5V output Range Selection SW6 OFF						

BACNET / MODBUS SETTINGS

RS485 BACnet MS/TP or Modbus Communications COM/+VE/-VE

RS485 BACnet MS/TP or Modbus Communications LED Indication

BACnet MS/TP MAC address or Modbus slave address setting (see below)

BACnet MS/TP and Modbus setting
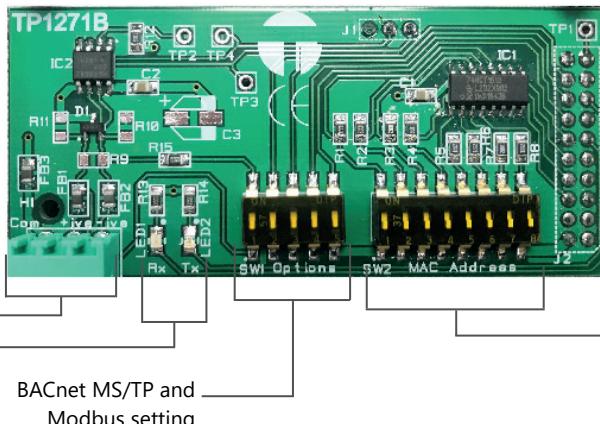
BACnet / Modbus Settings (1-5 Switch)

Function	Switch	Operation
End of Line Resistor	SW1	OFF = RS485 Termination Resistor OUT / ON = RS485 Termination Resistor IN
Communications selection	SW2	OFF = BACnet MS/TP / ON = Modbus RTU
Modbus Settings (only applicable if SW2 ON)	SW3	OFF = Communication parameters from Modbus Register / ON = No parity 2 Stop Bits
Communications Baud Rate	SW4 & SW5	See below

Baud Rate	Communication	SW4	SW5
9600	BACnet or Modbus	OFF	OFF
19200	BACnet or Modbus	ON	OFF
38400	BACnet or Modbus	OFF	ON
76800	BACnet	ON	ON
57600	Modbus	ON	ON

BACnet MAC / Modbus Slave Address settings

Address Example	SW1 (1)	SW2 (2)	SW3 (4)	SW4 (8)	SW5 (16)	SW6 (32)	SW7 (64)	SW8 (128)
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
50	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
100	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
150	OFF	ON	ON	OFF	ON	OFF	OFF	ON
127	ON	ON	ON	ON	ON	ON	ON	OFF
254	OFF	ON	ON	ON	ON	ON	ON	ON

Notes: Switches use Binary to set device BACnet MAC address or Modbus Slave Address.
Value achieved by adding relevant switch values together. See examples above.
Switches all OFF or all ON are not valid settings for addressing.
Max MAC address for BACnet systems is 127.
Max Modbus Slave address is 254. Address 0 is not valid.
BACnet Device ID = Set MAC address + 151. It is recommended this is altered during commissioning via BACnet communications once device discoverable.
It is recommended to set the network addresses prior to powering up the device.

BACnet points

Object ID	Object Name	Function
DEV0	Device Object	ID, name, version etc.
MSV0	MAC	The current MAC address
BV0	Flash store	Set True to store current values to flash memory so that they are not lost following a reboot.
BV1	Build Fail	Is set to True if the primary configuration file fails to build. Unit will run on the secondary configuration until the unit is updated.
FILE1	Config	Backup and restore file.
FILE2	Firmware	Backup and restore file.
NC1	NC1	Notification Class
NC2	NC2	Notification Class
AV100	Pressure	Current pressure reading in Pascals.
BV100	Range Polarity	0= Positive only 1= +/- Range
BV101	Pressure Calibration	Zero Calibration. Store current pressure reading as offset.
MSV100	Sensor Type	TPDP8 Model Type (125Pa, 500Pa, etc.)
MSV101	Sensor Pressure Range	Maximum pressure value (e.g. 125/-125)

Modbus Registers

Register No.	Register Type	Parameter	Units
1	Input Register	Sensor Mode	1: Pressure
2	Input Register	Pressure	Pascals
5	Input Register	Sensor Type	1: TPDPT8/125 2: TPDPT8/500
6	Input Register	Sensor Polarity	0: +/- Range 1: Positive only
7	Input Register	Pressure Range	Pascals: TPDPT8/125: 1: 125; 2: 100; 3: 50; 4: 25; TPDPT8/500: 5: 500; 6: 400; 7: 300; 8: 200 Note: 0=N/A

Note 1: All registers are unsigned expect Register no. 2

Writeable Coils

Coil No.	Parameter	Action
1	Offset Calibration	Take the current pressure and store it as offset calibration

Default factory settings:
- Baud rate: **38400** bps
- MAC: 50 (Modbus ID)
- Stop Bits: **2**

Sensor Notes

1. Solvents in the air derived from sources such as paints, cleaning products and adhesives can have a detrimental impact on the sensor cell. All sensors should therefore be installed after the space has been decorated and any flooring fitted. The sensors should also be kept away from adhesives and should the housing require cleaning, a dry non-solvent based product must be used. Do not spray any liquid or cleaning products directly onto the ventilated housing. Exposing the sensor to such solvents or moisture will invalidate the product warranty. Do not blow directly on to the CO2 cell within the sensor, this can damage the cell membrane and could cause incorrect readings.

2. Disposal: At the end of their useful life the packaging and product should be disposed of in accordance with the below depending on the country of your disposal:
• WEEE Directive 2012/19/EU and its amendments (EU). • The Waste Electrical and Electronic Equipment Regulations 2013 (as amended).
Do not dispose of with normal household waste. Do not burn.

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