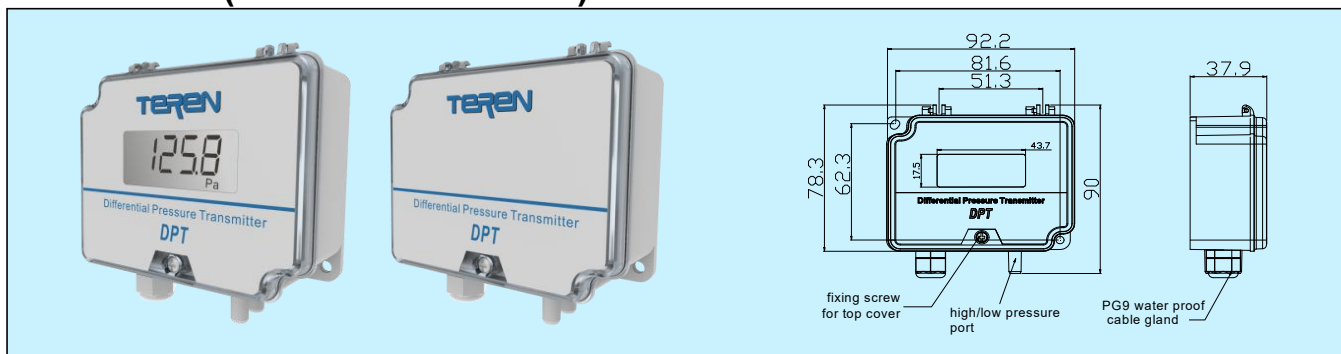# DPT(DPT-F Flush Mount)Differential Pressure Transmitter

Applications & Features

● Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. DPT is suitable for wall mount, DPT-F is suitable for flush mount
● It can measure system pressure of fan, blower, filter, furnace draft and orifice plate and can apply to various clean room, biological safety cabinet, clean bench, ducts collection, medical or pharmaceutical machine, etc.
● Multiple ranges, engineering units and outputs
● Good performance with accuracy of 1.0% and range as low as 25Pa
● Function keys: zero calibrate, unit select, response time set, etc
● Field upgradable LCD display module and multiple ranges selection

Specifications

Medium: non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil
Working Temp.: -20~70°C
Medium Temp.: 0~60°C
Temp. Compensation: 0~50°C
Working Pressure: overload 10xFS, burst 15xFS
Accuracy: ±1.0%FS(±2.0%FS@25Pa range)
Long term stability: ±0.5%FS/Year
Thermal effect: <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Response Time: 0.5~30s, can be set by keys
Process Connection: 5mm ID tubing
Display: 5 digits LCD, display area 44x18mm, with unit indication, field upgradable
Output: 0~10V, 4~20mA (2 wires), RS485 selectable
Output Load: ≤500Ω (current), ≥2kΩ (voltage)
Power: Voltage: 16~28VAC/ 16~35VDC
    Current: 18.5~35VDC (R$_L$=500Ω); 8.5~35VDC (R$_L$=0Ω)
Units: 5 units, selected by keys

Zero set: easy to reset by external key
Materials: ABS (housing) & PC (cover)
Protection: IP54
**Weight:** 165g
Approval: CE
Accessories: LCD display module (model DPT-LCD), including 1 LCD module and 1 panel film, and flush mount panel (model DPT-A), can be ordered separately

Models

Model	DPT DPT-F			DP transmitter Flush Mount DP Transmitter
Range		X		Range selection
Output			1 E 2 8	0-10V 0-5V 4-20mA(2 wires) RS485/Modbus
Display			0 1	N/A LCD

DPT-F Flush Mount Differential Pressure Transmitter

It's the combination of DPT (with LCD) and flush mount panel (model DPT-A). The specifications are the same as DPT. And the model is DPT-Fxx1(with LCD). It's good for flush mount in clean room or equipment with no dust and easy to clean 316 brushed stainless steel panel, with the size W104×H88×T1.5 and flush mount opening size W93 ×H79×D42(mm).
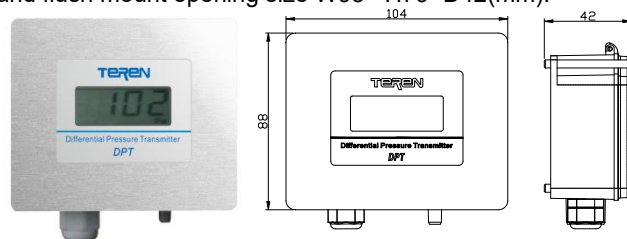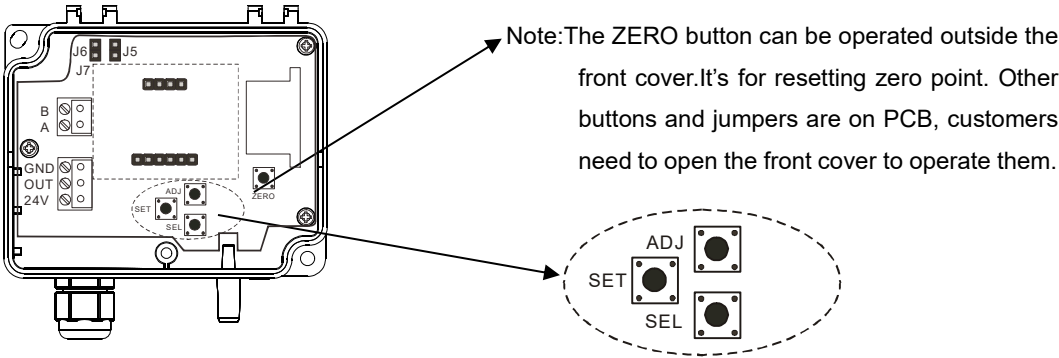

Measuring Ranges

Code	Unit & Range & Display Resolution					
	Pa	Pa	kPa	in w.c.	mm w.c.	mbar
1	0-25/60/125	25.00	0.025	0.100	2.500	0.250
		60.00	0.060	0.250	6.000	0.600
		125.0	0.125	0.500	12.00	1.250
3	0-250/500/1000	250.0	0.250	1.000	25.00	2.500
		500.0	0.500	2.000	50.00	5.000
		1000	1.000	4.000	100.0	10.00
6	0-2500/5000/10000	2500	2.500	10.00	250.0	25.00
		5000	5.000	20.00	500.0	50.00
		10000	10.00	40.00	1000	100.0

1. Code 1 and 3 have multiple ranges which could be jumper selected.
2. Set the 5 engineering units by button keys and the related LCD indicator will be on.
3. For zero center models, add "Z" at the end of the model. For example, DPT1**Z, means the range is -30-0-30/-62.5-0-62.5pa. Only ranges 1~6 have this selection.

Connection:

Different models have different electrical connections. Refer to the table as below (x means for any models).


Note:The ZERO button can be operated outside the front cover.It's for resetting zero point. Other buttons and jumpers are on PCB, customers need to open the front cover to operate them.

Terminal:

Models	Connections				
DPTX1X DPTXEX	Terminal	24V	GND	OUT	
	Signal	Power+	Power-	0-10V 0-5v	
DPTX2X	Terminal	24V	OUT		
	Signal	Power+	4-20mA		
DPTX8X	Terminal	24V	GND	OUT	B	A
	Signal	Power+	Power-	N/A	B/Z	A/Y

DPT1XX and DPT3XX Range Jumpers Setting(J5, J6, J7)：

Models	Jumpers				Remark
	Range	J5	J6	J7(default)	
DPT1XX	0-25Pa			√	
	0-60Pa	√			
	0-125Pa		√		√：ON (Connected)
DPT3XX	0-250Pa			√	
	0-500Pa	√			
	0-1000Pa		√		
DPT6XX	0-2500Pa			√	
	0-5000Pa	√			
	0-10000Pa		√		

Surface Mounting:

It can be installed by surface mount and connected high(+) and low(-) pressures with accessories.
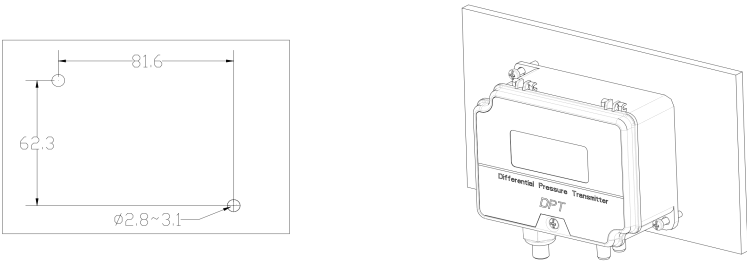
Flush Mounting:
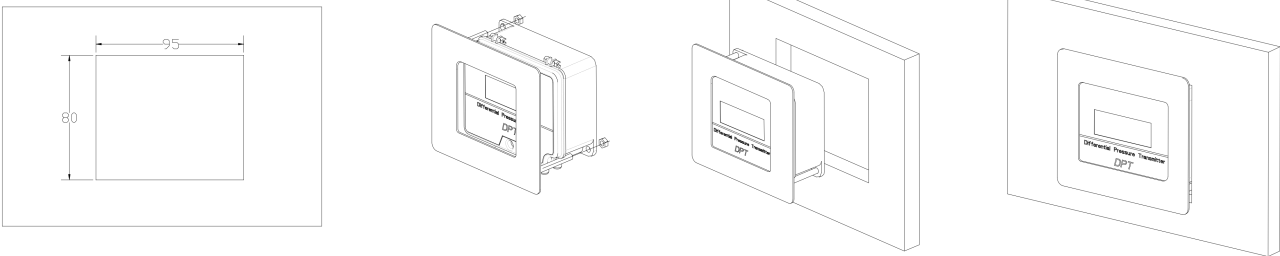
(1)Cut a 95(W)×80(H)mmrectangular hole on the wall.
(2)Assemble the panel with the transmitter as shownabove.Connect the tubes (be careful of the high(+)/low(-) ports) and the electrical terminals, then coat some glue on the back of the stainless steel installation panel, insertthe transmitter body into the hole and paste the panel with the wall properly.

Zero reset & Calibration:

According to different environment and sensor's characteristics, for long term of using, the sensor's accuracy maybe   drift. The transmitter should be zero reset after initial installed to meet the specified accuracy, and be zero reset periodically in every 6-12 months' using. It is recommended to be "zero reset" after the initial 7 days continuous working.

Zero reset: keep the high（＋）/low（-）pressure ports unconnected in stable air, or directly connect them, press the button "ZERO" for 5s to perform "zero reset". It means "remove the zero drift of the transmitter in order to improve the accuracy". It isrecommended that this operation could be done periodically.

Initial zero reset: when initial power on, it should be zero reset after fully warm-up and stable, to meet the specified accuracy.

Long term zero drift & reset: It may have long term zero drift after continuous working; customers can reset it periodically.

Re-calibration & zero reset: when re-calibration needed, zero reset should be done first. A qualified standard manometer is needed for re-calibration operation. Please follow the operation procedures below.

Attention:

It should be power OFF during installing and wiring. When using 24VAC, it is strongly recommended to power the unit with independent transformer. If sharing a 24VAC transformer with other equipments such as controllers, transmitters or actuators, please make sure the terminals 24V and GND are connected correctly. Otherwise, it may reduce serious damages.

Warranty:

● It has limited warranty for eighteen (18) months after the production date.
● It does not extend to any unit that has been subjected to misuse or accident.
● It is, in any event, strictly limited to the replacement or repair of the product itself.

DPT Differential Pressure Transmitter - Operation Instruction

Button definition:

"SET": Set/Confirm/Save; "SEL": Bit Select/Decrease; "ADJ": Adjust/Increase; "Zero":Zero Reset

Zero reset: keep the high（＋）/low（-）pressure ports unconnected in stable air, or directly connect the two, press the button "Zero" 5s to reset the actual "zero point". It means "remove the zero drift of the transmitter in order to improve the accuracy". It is recommended that this operation could be done periodically.

Operation instruction:

1."P810": Reset
SET→SEL/ADJ→P810→SET
User can restore the factory default set. Input "P810", "Pret" will blink, press button SET, all factory default set will restore.

2. "P075": Set the response time (Default set: 0.7s, available range: 0.5-30.0s)
SET→SEL/ADJ→P075→SET→SEL/ADJ→XXX→SET. (XXX means set time).

3. "P083": Check LED display function, it will display the 4 digits one by one.
SET→SEL/ADJ→P083→SET

4."P081": Set Engineering Unit (Default set: 1, for engineering unit Pa, available ranges: 1-5)
SET→SEL/ADJ→P081→SET→SEL/ADJ→XXX→SET (XXX means the code of engineering unit),then the relevant LED on.
(Index: 1: Pa; 2: kPa; 3: mbar; 4: mmW.C.; 5: inW.C.)

5."P485": Set RS485 address(Default set: 1, available ranges 1~255, but recommend 1~30)
SET→SEL/ADJ→P485→SET→SEL/ADJ→XXX→SET (XXX means RS485 address)
Note：Refer to the communication data table

6."P483": Set RS485 Baud Rate (Default set: 9600, available 9600 or 4800)
SET→SEL/ADJ→P483→SET→SEL/ADJ→XXX→SET (XXX means Baud Rate index)
Index：1: 9600; 2: 4800.

7."P482": Set RS485 Parity Bit (Default set: 0, available 0,1 or 2)
SET→SEL/ADJ→P482→SET→SEL/ADJ→XXX→SET (XXX means Parity Bit index)
Index：0: none; 1: odd; 2: Even.

System Error signal:

Err 1   **Keys input operation code is wrong**
Err 2   **Input data is not available**
Err 3   **Modbusattempt to write read only register error**
Err 4   **Modbus CRC check error**
Err 6   **Password Key input error**

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