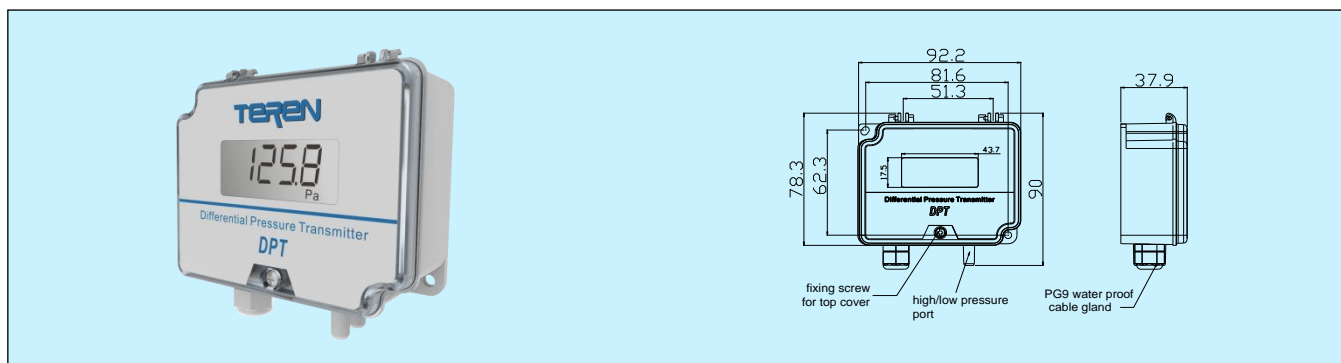


# DPT Differential Pressure Transmitter



## Applications & Features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure
- It can measure fan and blower pressures, filter resistance, air velocity, pressure drop across orifice plates, differential pressure of medical or pharmaceutical machine, etc.
- Multiple ranges, engineering units and outputs.
- Good performance with accuracy of 1.0%
- Function keys: zero calibrate, unit select, response time set, etc
- Field upgradable LCD display module

## Specifications

**Medium:** on-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, see accuracy table

**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, with unit indication, field upgradable

**Output:** 0~10V, 4~20mA (2 wires), RS485 selectable

**Output Load:** ≤500Ω (current), ≥2KΩ (voltage)

**Power:** Current: 18.5~35VDC (R<sub>load</sub>=500Ω)  
8.5~35VDC (R<sub>load</sub>=0Ω)

Voltage: 16~28VAC/ 16~35VDC

**Unit select:** by keys

**Zero set:** easy to reset by external key

**Materials:** ABS(housing) &PC(cover)

**Protection:** IP54

**Approval:** CE

## Models

Model	DPT			DP transmitter
<b>Range</b>		See table		Range selection
<b>Output</b>			1 2 8	0-10V 4-20mA(2 wires) RS485/Modbus
<b>Display</b>			0 1	N/A LCD

## Accessory:

### 1. Flush mount panel

Model: DPT-A

316 SS panel, for flush mount,  
No duct and easy to clean.

Dimensions:

103(W)×91(H)×1.2(D)mm



### 2. Field upgradeable LCD Display

Model: DPT-LCD-1/DPT-LCD-5

Each package has the LCD module

And the film for the cover 1 set (-1)

Or 5 sets (-5)



## Measuring ranges& Accuracy

Code	Unit & Range& Display resolution						Accuracy(%FS)
	Pa	Pa	kPa	in w.c.	mm w.c.	mbar	
1	0-60/125	60.00	0.060	0.250	6.000	0.600	1%
		125.0	0.125	0.500	12.00	1.250	1%
3	0-250/500/1000	250.0	0.250	1.000	25.00	2.500	1%
		500.0	0.500	2.000	50.00	5.000	1%
		1000	1.000	4.000	100.0	10.00	1%
6	0-2000	2000	2.000	8.000	200.0	20.00	1%
7	0-5000	5000	5.000	20.00	500.0	50.00	1%
8	0-10000	10000	10.00	40.00	1000	100.0	1%

Note:1. Code 1 and 3 have multiple ranges which could be jumper selected.

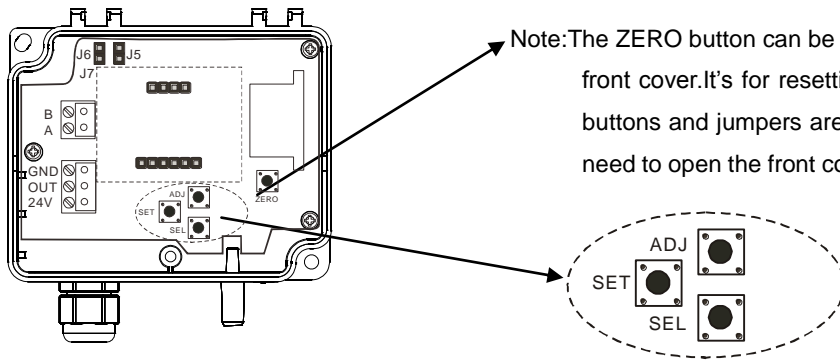
2. Set the 5 engineering units by button keys and the related LCD indicator will be on.

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).



**Terminal:**

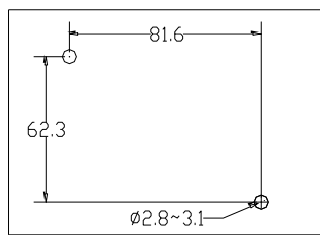
Models	Connections					
DPTX1X	Terminal	24V	GND	OUT		
	Signal	Power+	Power-	0-10V		
DPTX2X	Terminal	24V	OUT			
	Signal	Power+	4-20mA			
DPTX8X	Terminal	24V	GND	OUT	B	A
	Signal	Power+	Power-	N/A	B/Z	A/Y

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

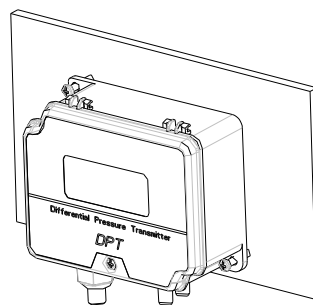
Models	Jumpers				Remark
	Range	J5	J6	J7	
DPT1XX	0-60Pa			√	√: ON (Connected)
	0-125Pa	√			
DPT3XX	0-250Pa			√	
	0-500Pa	√			
	0-1000Pa		√		

**Surface Mounting:**

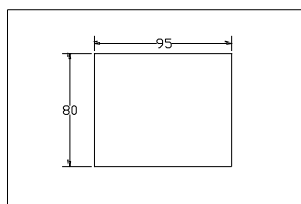
It can be installed by surface mount and connected high(+) and low(-) pressures with accessories.



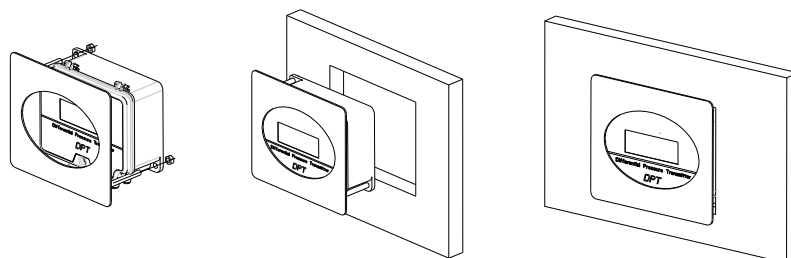
Unit:mm



**Flush Mounting:**



Unit:mm



- (1) Cut a 95(W)×80(H)mm rectangular hole on the wall.
- (2) Assemble the panel with the transmitter as shown above. 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, insert the 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 is recommended 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. "P484": Set RS485 RTU Mode (Default set: 1, available 1 or 2)**

SET→SEL/ADJ→P484→SET→SEL/ADJ→XXX→SET (XXX means RTU Mode index)

Index: 1: 9600-N-8-1; 2: 9600-N-8-2.

**Calibration by user:**

Even though the product can be re-calibrated by user, it should be operated very carefully. The calibration is already finished in factory. It may be out of accuracy or even damaged after un-properly re-calibrated.

There are sets of parameters can be re-calibrated by user. Current outputs at both zero (4mA) and full range (20mA) or voltage outputs at both zero(0V) and full range(10V). All calibrated data will be stored and kept in the flash memory even power supply is fail. But the factory default sets are always kept and can be restored any time.

**7. "P271": Re-calibrate analog output, include zero and full range**

SET→SEL/ADJ→P271→SET→SEL/ADJ→"key"→SET→SEL/ADJ→Waitjump→SEL/ADJ→SET

"Key" is calibration password: 1021.

Calibration method: Enter P271 and password, connect the transmitter with standard meter. At this time the LED will alternatedisplay "ZEro" and "FULL". During "FULL" display period(last about 25s), press SEL/ADJ to adjust the output become 10V or 20mA.

During "ZEro" display period(last about 25s), pressSEL/ADJ to adjust the output become 0V or 4mA, then press SET to finish. If adjust to the limit, it will display "Err".

**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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