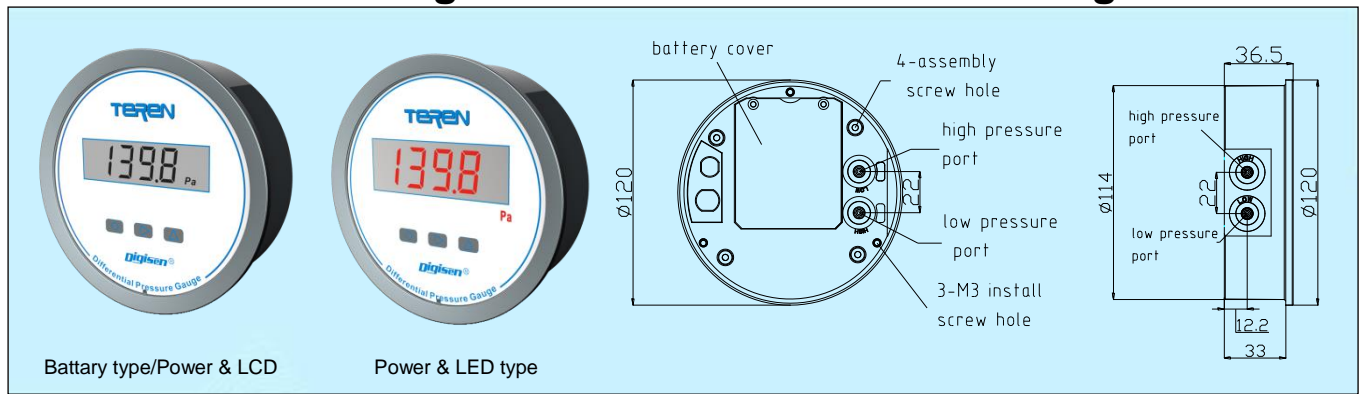


D2/D2P Digital Differential Pressure Gauge



Applications and features

- Apply high accuracy MEMS sensor and digital technologies, can measure positive, negative or differential pressure. It can completely replace the traditional pointer mechanical gauge
- 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.
- No any movable parts, no any effect on vibration. With ultra thin design of 33mm, it could be flush, surface or wall mount.
- Fashion and state of art housing design, with large LCD or LED display
- Function keys: zero reset, units select, display update time, automatic sleep time, sound-light alarm, etc.
- Optional built-in buzzer and backlight, provide sound-light alarm function

Specifications

Medium: Non-combustible, non-corrosive air, insensitive to moisture, dust, condensation and oil

Work Environment: Battery type -10~50°C
Power type -20~70°C(LED), -10~60°C (LCD)

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)

Alarm: sound-light alarm by built-in buzzer and LCD backlight / LED flashing

Battery type (D2):

Display: 4 bits LCD 18mm character height with units indication

Power: AA battery × 4, recommend LR6 alkaline

Display update time: selectable for 0.5/1/5/10s(default 1s)

Automatic sleep time: selectable for normal open (NO), or 1/5/10min (default 1 min)

Battery service life: when display update time=1s and automatic sleep time=NO, ≥2 year. When display time>1s or automatic sleep time≥1min, will be longer. It also depends on the quality of the batteries.

Power type (D2P):

Display: 4 bits LCD with 18mm character height and unit indication, or 4 bits 0.8" red LED

Power: 16~28VDC/AC or 85~265VAC

Process Connection: 5mm ID tubing, two pairs (on left & back side)

Key: 3 touch buttons

Materials: ABS

Protection: IP65

Weight: 300g (battery type, including batteries), 260g (power type)

Approval: CE

Accessory: A-S0 is standard including 2m/5mm ID tube, 3 pairs of screws and brackets. Options are A-S1, A-S2 and A-S7-X. They can be used for surface, panel or flush mount and should be ordered separately. See details in Accessories.

Models

| Model | D2 | D2P | | | Digital DP gauge(battery) | Digital DP gauge(power) |
|----------------------|----|-----|---|---|---------------------------|-------------------------|
| Range | | x | | | Range selection | |
| Alarm | | | 0 | 1 | N/A sound-light alarm | |
| Display (D2P) | | | 0 | 1 | LCD LED | |
| Power (D2P) | | | 0 | 1 | 16~28VAC/DC 85~265VAC | |

Measuring Ranges

| Code | UNIT & Range & Display Resolution | | | | | |
|------|-----------------------------------|-------|--------|---------|---------|--------|
| | Pa | Pa | kPa | in w.c. | mm w.c. | mbar |
| 0 | 0-25 | 25.00 | 0.025 | 0.100 | 2.500 | 0.250 |
| 1 | 0-60 | 60.00 | 0.060 | 0.250 | 6.000 | 0.600 |
| 2 | 0-125 | 125.0 | 0.125 | 0.500 | 12.00 | 1.250 |
| 3 | 0-250 | 250.0 | 0.250 | 1.000 | 25.00 | 2.500 |
| 4 | 0-500 | 500.0 | 0.500 | 2.000 | 50.00 | 5.000 |
| 5 | 0-1000 | 1000 | 1.000 | 4.000 | 100.0 | 10.00 |
| 6 | 0-2500 | 2500 | 2.500 | 10.00 | 250.0 | 25.00 |
| 7 | 0-5000 | 5000 | 5.000 | 20.00 | 500.0 | 50.00 |
| 8 | 0-10000 | 10000 | 10.000 | 40.00 | 1000.0 | 100.00 |

1.5 engineering units can be set by the key and related LCD/LED will be on.

2. For zero center models, add "Z" at the end of the model. For example, D210Z, means -30-0-30pa. Only ranges 1~6 have this selection.

Power connection or battery installation

Power type D2P series gauges need external power 24VAC/DC or 85~265VAC, red line connect positive and black line connect negative power, shown as figure (1). Battery type D2 series gauges need to install 4 pcs of AA batteries, LR6 alkaline is suggested, shown as figure (2). Battery compartment cover should be installed tightly to ensure IP65 protection rate.

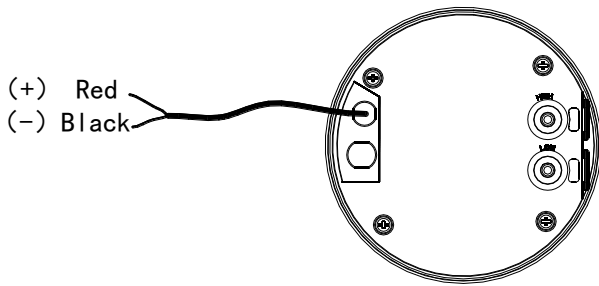


Figure (1)

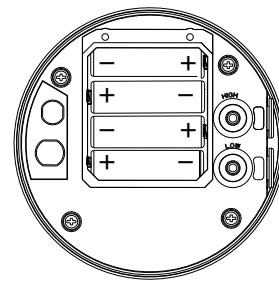


Figure (2)

Installation and Accessories

It can be installed by surface, panel or flush mount with accessories. Gauges should be installed vertically and connected high/low pressures.

1. Surface mount

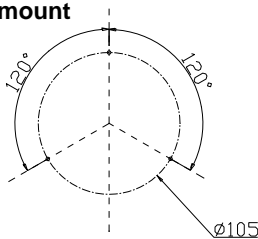


Figure (3)

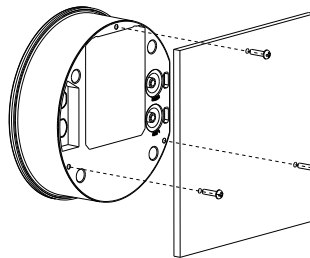


Figure (4)

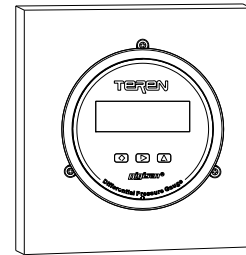


Figure (5)

When surface mounted, drill 3 holes at each 120 degree on the circle with 105mm diameter, each hole is 3 mm diameter, shown as figure (3). Then install the product by using 3 screws M3X8 on the surface, shown as figure (4) or (5) or similar, and connect the tube (be careful of the high/low ports). Be sure to seal another pair of pressure ports.

2. Panel mount

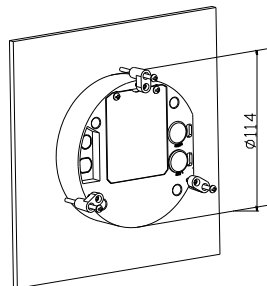


Figure (6)

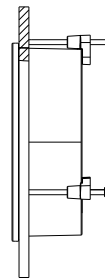
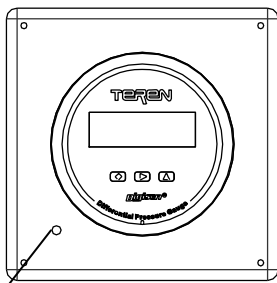


Figure (7)

When panel mounted, drill a hole with 114 mm diameter, put the gauge body into the hole, install the supplied accessories on the back side of the gauge, fix 3 screws M3.5X45 shown as figure (6) and (7). Then connect with tube (be careful of the high/low ports and be sure to seal another pair of the pressure ports.).

3. Flush mount



high pressure port

Figure (8)

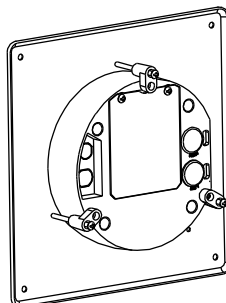


Figure (9)

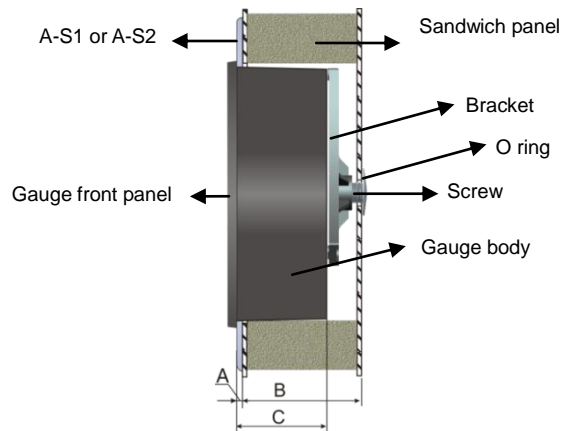


Figure (10)

Flush mount needs extra accessories, shown as figure (8) and (9), depending on the desired ways of installation. TEREN supply accessories A-S1,A-S2 and A-S7-X for panel or flush mount, shown as figure (10). They need to be ordered separately. The main difference from panel mounting is: flush mount can only be opened and operated at the front side of the installation position, but the back side is completely sealed.

The total depth of the gauge is only 33mm, so if customers use the side pressure ports for tubing, the flush space can be as small as only 33mm. Pressure connections are the same as above surface or panel mounting method.

Zero reset:

Due to different environment and sensor's own characteristics, gauges may have some zero drift after long period of using, which may affect the accuracy. Therefore, the gauges need to be reset at zero point before using. Otherwise it can not perform the normal accuracy. The gauges can get better accuracy if they can be reset at zero point after 7 days continuously using. In addition, users should repeat the zero reset operation in every 6 or 12 months, or when the deviation of the gauges exceeds permitted value.

Zero reset operation: keep the high/low pressure ports unconnected in stable air, or directly connect the two, press the ▷ button 5 seconds (at this time, the gauges should display 0) to reset the actual "zero point". It means "remove the zero drift of the gauge in order to improve the accuracy". It is recommended that this operation could be done periodically.

Initial drift and zero reset: when initial using, power on and fully warm the gauge (more than 30 minutes), then operate the zero reset.

Long period drift and reset: after long periods using, the gauge may produce long-term drift, customers can operate the zero reset when needed.

Attention

It should be power OFF during installing and wiring, and ensure the external power connection or battery polarities are completely correct. Otherwise it will bring unpredictable circumstances, or even damage to the product.

Warranty

It has limited warranty for eighteen (18) months after the production date.

D2/D2P Digital Differential Pressure Gauge – Keys Operation Instruction**Button definition:**

Set/Save Bit Select/decrease Adjust/increase

Shortcuts:**1. Zero reset**

keep the high/low pressure ports unconnected in stable air, or directly connect the two, press the ▷ button 3 seconds (at this time, the gauges should display 0) to reset the actual "zero point". It means "remove the zero drift of the gauge in order to improve the accuracy". It is recommended that this operation could be done periodically.

2. On / Off

In power-on status, press key △ 3s to shutdown. In power-off status, press any key to resume. It is only available for D2.

3. Alarm Tone Mute

In the sound-light alarm status, press any key to mute the buzzer. In this case, the sound-light alarm will resume after:

- (1) **Automatic recovery:** after the differential pressure returned to normal status, and then meet alarm condition again, the sound-light alarm will be automatically actuated.
- (2) **Manual recovery:** when operate the alarm mode or parameters in the "P301", the sound-light alarm function will be automatically recovered. Or when entering "P302" to set the sound-light alarm again, it will be available as it was setted.

Operation instruction:

Slightly different functions are corresponded to different models as shown below. Users can program related functions after entering key ◇ when the display shows "P000". By pushing keys ▷ and △, users can select different function codes to enter and finish all settings. While there is no any operation for 30 seconds, it will exit programming status and return to normal working condition.

| Model | Functions | | | | | | |
|-------|-----------|------|------|------|------|------|------|
| | P810 | P081 | P083 | P075 | P076 | P301 | P302 |
| D2 | √ | √ | √ | √ | √ | X | X |
| D2P | √ | √ | √ | √ | X | √ | √ |

1. "P810": Reset factory default set

◇ → ▷/△ → P810 → "rEst" → ◇ finish

2. "P081": Set Engineering Unit (Default set: 1, for engineering unit Pa, available ranges: 1-5)

◇ → ▷/△ → P081 → ◇ → X → ◇ finish (XXX means the code of engineering unit), then the relevant unit LED/LCD will be on. (Index: 1: Pa; 2: KPa; 3: mbar; 4: mm W.C.; 5: in W.C.)

3. "P083": Check LED/LCD display function, it will display all display characters one by one.

◇ → ▷/△ → P083 → ◇ finish

4. "P075": Set display update time (Default set: 1 second, available range: 0.5, 1, 5, 10 seconds)

◇ → ▷/△ → P075 → ◇ → ▷/△ → XXX → ◇ finish. (XXX means set time)

5. "P076": Set automatic sleep time (Default set: 1 minute, available range:0, 1, 5, 10 minute, 0 = continuously display, 1~10: auto shut-off(sleep) time when any no operation)

◇ → ▷/△ → P076 → ◇ → ▷/△ → XXX → ◇ finish (XXX means set time)

Note: this function is only available for D2P(D2P is always working(displaying) because it has external power).

6. "P301": Alarm Mode Set (Default set: 0, does not work. See below parameter Settings)

◇ → ▷/△ → P301 → ◇ → ▷/△ → X → ◇ → ▷/△ → XXX → ◇ → ▷/△ → XXX → ◇ → ▷/△ → XXX → ◇ → ▷/△ → XXX → ◇ finish
 X / XXX means settable parameters, stands for alarm mode, parameter #1, #2, #3 and #4 respectively.

| Mode | Description | Para. #1 | Para. #2 | Para. #3 | Para.#4 | Definition |
|------|---|-----------|------------|---------------|---------------|------------|
| 0 | Cancel alarm function | N/A | N/A | N/A | N/A | Alarm OFF |
| 1 | Alarm when input is lower than set point | Set point | Dead band | Actuate delay | Restore delay | |
| 2 | Alarm when input is higher than set point | Set point | Dead band | Actuate delay | Restore delay | |
| 3 | Alarm between high and low limits | Low limit | High limit | Actuate delay | Restore delay | |
| 4 | Alarm outside high and low limits | Low limit | High limit | Actuate delay | Restore delay | |

- (1) When the alarm mode is 0, unable to set parameters of #1 ~ #4.
- (2) When the alarm mode is 1 ~ 4, parameters #1~#4 must be set. Also, must be reasonable. Otherwise, it can't work normally.
 - A. When alarm mode is 1 or 2, the set point should be within the range, are not allowed to set to zero or full range.
 - B. When the alarm mode is 3 or 4, the low limit should be less than the high limit, and both of them are not allowed to set to zero or full range.
 - C. Actuate delay and restore delay should be set according to actual application with reasonable logic, and are allowed 0 ~ 99 seconds.

7. "P302": Alarm Tone Mute Mode Set (Default set: 1, sound-light alarm. available ranges: 0(alarm tone mute), 1(sound-light alarm))

◇ → ▷/△ → P302 → ◇ → ▷/△ → X → ◇ finish (X stands for 1 or 0)

System Error Indication:

- Err 1 Keys input operation code is wrong
- Err 2 Input data is not available
- Err 7 Sensor error



Shenzhen TEREN Control Technology Co. Ltd.

Add: 3F, 2nd Industrial Zone, Nankeng, Longgang

District, Shenzhen,Guangdong,P.R.CHINA

Tel: 0755-23935155 Fax: 0755-23935156

web: www.teren.com.cn



TEREN website



Alibaba shop