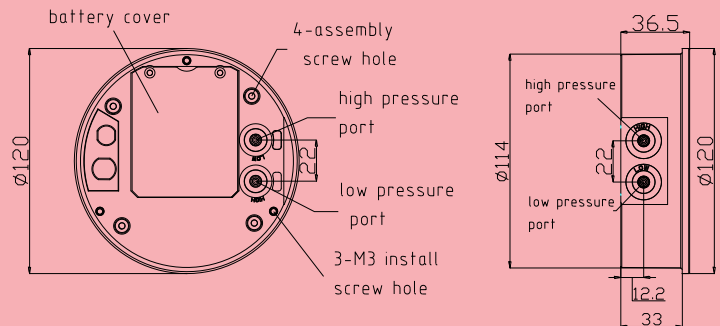# DIGITAL DIFFERENTIAL PRESSURE GAUGE

Battary type/Power & LCD   Power & LED type

The Series CDPG and CBDPG Digital Differential Pressure Gauge can measure positive, negative or differential pressure. It can completely replace traditional pointer mechanical gauge. It is available in 24 Volts or Battery powered version. All models are factory calibrated to specific ranges.

FEATURES:

● Easy to read LCD/LED display provides immediate local alerts allowing corrective action to be taken quicker to eliminate problem from becoming widespread.

● Same size as pointer mechanical gauges simplifies field upgradable to digital pressure gauge by reducing install steps.

● Built-in buzzer and backlight, provide sound-light alarm function.

APPLICATIONS

● 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, dust collection systems, medical or pharmaceutical machine, etc.

SPECIFICATIONS:

Service: Air and non-combustible gas
Accuracy: ± 1 % FS
Long term stability: ± 0.5% FS/Year
Thermal effect : <0.05%FS/°C (zero), <0.08%FS/°C (FS)
Storage Temperature: CBDPG: -10~50°C
CDPG: 20~70°C(LED)
Working Pressure: overload 10xFS, burst 15xFS
Alarm: Sound -Light alarm by built-in buzzer and LCD backlight /LED flashing (depending on model)
Battery type (BCDPG):
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)
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 (CDPG):
Display: 4 bits LED with 18mm character height and unit indication, or 4 bits 0.8" red LED
Power: 16~28VDC/AC
Process Connection: 5mm ID tubing, two pairs (on left & back side)
Materials: ABS
Enclosure Rating: IP65
Approval: CE

MODEL CHART

Model	Range (Pa)	mm w.c.	in w.c.	mbar	kPa
CDPG-QL-LED*	0-60.00	6.000	0.250	0.600	0.060
CDPG-HL-LED*	0-125.0	12.70	0.500	1.250	0.125
CDPG-1L-LED*	0-250.0	25.00	1.000	2.500	0.250
CDPG-2L-LED*	0-500.0	50.00	2.000	5.000	0.500
CDPG-4L-LED*	0-1000	100.0	4.000	10.00	1.000
CDPG-10L-LED*	0-2500	250.0	10.00	25.00	2.50
CDPG-20L-LED	0-5000	500.0	20.00	50.00	5.00
CDPG-40L-LED	0-10000	1000	40.00	100.0	10.00
CBDPG-1L-LCD	0-250.0	25.00	1.000	2.500	0.250
CBDPG-2L-LCD	0-500.0	50.00	2.000	5.000	0.500
CBDPG-4L-LCD	0-1000	100.0	4.000	10.00	1.000
CBDPG-40L-LCD	0-10000	1000	40.00	100.0	10.00
"*" Available in Zero Center, Add Z at the end of the Model, Example: CDPG-QL-LEDZ					

CDPG Digital Differential Pressure Gauge

Power connection or battery installation

Power type CDPG series gauges need external power 24VAC/DC, red line connect positive and black line connect negative power, shown as figure (1).Battery type CBDPG 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.
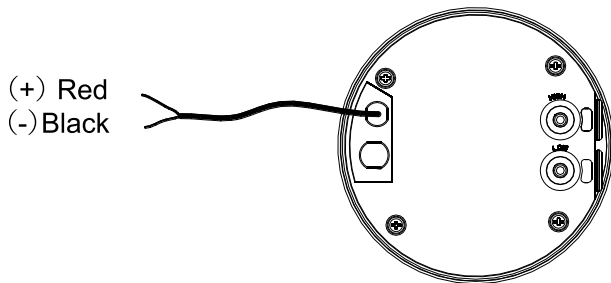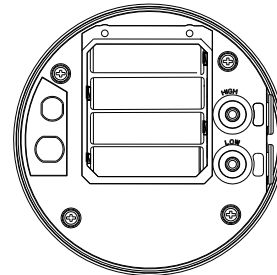
（+）Red
（-）Black

Figure (1)

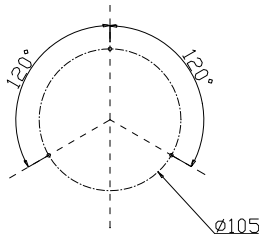Figure (2)

Installation and Accessories
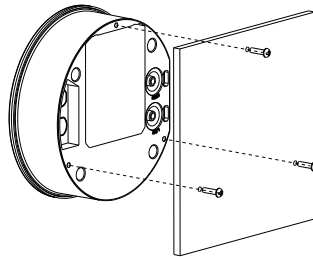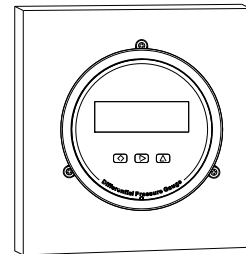
1.Surface mount

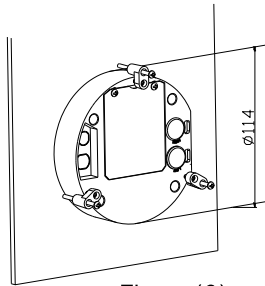Figure (3)

Figure (4)

Figure (5)

2. Panel mount

Figure (6)
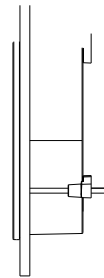
Figure (7)

3. Flush mount

SS-Plate or MS-Plate
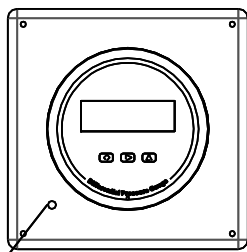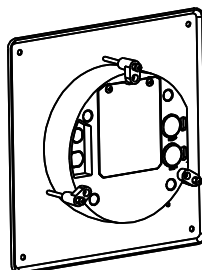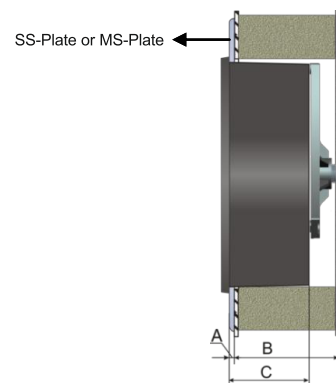
Figure (8)

Figure (9)

Figure (10)

CDPG Digital Differential Pressure Gauge

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 twelve (12) months after the production date

CDPG 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 CBDPG.

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
CBDPG	√	√	√	√	√	X	X
CDPG	√	√	√	√	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)

CDPG Digital Differential Pressure Gauge

Note: this function is only available for CDPG 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	Alarm ON ▲Deadband ▲Alarm OFF ▲Setpoint
2	Alarm when input is higher t han set point	Set point	Dead band	Actuate delay	Restore delay	Alarm OFF▼Deadband▲Alarm ON ▲Setpoint
3	Alarm between high and low limits	Low limit	High limit	Actuate delay	Restore delay	Alarm OFF Alarm ON Alarm OFF Low limit▲ ▲ High limit
4	Alarm outside high and low limits	Low limit	High limit	Actuate delay	Restore delay	Alarm ON Alarm OFF Alarm ON Low limit▲ ▲High limit

(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