COVAL Vacuum managers

ENG

PSD100CPNP CE

For your safety, please read the following before using.

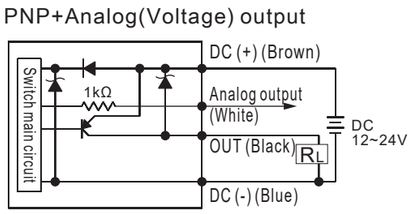
① Do not use corrosive or flammable gas or liquid with this product.
② Please use within the rating pressure range. Do not apply pressure beyond recommended maximum withstand pressure, permanent damage to the pressure sensor may occur.
③ Do not drop, hit or allow excessive shock. Even if switch body appears undamaged, internal components may be broken and can cause malfunction.
④ Turn power off before connecting wiring. Wrong wiring or short circuit will damage and / or cause malfunction.
⑤ Do not use in environment containing steam or oil vapor.
⑥ This product is not explosion-proof rated. Do not use in atmosphere containing flammable or explosive gases.
⑦ Wiring for pressure sensor should avoid power source line and high voltage line. If use in the same circuit, noise may cause malfunction.

A. SPECIFICATIONS

MODEL		PSD100CPNP
Rated pressure range		0.0 ~ -101.3kPa
Set pressure range		10.0 ~ -101.3kPa
Withstand pressure		300kPa
Fluid		Air, Non-corrosive / Non-flammable gas
Set pressure resolution	kPa	0.1
	kgf/cm²	0.001
	bar	0.001
	psi	0.01
	inHg	0.1
	mmHg	1
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less
Current consumption		≦ 40mA (With no load)
Switch output		PNP: open collector 1 output Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: ≦ 1.5V
Repeatability (Switch output)		≦ ±0.2% F.S. ±1 digit
Hysteresis	One point set mode	Adjustable(*1)
	Hysteresis mode	
	Window comparator mode	
Response time		≦ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections)
Output short circuit protection		Yes
Display		3½ digital, 7 segment LCD display (Red/Green/Orange) (Sampling rate: 5 times/sec.)
Indicator accuracy		≦ ±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)
Switch on indicator		Orange Indicator 1 : OUT 1
Analog output (Voltage Output)		Output Voltage: 1 to 5V ≦ ±2.5% F.S. (within rated pressure range) Linearity: ≦ ±1% F.S. Output impedance: about 1kΩ
Environment	Enclosure	IP 40
	Ambient temp. range	Operation: 0 ~ 50°C, Storage:-10 ~ 60°C (No condensation or freezing)
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)
	Withstand voltage	1000V AC in 1-min (between case and lead wire)
	Insulation resistance	50Mohm min. (at 500V DC, between case and lead wire)
	Vibration	Total amplitude 1.5mm or 10G,10Hz-150Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z
	Shock	100m/s²(10G), 3 times each in direction of X, Y and Z
Temperature characteristic		≦ ±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C
Port size		G 1/8"(BSPP), M5
Lead wire		Oil-resistance cable(0.15mm²)
Weight		Approx. 45g (with M8 4Pin male connector)

*1.Hysteresis value is adjustable within 1 ~ 8 digits for one point set mode and window comparator mode.

B. OUTPUT CIRCUIT WIRING DIAGRAMS



C. ORDERING INFORMATION

PSD100CPNP

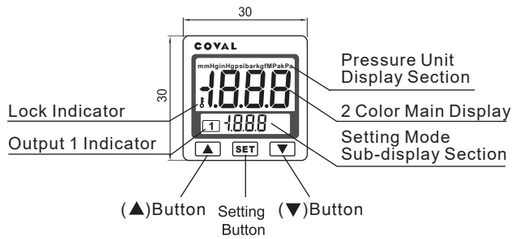
⇩

vacuum / 1 PNP output + Analog(Voltage) output / G1/8"(BSPP), M5 / M8 4Pin male connector

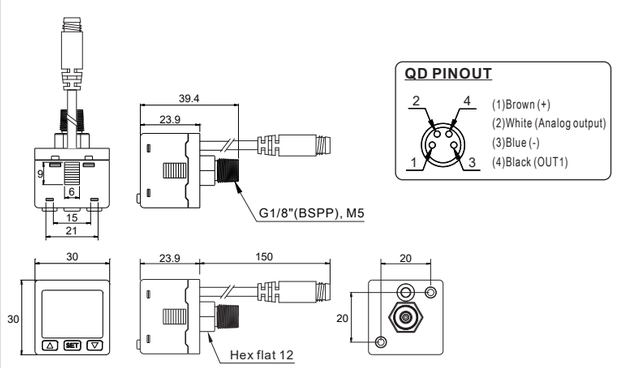
Optional Parts

- CDM8: M8 4Pin female connector, 2M
- PSDFIXA : Mounting bracket
- PSDFIXB : Mounting bracket
- PSDFIXC : Panel adapter
- PSDFIXD : PAnel adapter + Front protective lid

D. PANEL DESCRIPTION



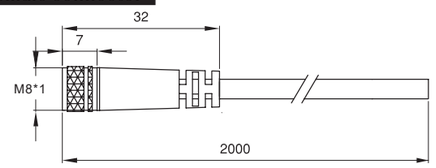
E. DIMENSIONS



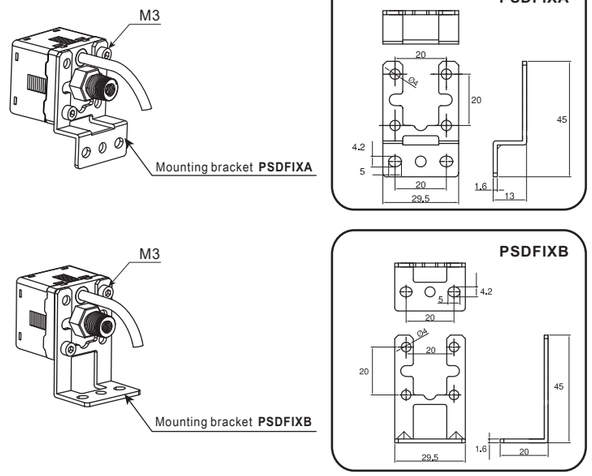
Unit:mm

F. OPTIONAL PARTS DIMENSIONS

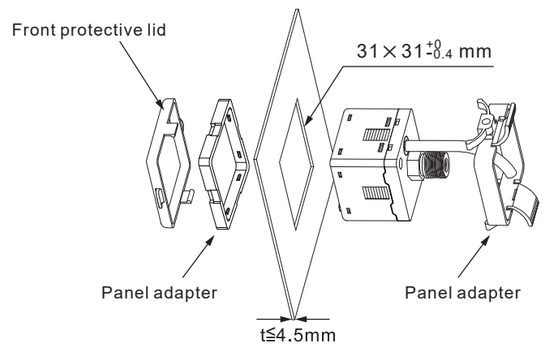
① M8 Female connector

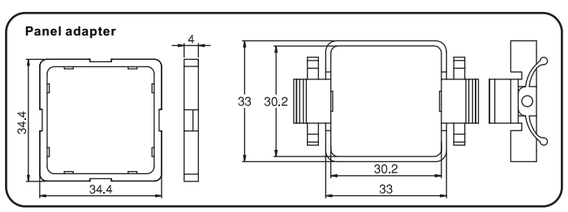


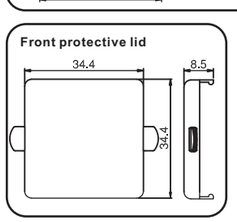
② Mounting bracket



③ Panel Mounting



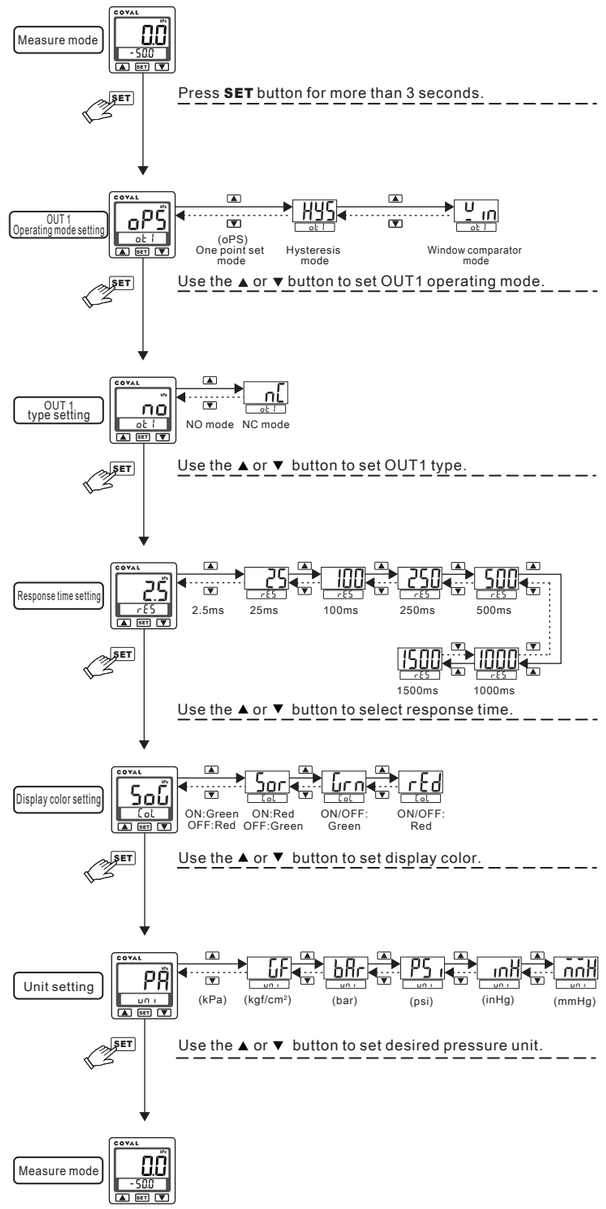




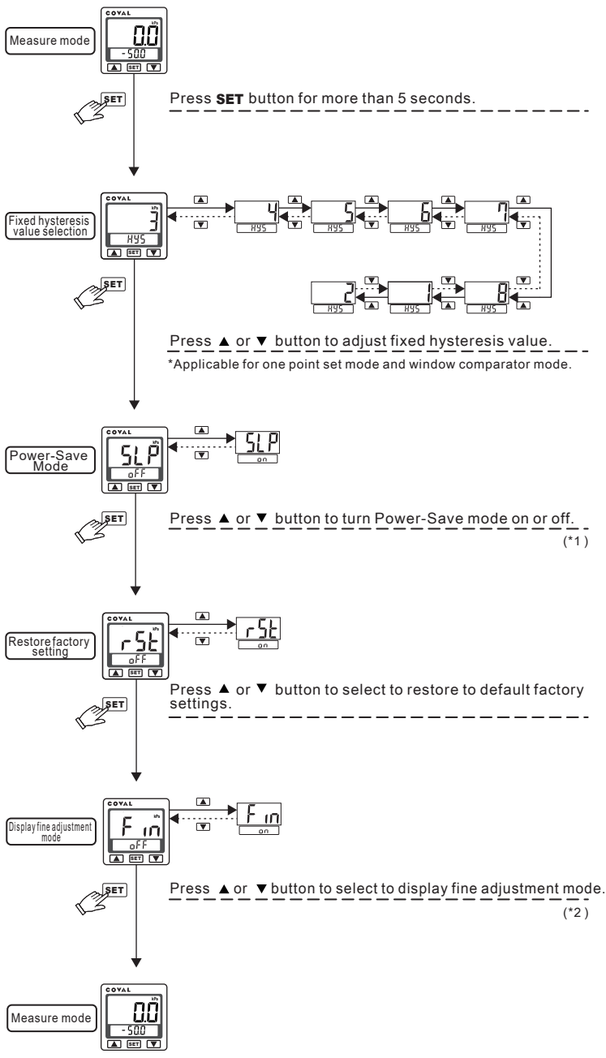
- **PSDFIXC** : Panel adapter
- **PSDFIXD** : Panel adapter + Front protective lid

Unit:mm

G. INITIAL SETTING MODE



H. ADVANCE SETTING MODE

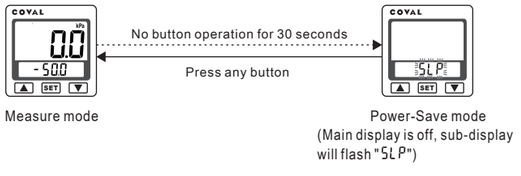


【NOTE :】

*1. When the sub-display shows "ON", Power-Save mode is activated.
Please refer to Section I for detailed explanation.
*2. When the sub-display shows "ON", Display fine adjustment mode is activated.
Please refer to Section P for detailed explanation.

I. POWER-SAVE MODE

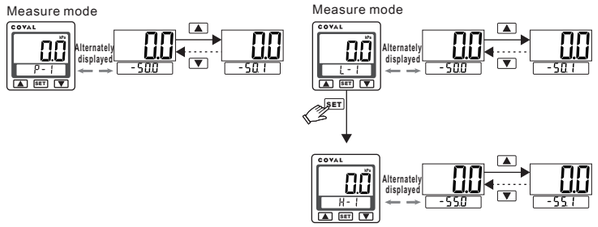
◎ During Power-Save mode, the main display will turned off if no buttons is pressed after 30 seconds.
◎ During Power-Save mode, the output LCD's may not be synchronize with the output. It is normal and will not affect output operation.
◎ Press any button to turn-on main display temporarily.



J. PRESSURE SETTING MODE

◎ Setting Condition 1 :
OUT 1 mode setting :
"oPS" (One point set mode)

◎ Setting Condition 2 :
OUT 1 mode setting :
"HYS" (Hysteresis mode)
"Win" (Window comparator mode)



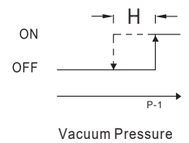
L1 : Low vacuum threshold
H1 : High vacuum threshold

【NOTE :】
Do not disconnect power when the sub-display and setting value is flashing alternately; otherwise the system cannot store the values.

K. OUTPUT TYPE

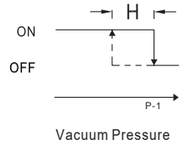
(1) One point set mode:

Normal open mode



Vacuum Pressure

Normal close mode

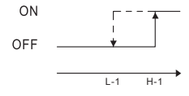


Vacuum Pressure

L1 : Low vacuum threshold
H1 : High vacuum threshold

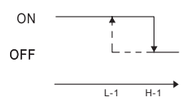
(2) Hysteresis mode:

Normal open mode



Vacuum Pressure

Normal close mode

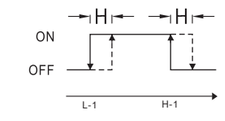


Vacuum Pressure

L1 : Low vacuum threshold
H1 : High vacuum threshold

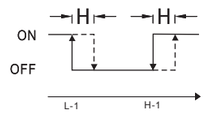
(3) Window comparator mode:

Normal open mode



Vacuum Pressure

Normal close mode

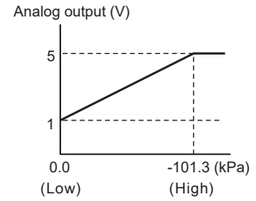


Vacuum Pressure

【NOTE :】
*1. In case hysteresis is set at less than or equal to 2 digits, switch output may chatter if input pressure fluctuates near the set point.
*2. When using window comparator mode, the difference between two set points must be greater than the fixed hysteresis, otherwise will cause the switch output to malfunction.

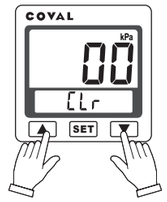
L. ANALOG OUTPUT

Analog output range 1 to 5V, proportional to the pressure range.

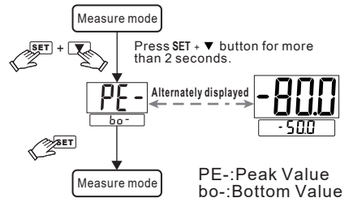


M. ZERO POINT SETTING

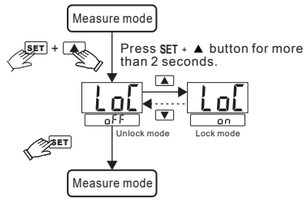
Press the ▲ + ▼ button at the same time until the "00" is shown.
Release the button to end zero point setting.



N. PEAK/BOTTOM HOLD FUNCTION



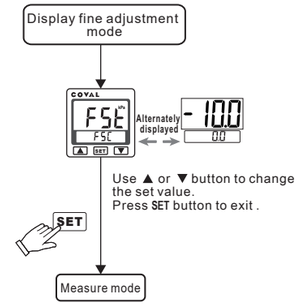
O. KEY LOCK/UNLOCK MODE



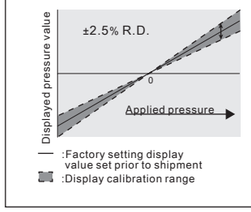
◎ Use key lock mode to prevent unauthorized or accidental tampering with the switch setting.
◎ When lock mode is selected, panel will display " ⚷ ".



P. FINE ADJUSTMENT MODE



This function eliminates slight differences in the output values and allows uniformity in the numbers displayed.
Displayed values of the pressure sensor can be calibrated to within ±2.5% R.D.



R.D. (Real Detect)

【NOTE :】
setting resolution is ±0.1% R.D.

Q. ERROR CODE INSTRUCTION

Error Type	Error code	Error Condition	Troubleshooting
Excess load current error out1	Er 1	Output 1 load current is more than 125mA	Turn power off and check the cause of overload current or lower the current load under 125mA, then restart.
Residual pressure error	Er3	During zero reset, ambient pressure is over ±3% F.S.	Change input pressure to ambient pressure and perform zero reset again.
Applied pressure error	HHH	Supply pressure is exceeds the upper limit of pressure setting.	Adjust the pressure within operating pressure range.
	LLL	Supply pressure is exceeds the lower limit of pressure setting.	
System error	Er4	Internal system error	Turn power off, and then restart. If error condition remains, please return to factory for inspection.
	Er5	Internal system error	
	Er6	Internal data error	
	Er 7	Internal data error	

R. PRESSURE UNIT CONVERSION TABLE

From \ To	Pa	kPa	kgf/cm²	mmHg	psi	bar	inHg
1 Pa	1	0.001	0.000010197	0.00750062	0.000145038	0.00001	0.0002953
1 kPa	1000.000	1	0.010197	7.500616	0.145038	0.010000	0.2953
1 kgf/cm²	98066.5	98.0665	1	735.559	14.2233	0.980665	28.95979
1 mmHg	133.32	0.13332	0.0013595	1	0.019336	0.0013332	0.039370
1 psi	6895	6.895	0.07031	51.7157	1	0.06895	2.036074
1 bar	100000.0	100.0000	1.01972	750.062	14.5038	1	29.52998
1 inHg	3386.388	3.386388	0.034530	25.40000	0.491141	0.033863	1