IPX Air Pressure Gauge

Precautions to be taken

- It is prohibited to use in corrosive and flammable gases or any liquids.
- Please use the product within the rated pressure range. If the pressure exceeds the maximum withstand pressure, the product will be damaged, resulting in abnormal function.
- When installing this product, do not hit it hard or drop it from a high place, as it may function abnormally due to damage to internal parts.
- When connecting this product to a circuit control system, turn off the power first ; incorrect wiring or short-circuiting can cause damage to this product.
- Do not use this product in an environment with moisture or oil mist.
- This product is not certified as explosion-proof, so do not use it in an environment containing explosive gases or dusts.
- Keep the wires of this product away from power lines or other high-voltage environments to avoid surge signal interference, which may affect the function of this product.

A.Specification Parameters

ITEM		IPX-090-0
Rated pressure range		-105.0 ~ 105.0kPa
Setting Pressure		-100.0 ~100.0kPa
Pressure Resistance		500kPa
Applicable gases		Air, non-corrosive, non-flammable
Minimum scale for pressure unit setting		kPa: 0.1 kgf/cm²: 0.001 bar: 0.001 psi: 0.01 inHg: 0.1 mmHg: 1
Supply Voltage		24V DC +10%, Ripple peak 10% or less
Current consumption		≤40mA(without load)
Switching output	Output Modes	1 channel switching(NPN/PNP adjustable)+ 2NPN solenoid valve control
	Maximum load current	125 mA
	Maximum supplyvoltage	24V DC
	Internal Voltage Drop	≤1.5V
Input control		**NPN Type:** Low level input (SPST or electronic contact), level voltage: 0.4VDC or less, 10ms or more input time **PNP Type:** High level input (SPST or electronic contact), level voltage: 20~24VDC, more than 10ms input time
Maximum current for solenoid valve actuation		200mA 24V DC max
Repeatability		±0.2% F.S. ±1 digit.
Switching reaction time		≤2.5ms (Malfunction prevention function: 2.5ms, 20ms, 100ms, 500ms, 1000ms and 1999ms selectable)
Motion Indicator Lamp		OUT: green; V-Sol control input: red (evacuation signal)
Environmental resistance	Protection class	Ip40
	Operating temperature	Operation:0~ 50℃, Storage: -10 ~ 60℃ (non-condensing)
	Environmental humidity	Movement and storage:35 ~ 85% RH (non-condensing)
	Withstand voltage	1000VAC for 1 minute (between leads and plastic case)
	Insulation resistance	50MΩ or more (500V DC) (between lead wires and plastic case)
	Vibration Resistance	Repeated amplitude 1.5mm, every minute 10Hz~ 150Hz~10Hz, 2 hours in each direction of X, Y, Z
	Impact resistance	980m/s2 (100G) 3 times in each direction of X, Y, Z
Temperature characteristic		±2% F.S. Reference Temperature 25℃ (within the temperature range of 0~50℃)
Air inlet method		90 degree air inlet method or None
Wire specification		Oil-resistant PVC wire(0.15mm²)
Weight		58g (including 2m of wire)

Note: Due to temperature and linear compensation, the barometer may fluctuate slightly around the upper/lower ranges, this is normal.

B.Selection

IPX - 090 - 0

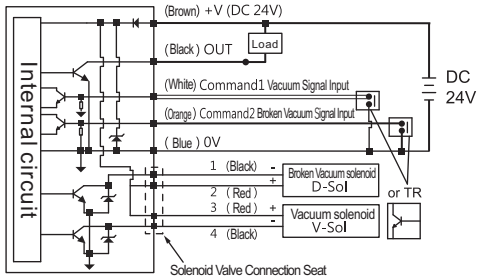
Pressure type
IPX: Continuous pressure (-100kPa~100kPa)

Output type
090：1 output (NPN/PNP adjustable ,Factory default NPN)

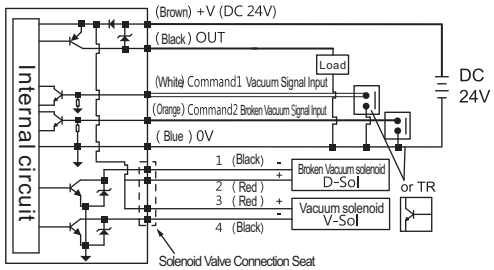
Air inlet form
N: None
0: 90 degree air inlet

C.Output Circuit Wiring Diagram

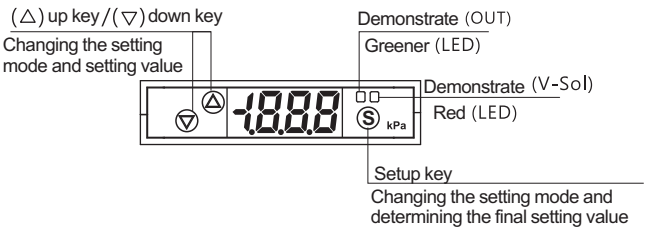
NPN Output



PNP Output

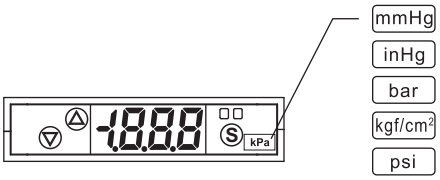


D. Panel Descriptions



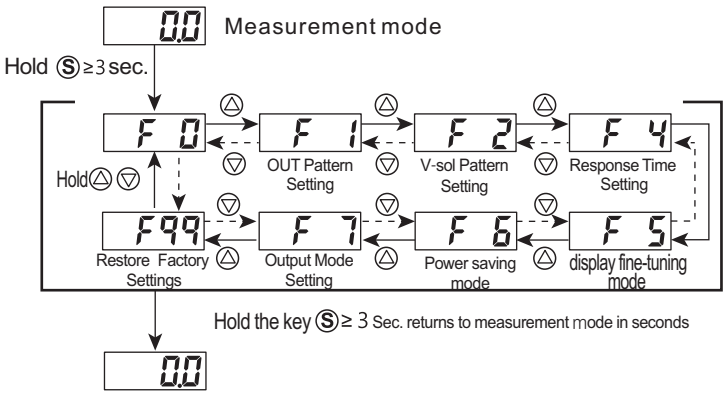
E.Convert pressure unit labels

When the pressure unit is set to a non-kPa unit, please remove the pressure unit sticker from the product box and place the sticker in the position shown below to avoid misuse of the pressure unit, which may result in a setting error.

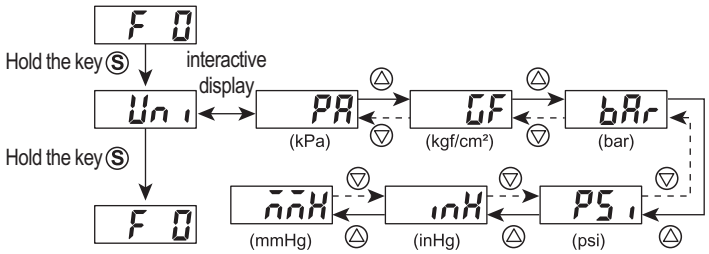


F. Basic Setting Mode

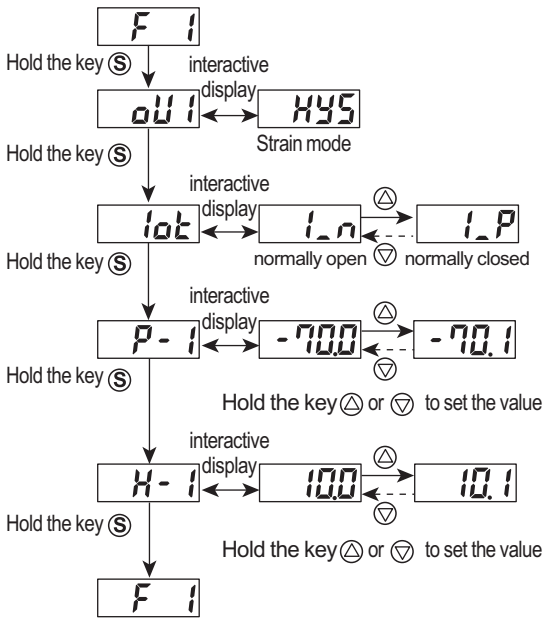
1 Function Selection Mode



2 Unit setting (F0)

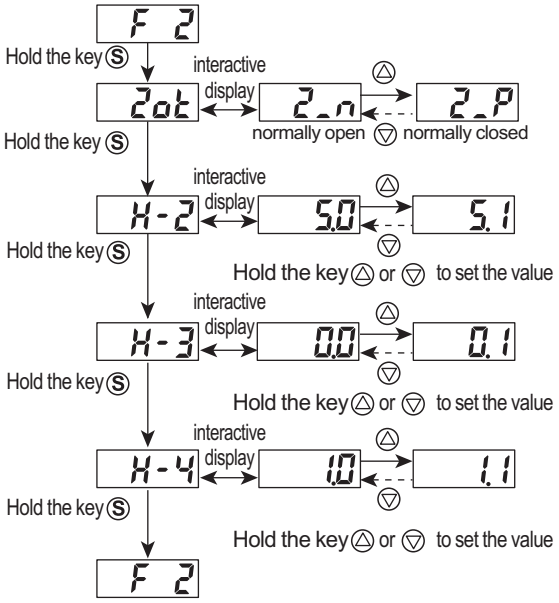


3 OUT Form setting (F1)

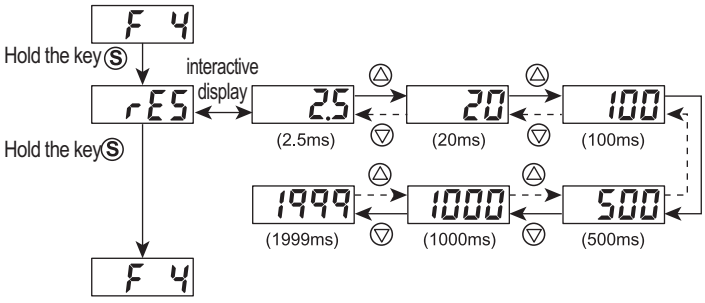


F. Basic Setting Mode

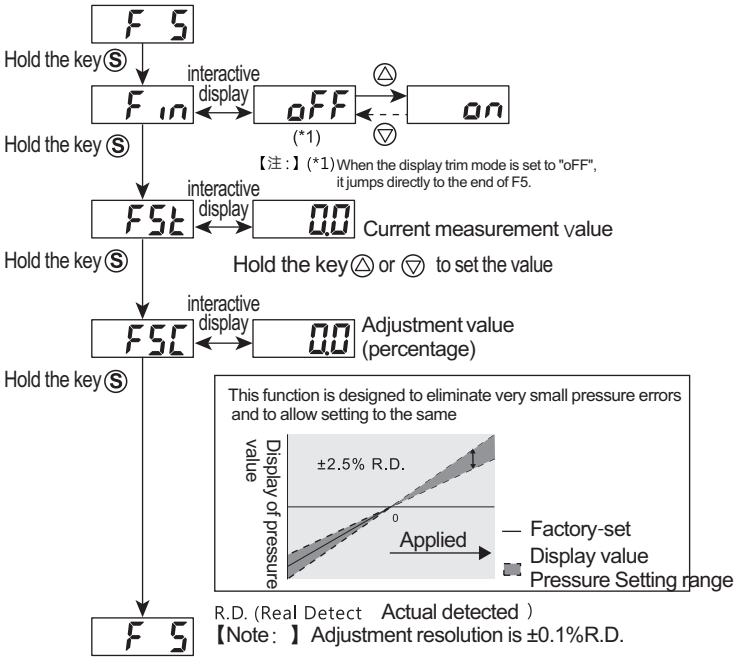
4 V-Sol Control input setting (F2)



5 Switching reaction time setting (F4)



6 Display fine-tunning mode (F5)



R.D. (Real Detect Actual detected)

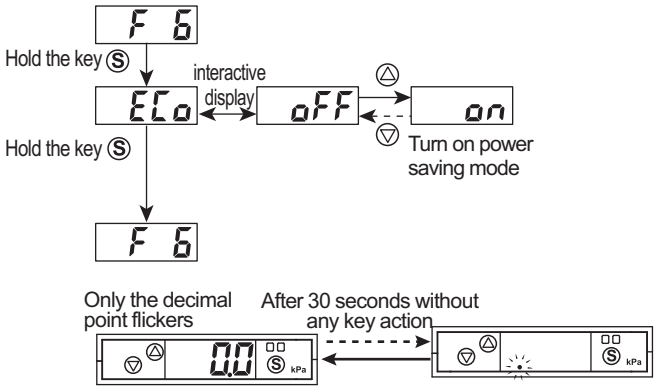
【Note：】Adjustment resolution is ±0.1%R.D.

7 Power saving mode (F6)

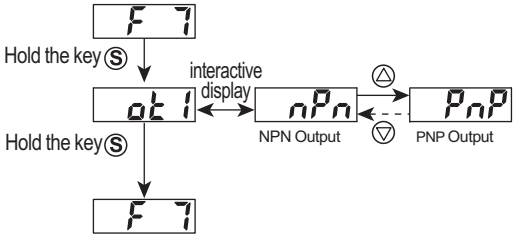
◎ When the power save mode setting is activated, the pressure transducer enters power save mode after 30 seconds inmeasurement mode without pressing any keys.

◎ When the pressure sensor is in power saving mode, the sensor action indicator may be out of sync, but will not affect the sensor action

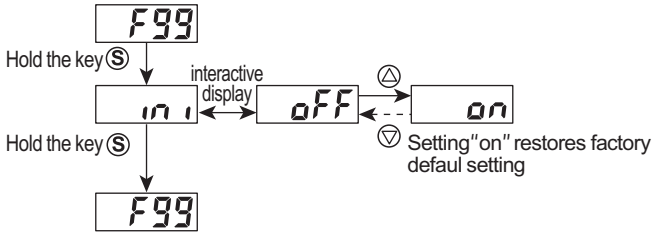
◎ When the pressure sensor is in power saving mode, pressing any key will automatically return the pressure sensor to normal measurement mode.



8 Output mode setting(F7)

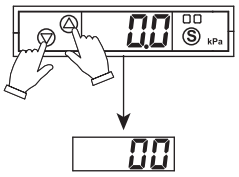


9 Restore factory setting(F99)



G.Zero Setting

In measurement mode, Press the △and ▽keys simultaneously for more than 3 seconds until "00" appears on the screen.



H.Output Motion Mode

The preset energy-saving control actions and setting values on the switch body are shown below. If there is no abnormality in the actions shown below, the switch can be used in this state. Vacuum pressure, for example.

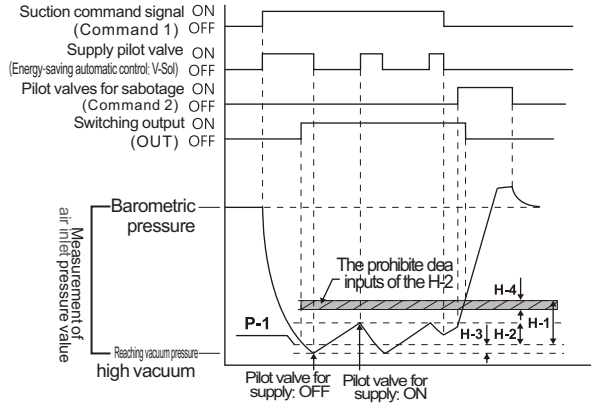
OUT action

Switch ON when the pressure exceeds the set value (P-1).
The switch turns OFF when the pressure drops from the set value (P-1)by more than the hysteresis value(H-1).
The factory setting is (P-1):-70.0kPa (H-1):10.0 kPa.

V-Sol in action

In response to the adsorption command signal, the supply pilot valve :V-sol opens, vacuum is drawn, and adsorption begins.
When the vacuum level reaches the set value (P-1-H-3:Supply pilot valve signal OFF point), the supply pilot valve turns OFF.

When the vacuum level decreases and reaches the adsorption switch ON point (P-1 + H-2: supply pilot valve signal), the vacuum level decreases and the adsorption switch ON point is reached. At the ON point, the supply pilot valve opens again to maintain vacuum. Thereafter, the supply pilot valve will turn ON and OFF repeatedly. The H-2 blocking area can be blocked by the H-4: Supply pilot valve signal. The range is set. (Set to H- 1≥ H-2+H-4).
The factory settings are P-1:-70.0 kPa, H-1:10.0 kPa, H-2:5.0 kPa, H-3:0.0 kPa,H-4: 1.0kPa.

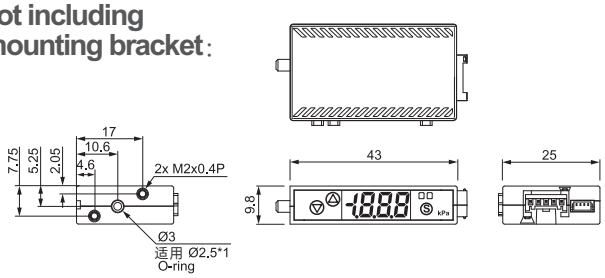


I.Pressure unit conversion table

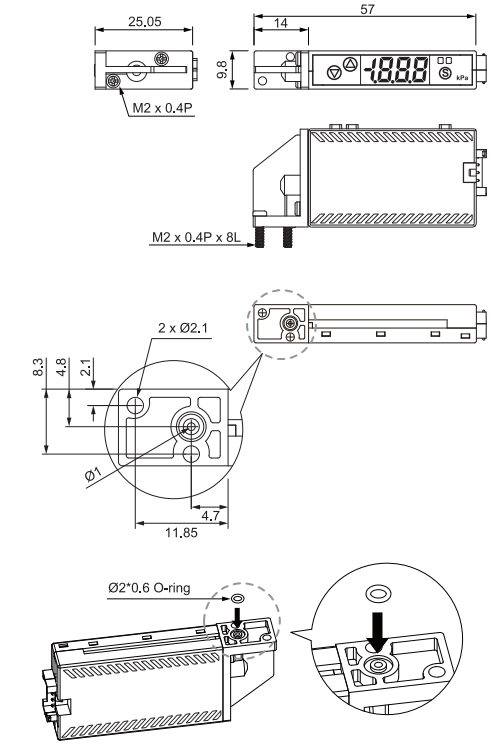
From \ To	kPa	kgf/cm²	mmHg	psi	bar	inHg
1 kPa	1	0.010197	7.500616	0.145038	0.010000	0.2953
1 kgf/cm²	98.0665	1	735.559	14.2233	0.980665	28.95979
1 mmHg	0.13332	0.0013595	1	0.019336	0.0013332	0.039370
1 psi	6.895	0.07031	51.7157	1	0.06895	2.036074
1 bar	100.0000	1.01972	750.062	14.5038	1	29.52998
1 inHg	3.386388	0.034530	25.40000	0.491141	0.033863	1

J. Outline (Unit:mm)

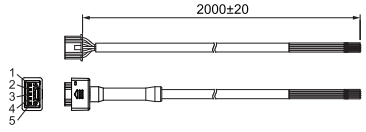
Not including mounting bracket:



Including mounting bracket:

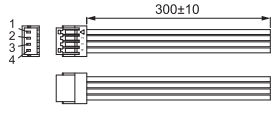


- Power cable (Unit:mm)



PIN NO.	Wire Color
1	DC(+)(BRN.)
2	Command 2 D-Sol Input (ORN.)
3	Command 1 V-Sol Input (WHT.)
4	OUT (BLK.)
5	DC(-)(BLU.)

- Solenoid Valve Wire (Unit:mm)



PIN NO.	Solenoid valve wire color	Solenoid Valve Function
1	D-Sol (-) (BLK.)	Vacuum Breaking Solenoid Valve
2	D-Sol (+) (RED)	
3	V-Sol (+) (RED)	Vacuum solenoid valve
4	V-Sol (-) (BLK.)	

K.Error message description

Misnomer	False	Misstatement	Resolve
Residual pressure error	Err	Zero setting range over ±2%F.S.	Change the pressures around you and then zero in.
Using the wrong pressure	HHH	The pressure used exceeds the upper limit of the pressure setting	Adjust the supply pressure within the operating pressure range.
	LLL	The pressure used exceeds the lower limit of the pressure	
System error	Er4	internal system error Internal data error	Cut off the power and re-power, if it does not return to normal, it needs to be returned to the original factory for analysis