

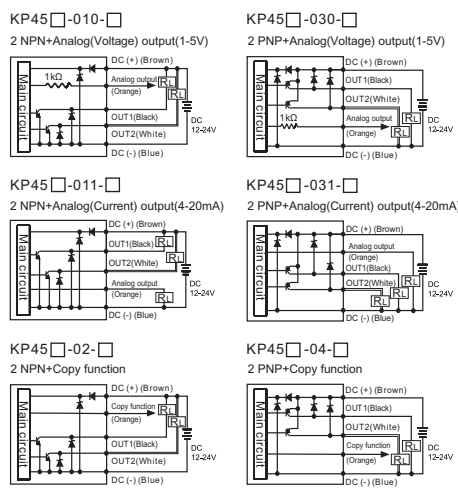
**For your safety, please read the following before using.**

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

**A. SPECIFICATIONS**

TYPE	KP45P-□-□ (Positive)	KP45V-□-□ (Vacuum)	KP45C-□-□ (Compound)
Rated pressure range	0.000~1.000MPa	0.0~101.3kPa	-100.0~100.0kPa
Setting pressure range	-0.100~1.000MPa	10.0~101.3kPa	-101.0~101.0kPa
Withstand pressure	1.5MPa	300kPa	
Fluid	Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa	—	0.1
	MPa	0.001	—
	kgf/cm <sup>2</sup>	0.01	0.001
	bar	0.01	0.001
	psi	0.1	0.01
inHg	—	—	0.1
Power supply voltage	12 to 24V DC ±10%, Ripple (P-P) 10% or less Class2		
Current consumption	≤ 40mA (With no load)		
Output type	2 NPN or 2 PNP open collector		
	Max. load current	125mA	
	Max. supply voltage	30V DC (at NPN output), 24V DC (at PNP output)	
Switch output	Residual voltage	≤ 1.5V	
	Response time	≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections)	
Output short circuit protection	Yes		
	Voltage	1~5V (±2.5%)	
	Impedance	About 1kΩ	
Analog output	Current	4~20mA (±2.5%)	
	Impedance	Max. Load Impedance: 250Ω at power supply of 12V 600Ω at power supply of 24V Min. Load Impedance: 50Ω	
Linearity	±1% F.S.		
	LCD display	3 1/2 digit, 7segment (red / green)	
Display	Switch ON Indicator	Orange (1 & 2 Indicator) OUT1 OUT2	
	Indicator accuracy	±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)	
Repeatability (Switch output)	±0.2% F.S. ±1 digit		
Environment	Enclosure	IP65	
	Operation ambient temp. range	0 ~ 50°C	
	Storage ambient temp. range	-10 ~ 60°C (No condensation or freezing)	
Vibration	35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min (between case and lead wire)	
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)	
Shock	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each 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	F1: R1/8", M5; F2: NPT1/8", #10-32UNF; F3: G1/8" (BSPP), M5		
Lead wire	Oil-resistance cable (0.15mm <sup>2</sup> )		
Weight	Approx. 86g (with 2 meter lead wire)		

**B. OUTPUT CIRCUIT WIRING DIAGRAMS**



**C. ORDERING INFORMATION**

**K P 4 5 C - 0 1 0 - F 1**

**Pressure Range**

C : Compound (-101.0~101.0kPa)  
V : Vacuum (10.0~101.3kPa)  
P : Positive (-0.100~1.000MPa)

**Output Specifications**

010 : 2 NPN + Analog (Voltage) output (1 - 5V)  
011 : 2 NPN + Analog (Current) output (4 - 20mA)  
02 : 2 NPN + Copy function  
030 : 2 PNP + Analog (Voltage) output (1 - 5V)  
031 : 2 PNP + Analog (Current) output (4 - 20mA)  
04 : 2 PNP + Copy function

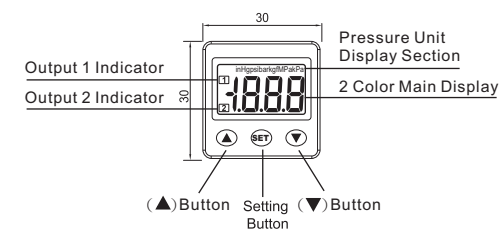
**Pressure Port**

F1 : R1/8", M5  
F2 : NPT1/8", #10-32UNF  
F3 : G1/8" (BSPP), M5

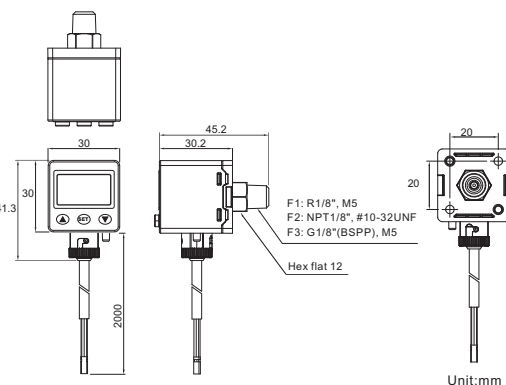
**Optional Parts**

BT-10 : Mounting bracket  
BT-11 : Mounting bracket  
PA-E : Panel adapter  
PA-F : Panel adapter + Front protective lid

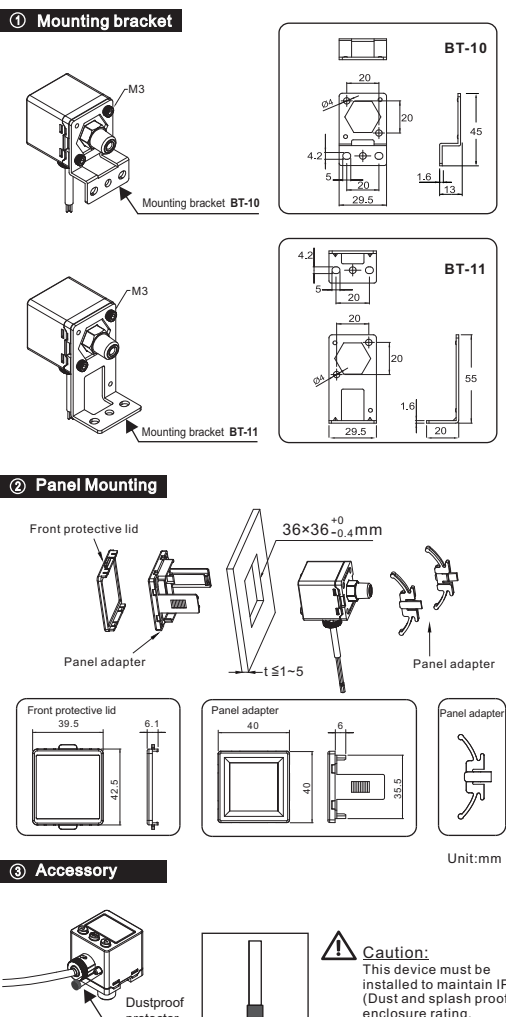
**D. PANEL DESCRIPTION**



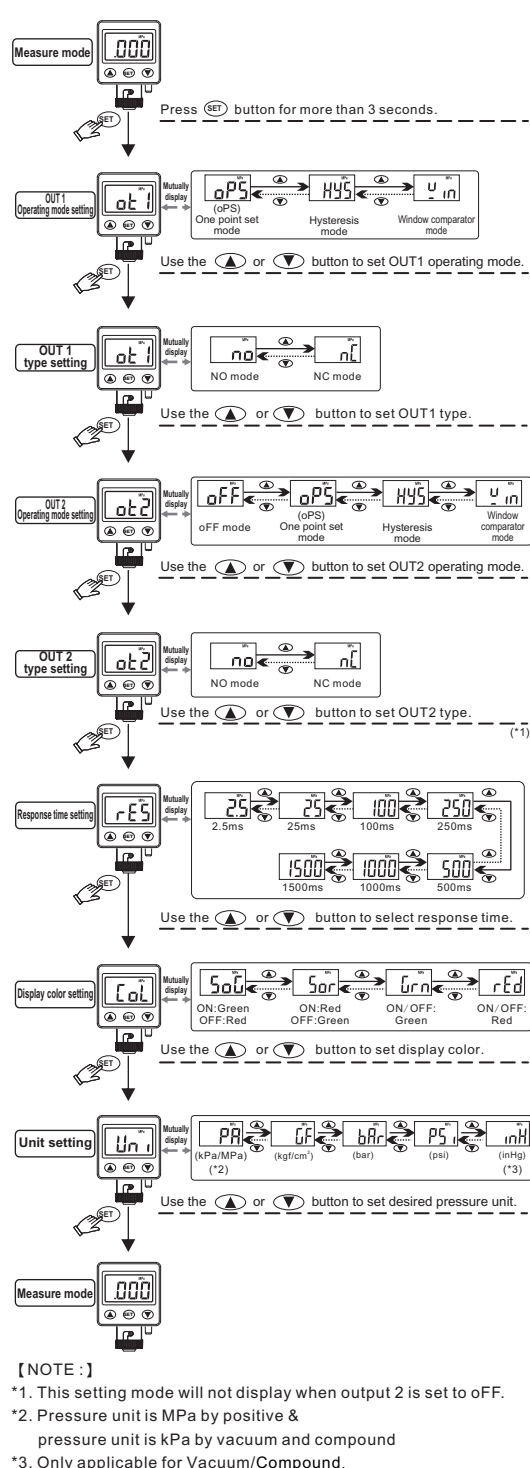
**E. DIMENSIONS**



**F. OPTIONAL PARTS DIMENSIONS**



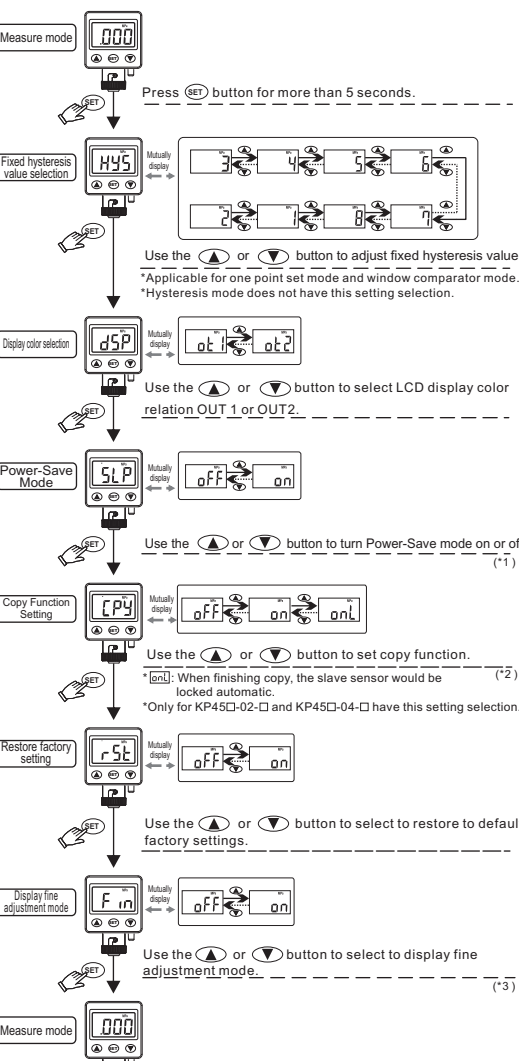
**G. INITIAL SETTING MODE**



**[NOTE:]**

- This setting mode will not display when output 2 is set to OFF.
- Pressure unit is MPa by positive & pressure unit is kPa by vacuum and compound
- Only applicable for Vacuum/Compound.

**H. ADVANCE SETTING MODE**

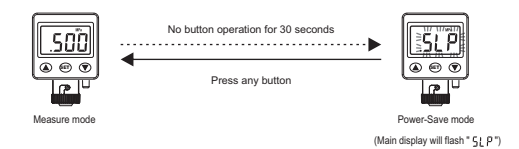


**[NOTE:]**

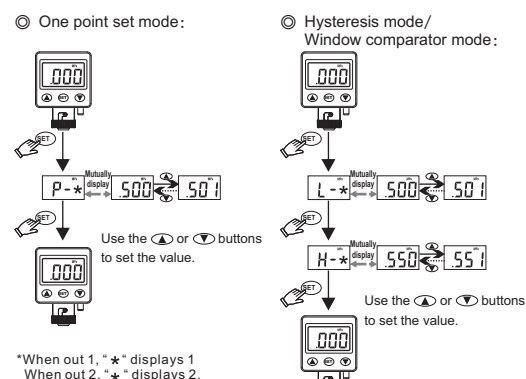
- When setting is "00", the power-save mode would be started. Please refer the item "1" in detailed.
- When setting "on" or "off", the display copy function mode would be started. Please refer the item "2" in detailed.
- When setting is "F.A", the display fine adjustment mode would be started. Please refer the item "3" in detailed.

**I. POWER-SAVE MODE**

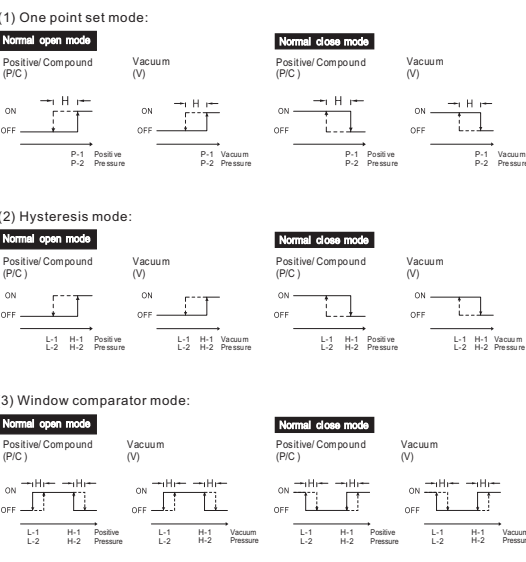
- During Power-Save mode, the main display will turned off if no buttons is pressed after 30 seconds.
- During Power-Save mode, the output LCD may not be synchronize with the output. It is normal and will not affect output operation.
- Press any button to turn-on main display temporarily.



**J. PRESSURE SETTING MODE**



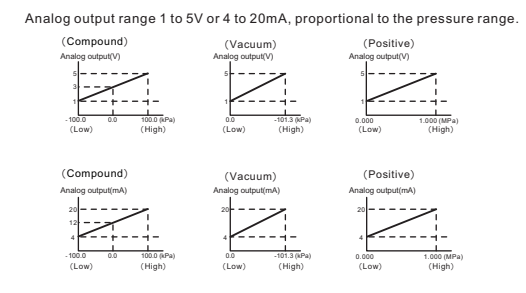
**K. OUTPUT TYPE**



**[NOTE:]**

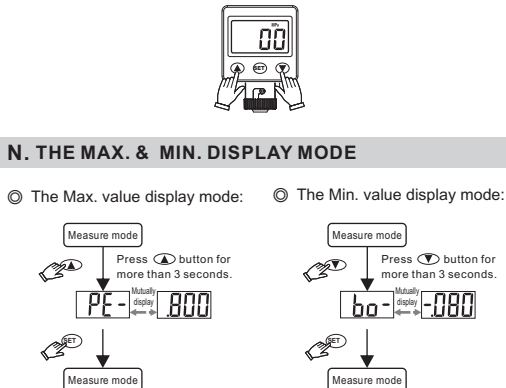
- In case hysteresis is set at less than or equal to 2 digits, switch output may chatter if input pressure fluctuates near the set point.
- When using window comparator mode, the difference between two set points must be greater than the fixed hysteresis, otherwise will cause the switch output to malfunction.

**L. ANALOG OUTPUT DESCRIPTION**

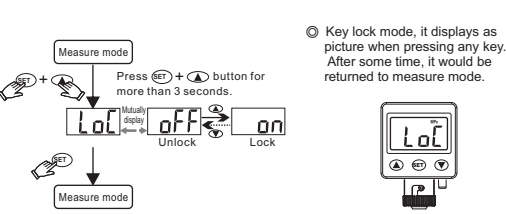


**M. ZERO POINT SETTING**

Use the  $\Delta$  +  $\nabla$  button at the same time until the "00" is shown. Release the button to end zero setting.

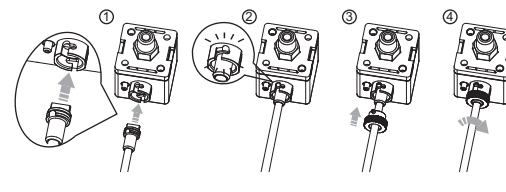


**O. KEY LOCK/UNLOCK MODE**



**P. Wire Installation Instruction**

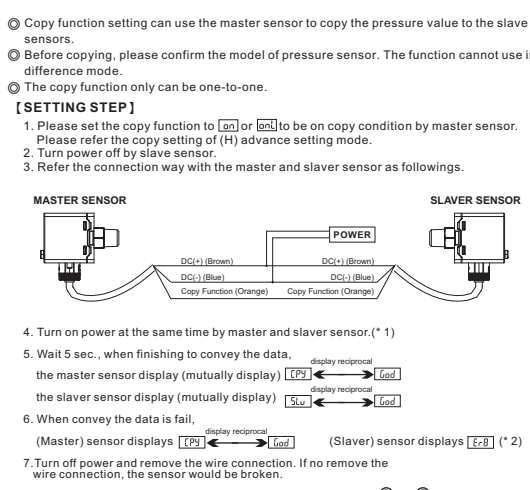
- Please install the wire as the following step.
- Turn upward the salient point by terminal. (See figure ①)
  - Install to the terminal to the groove by pressure sensor. (See figure ②)
  - Terminal cover install to the products. (See figure ③)
  - Turn the terminal cover to lock. (See figure ④)



**Q. PRESSURE UNIT CONVERSION TABLE**

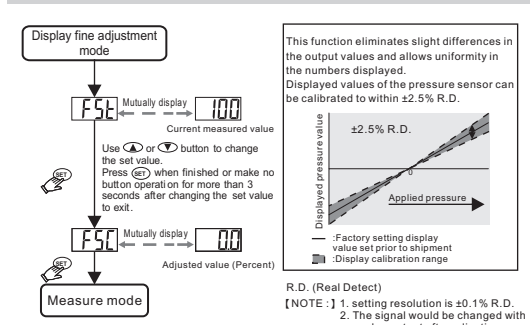
From	To	Pa	kPa	MPa	kgf/cm <sup>2</sup>	psi	bar	inHg
1 Pa	1	0.001	0.000001	0.000010197	0.000145038	0.00001	0.0002953	
1 kPa	1000.000	1	0.001000	0.010197	0.145038	0.010000	0.2953	
1 MPa	1000000	1000	1	10.197	145.038	10	295.298	
1 kgf/cm <sup>2</sup>	98066.5	98.0665	0.0980665	1	14.2233	0.980665	29.5298	
1 psi	6895	6.895	0.006895	0.07031	1	0.06895	2.036074	
1 bar	100000.0	100.0000	0.100000	1.01972	14.5038	1	29.5298	
1 inHg	3386.388	3.386388	0.003386	0.034530	0.491141	0.033863	1	

**R. COPY FUNCTION SETTING**



- Copy function setting can use the master sensor to copy the pressure value to the slave sensors.
- Before copying, please confirm the model of pressure sensor. The function cannot use in difference mode.
- The copy function only can be one-to-one.

**S. FINE ADJUSTMENT MODE**



**T. ERROR CODE INSTRUCTION**

Error Type	Error code	Error Condition	Troubleshooting
Excess load current error	Er1	Output 1 load current is more than 125 mA	Turn power off and check the cause of overload current or lower the current load under 125 mA, then restart.
Residual pressure error	Er2	During zero reset, ambient pressure is over ±3% F.S.	Change input pressure to ambient pressure and perform zero reset again.
Applied pressure error	LLL	Supply pressure is exceeds the upper limit of pressure setting.	Adjust the pressure within operating pressure range.
System error	Er4	Internal system error	
	Er5	Internal system error	Turn power off, and then restart.
	Er6	Internal data error	If error condition remains, please return to factory for inspection.
Copy date error	Er8	Copy date error	Please check the model no. and wire connection. Restart to turn on power if no return to normal condition, please return to factory for inspection.