

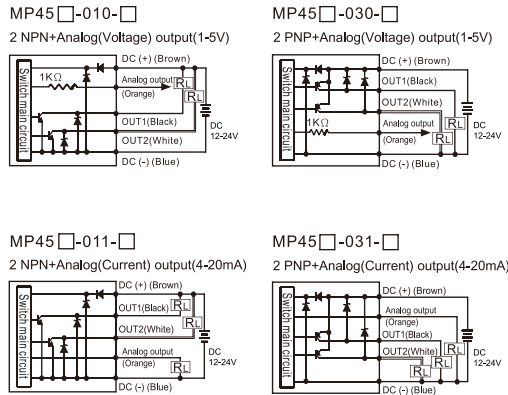
For your safety, please read the following before using.

- 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.

A. SPECIFICATIONS

TYPE	MP45P-□-□ (Positive)	MP45V-□-□ (Vacuum)	MP45C-□-□ (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	Air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa	—	0.1
	MPa	0,001	—
	kgf/cm ²	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		
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 output	Voltage	1~5V (±2.5%)
	Impedance	Impedance	About 1kΩ
Analog output	Current output	Current	4~20mA (±2.5%)
	Impedance	Impedance	Max.Load Impedance: 250Ω at power supply of 12V 600Ω at power supply of 24V Min.Load impedance: 50Ω
Display	Linearity	±1% F.S.	
	LCD display	3½ digit, 7segment (red/ green)	
	Switch ON Indicator	Orange (1 & 2 Indicator) OUT1 OUT2	
Repeatability(Switch output)	Updates time	About 0,2s	
	Indicator accuracy	±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)	
		±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)	
Port size	Ambient humidity range	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)	
Lead wire	Vibration	Total amplitude 1,5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z	
	Shock	100m/s ² (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	F1:R1/8", M5; F2:NPT1/8", #10-32UNF; F3: G1/8"(BSPP), M5		
Weight	Approx. 86g (with 2 meter lead wire)		

B. OUTPUT CIRCUIT WIRING DIAGRAMS



C. ORDERING INFORMATION

MP45C-010-F1

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)
030 : 2 PNP+Analog(Voltage) output(1 - 5V)
031 : 2 PNP+Analog(Current) output(4 - 20mA)

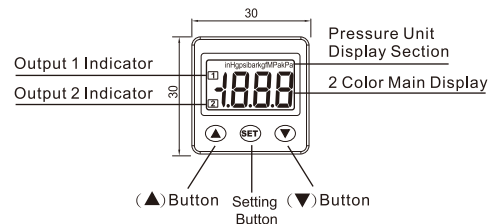
Pressure Port

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

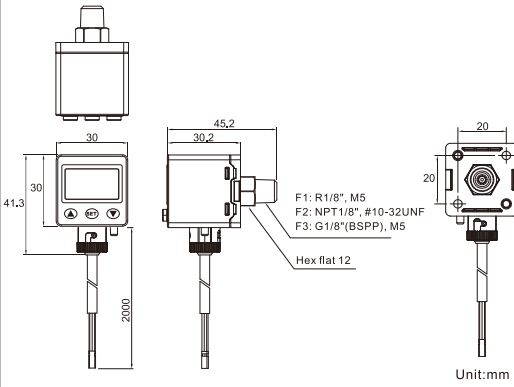
Optional Parts

MP-A10 : Mounting bracket (BT-10)
MP-A11 : Mounting bracket (BT-11)
MP-B3 : Panel adapter (PA-E)
MP-C3 : Panel adapter + Front protective lid (PA-F)

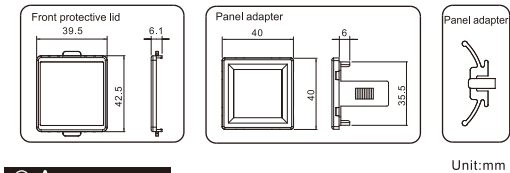
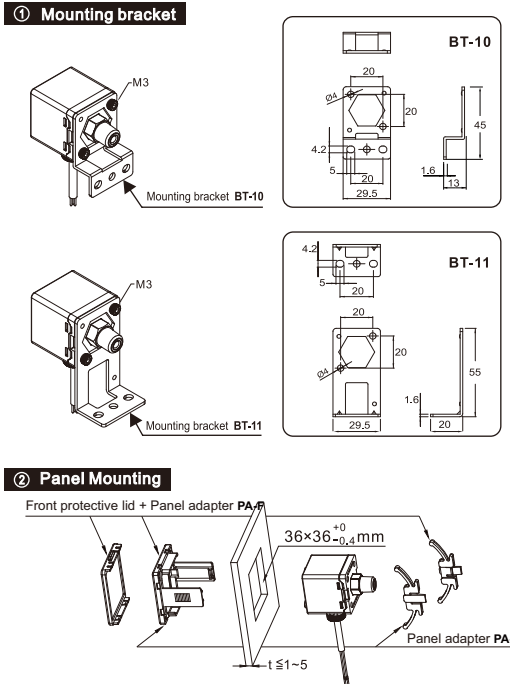
D. PANEL DESCRIPTION



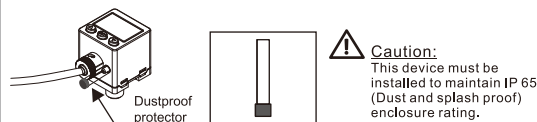
E. DIMENSIONS



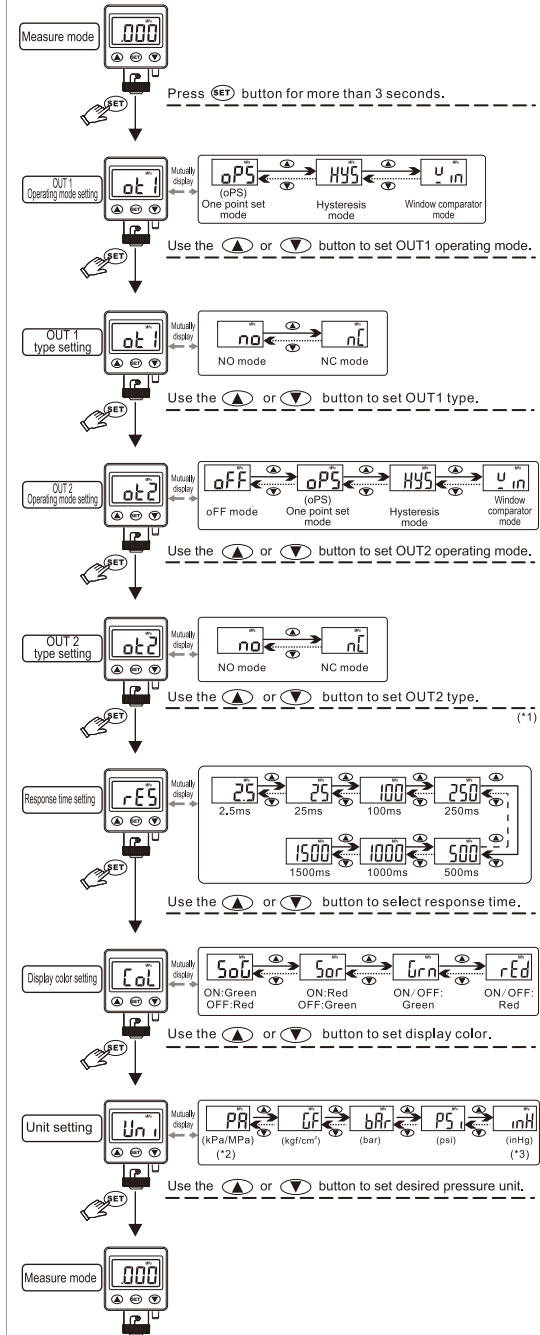
F. OPTIONAL PARTS DIMENSIONS



G. INITIAL SETTING MODE

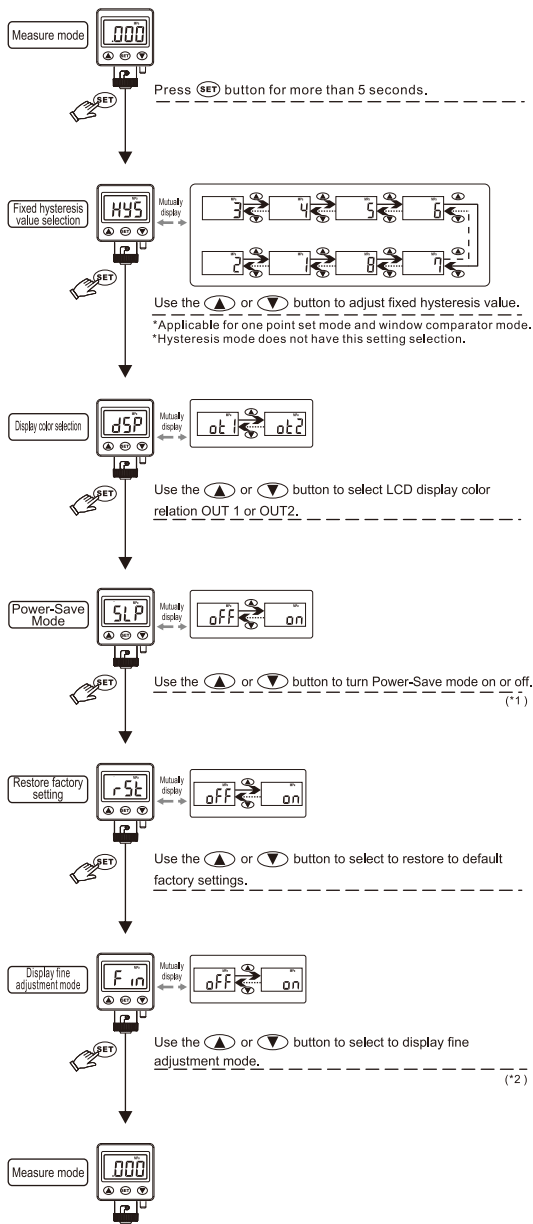


G. INITIAL SETTING MODE



- [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

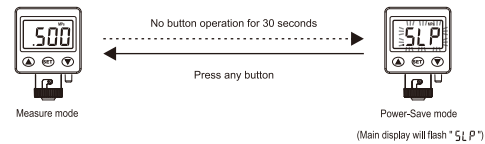
H. ADVANCE SETTING MODE



[NOTE:]
*1. When setting is "on", the power-save mode would be started.
Please refer the item "□" in detailed.
*2. When setting is "in", the display fine adjustment mode would be started.
Please refer the item "□" in detailed.

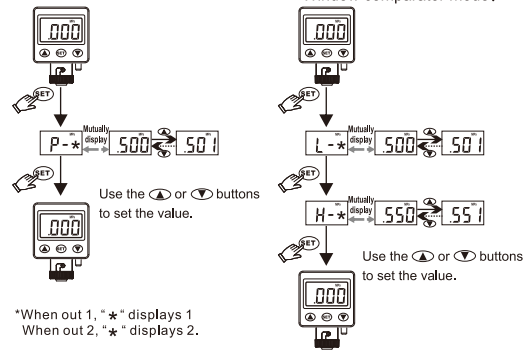
I. POWER-SAVE MODE

- 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.

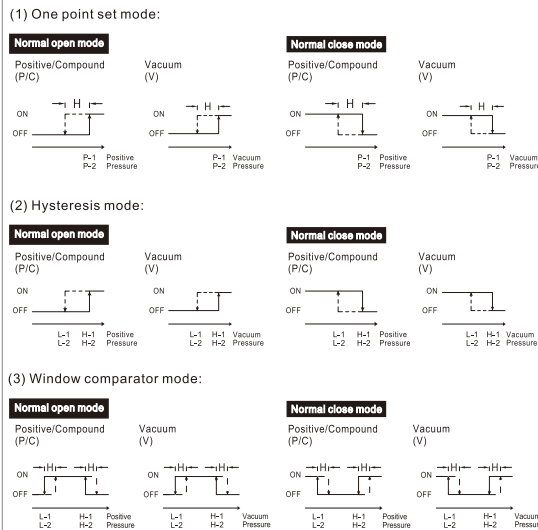


J. PRESSURE SETTING MODE

- One point set mode:
- Hysteresis mode/Window comparator mode:



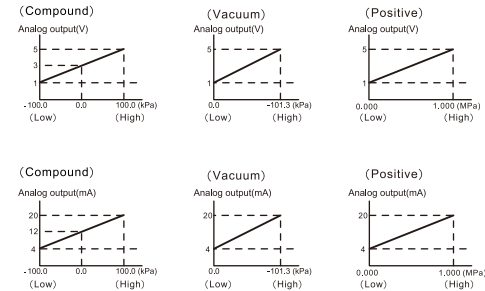
K. OUTPUT TYPE



- [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.

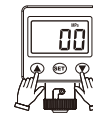
L. ANALOG OUTPUT DESCRIPTION

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



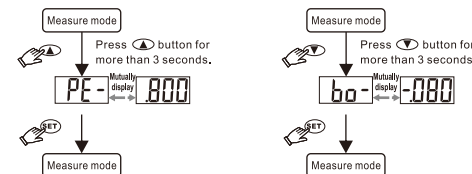
M. ZERO POINT SETTING

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

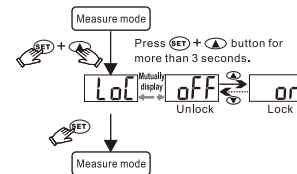


N. THE MAX. & MIN. DISPLAY MODE

- The Max. value display mode:
- The Min. value display mode:



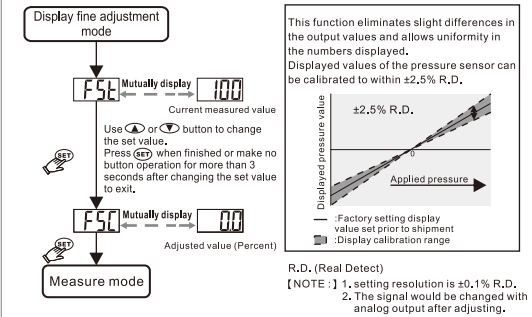
O. KEY LOCK/UNLOCK MODE



- Key lock mode, it displays as picture when pressing any key. After some time, it would be returned to measure mode.

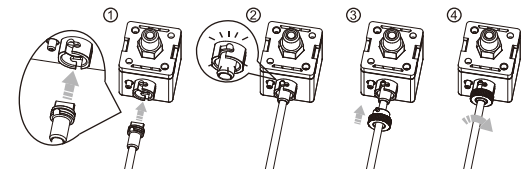


P. FINE ADJUSTMENT MODE



Q. 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)



[NOTE:] Recommend not insert-extract over 20 times.

R. ERROR CODE INSTRUCTION

Error Type	Error code	Error Condition	Troubleshooting
Excess load current error	out1 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.
	out2 Er2	Output 2 load current is more than 125 mA	
Residual pressure error	Er3	During zero reset, ambient pressure is over 12% F.S.	Change input pressure to ambient pressure and perform zero reset again.
Applied pressure error	HRH	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	
	Er7	Internal data error	

S. PRESSURE UNIT CONVERSION TABLE

From	To	Pa	kPa	MPa	kgf/cm ²	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	295.2998	
1 kgf/cm ²	98066.5	98.0665	0.0980665	1	14.2233	0.980665	28.9579	
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	0.003388	0.034530	0.491141	0.033863	1	