

For your safety, please read the following before using.

- Suggest to connect, install, and set up by professional technicians.
- 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

MODEL		MP48E	
Rated pressure range		-101.3 ~ 1000.0 kPa	
Set pressure range		-101.3 ~ 1000.0 kPa	
Withstand pressure		1500 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas	
Set Pressure Resolution	kPa	0.1	
	MPa	0.001	
	kgf/cm ²	0.001	
	bar	0.001	
	psi	0.01	
	inHg	0.1	
	mmHg	1	
mmAq (mmH ₂ O)		1 (※1)	
Power supply voltage		15 ~ 24 V DC · Ripple (P-P) ≤ 10 %	
Current consumption		≤ 40 mA (With no load)	
Switch output		2 NPN : open collector 2 outputs Max. load current : 150 mA Max. supply voltage : 30 V DC Residual voltage : ≤ 1 V 2 PNP : open collector 2 outputs Max. load current : 150 mA Max. supply voltage : 24 V DC Residual voltage : ≤ 1 V	
Repeatability (※2)		± 0.2 % S.R. (Ambient temperature 25±3°C)	
Hysteresis	One point set mode	Adjustable (※3)	
	Hysteresis mode		
	Window comparator mode		
Response time of digital filter (※4)		oFF, 25 ms, 100 ms, 250 ms, 500 ms, 1000 ms, 1500 ms, 3000 ms selectable	
Overcurrent protection		Yes	
Display		4 ½ digital, 7 segment LCD display (Red / White / Pink / Orange) Sampling rate : 0.2, 0.5, 1 sec. / time selectable	
Indicator accuracy (※2)		C -100.0 ~ 100.0 kPa ± 1 % S.R.	P -100.0 ~ 1000.0 kPa ± 0.5 % S.R.
		V -101.3 ~ 0.0 kPa ± 1 % S.R.	A -101.3 ~ 1000.0 kPa ± 0.5 % S.R.
		(Ambient temperature 25±3°C)	
Switch on indicator		Orange indicator 1 : OUT1 & Orange indicator 2 : OUT2	
Analog output (Voltage output)		Output voltage : 0 ~ 10 V ± 0.5 % F.S. Linearity : ± 0.5 % F.S. Output impedance : about 2 KΩ	
Analog output (Current output)		Output current : 4 ~ 20 mA ± 0.5 % F.S. Linearity : ± 0.5 % F.S. Max. load impedance : 250Ω at power supply of 15V 600Ω at power supply of 24V Min. load impedance : 50Ω	
Environment	Enclosure	IP40	
	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	≥ 50 MΩ (at 500V DC) (between case and lead wire)	
	Vibration	Total amplitude 1.5mm or 10G, 10Hz ~ 150Hz ~ 10Hz scan for 1 minute, 2 hours each direction of X, Y and Z	
	Shock	100 m/s ² (10 G), 3 times each in direction of X, Y and Z	
Temperature characteristic		± 0.5 % F.S. of detected pressure (25 °C) at temp. (Range of 0 ~ 50 °C)	
Communication Interface (※5)		RS485 Modbus RTU	
Port size		F1 : R1/8, M5 ; F3 : G1/8 (BSPP), M5 ; M5 : M5 female thread	
Lead wire		Ø4 PVC - 26AWG (0.15 mm ²) - 5 cores	
Weight		Approx. 67g (with 2 meter lead wire)	

- ※ 1. Actual value is 10 times display value while pressure unit is mmAq.
 ※ 2. S.R.: Set range
 ※ 3. Hysteresis value is adjustable within 1 - 8 digits for one point set mode and window comparator mode.
 ※ 4. When digital filter function is OFF, the response time is 4ms ~ 6ms.
 ※ 5. This function is only available for Output Specification 02R and 04R.

B. ORDERING INFORMATION

M P 4 8 E - 0 1 0 - F 1

Output Specifications

010 : 2 NPN Output & Analog Output (0 ~ 10 V)
 011 : 2 NPN Output & Analog Output (4 ~ 20 mA)
 030 : 2 PNP Output & Analog Output (0 ~ 10 V)
 031 : 2 PNP Output & Analog Output (4 ~ 20 mA)
 02R : 1 NPN Output + RS485
 04R : 1 PNP Output + RS485

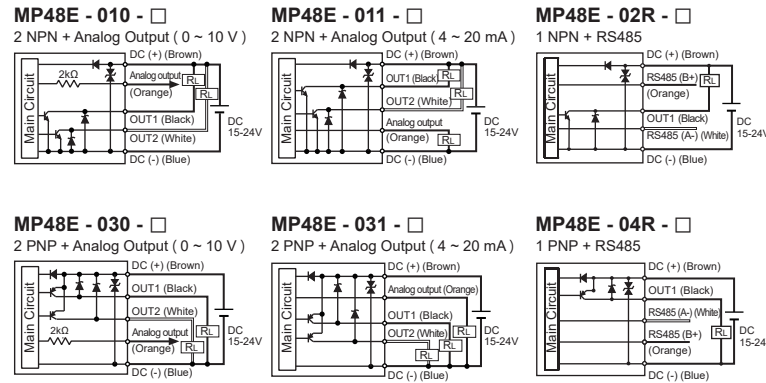
Pressure Port

F1 : R1/8, M5
 F3 : G1/8 (BSPP), M5
 M5 : M5 female thread

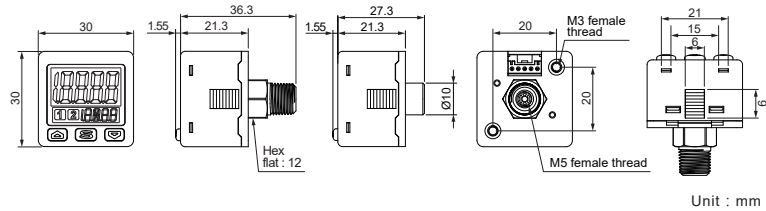
Optional Parts

MP-A22 : Mounting bracket
 MP-A23 : Mounting bracket
 MP-B2 : Panel adapter
 MP-C2 : Panel adapter + Front protective lid

C. OUTPUT CIRCUIT WIRING DIAGRAMS

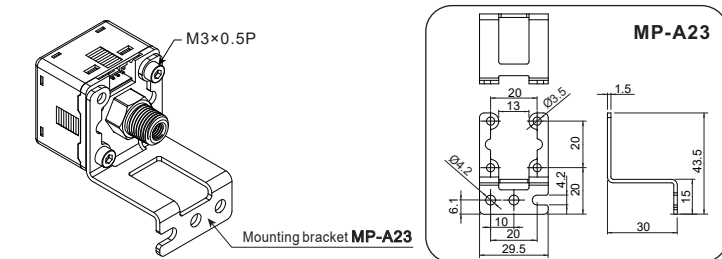
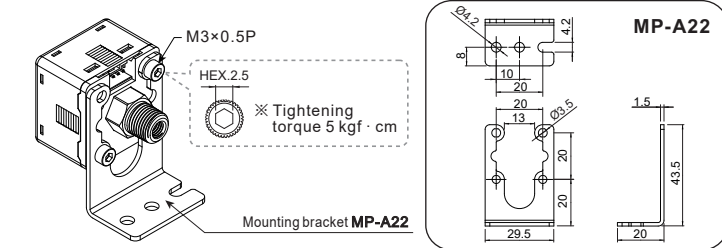


D. DIMENSIONS

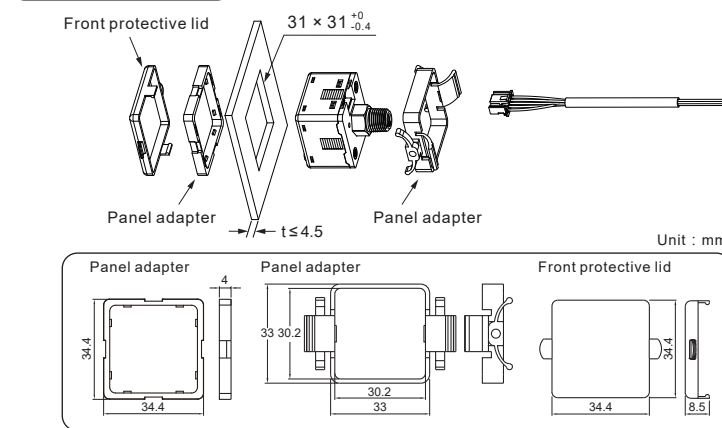


E. OPTIONAL PARTS DIMENSIONS

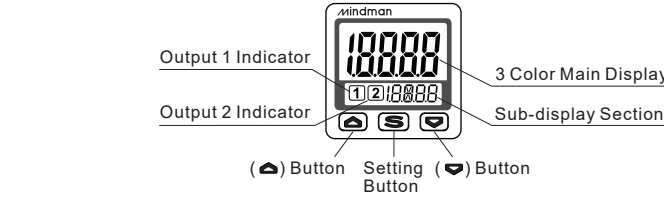
① Mounting bracket



② Panel Mounting

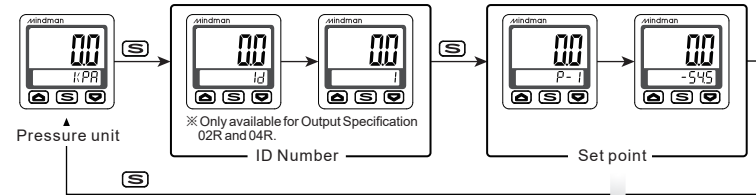


F. PANEL DESCRIPTION



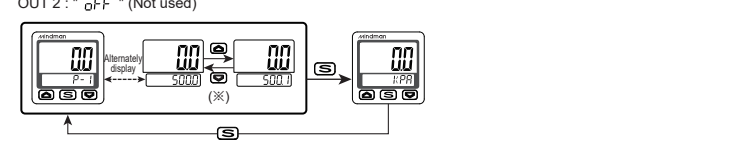
G. SUB-DISPLAY DISPLAY SETTING

In measure mode (※), press (S) button to switch pressure unit / ID number / set point, and set the set point. ※ MP48E is power-on and not in the function setting or checking state.



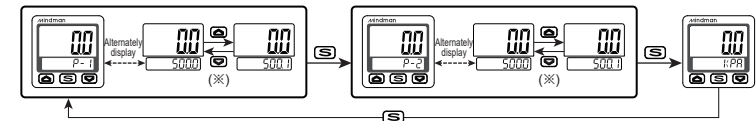
Setting Condition 1

OUT 1 : " oP5 " (One point set mode)
 OUT 2 : " oFF " (Not used)



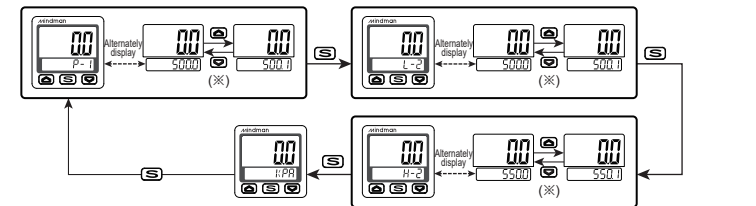
Setting Condition 2

OUT 1 : " oP5 " (One point set mode)
 OUT 2 : " oP5 " (One point set mode)



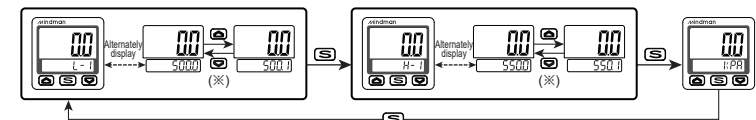
Setting Condition 3

OUT 1 : " oP5 " (One point set mode)
 OUT 2 : " HYS " (Hysteresis mode) or " H in " (Window comparator mode)



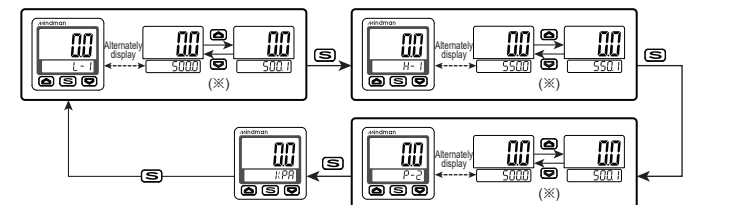
Setting Condition 4

OUT 1 : " HYS " (Hysteresis mode) or " H in " (Window comparator mode)
 OUT 2 : " oFF " (Not used)



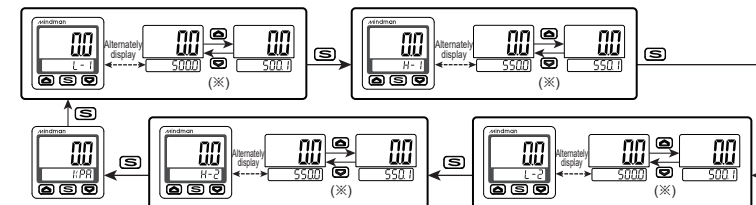
Setting Condition 5

OUT 1 : " HYS " (Hysteresis mode) or " H in " (Window comparator mode)
 OUT 2 : " oP5 " (One point set mode)

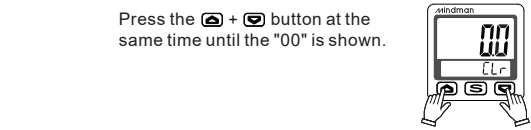


Setting Condition 6

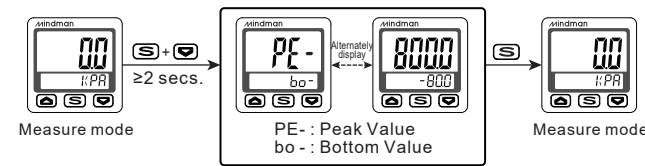
OUT 1 : " HYS " (Hysteresis mode) or " H in " (Window comparator mode)
 OUT 2 : " HYS " (Hysteresis mode) or " H in " (Window comparator mode)



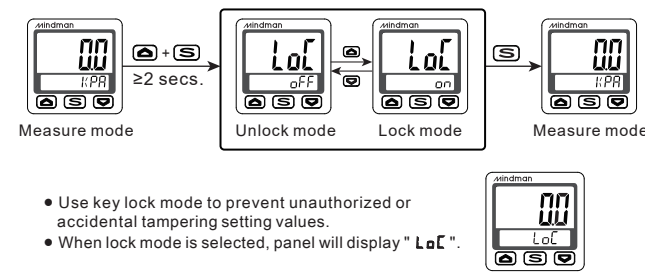
H. ZERO POINT SETTING



I. PEAK/BOTTOM HOLD FUNCTION



J. KEY LOCK/UNLOCK MODE

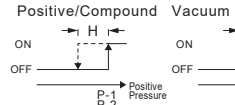


- Use key lock mode to prevent unauthorized or accidental tampering setting values.
- When lock mode is selected, panel will display " LoL ".

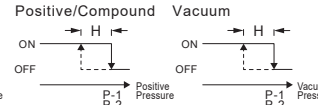
K. OUTPUT MODE

(1) One point set mode :

Normal open mode

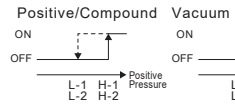


Normal close mode

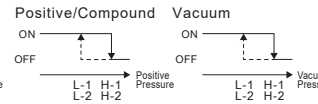


(2) Hysteresis mode :

Normal open mode

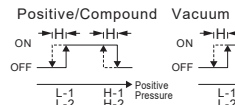


Normal close mode

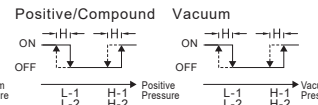


(3) Window comparator mode :

Normal open mode



Normal close mode



- [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. ERROR CODE INSTRUCTION

Error Type	Error Code	Error Condition	Troubleshooting
Excess load current error	Er 1	Output 1 load current is more than 150 mA	Turn power off and check the cause of overload current or lower the current load under 150 mA, then restart.
	Er 2	Output 2 load current is more than 150 mA	
Residual pressure error	Er 3	During zero point setting, ambient pressure is over ±3% F.S.	Change input pressure to ambient pressure and perform zero point setting again.
Applied pressure error	HHH	Supply pressure exceeds the upper limit of pressure setting.	Adjust the pressure within operating pressure range.
System error	Er 4	Internal system error	Turn power off, and then restart. If error condition remains, please return to factory for inspection.
	Er 5	Internal system error	
	Er 6	Internal data error	
	Er 7	Internal data error	

M. PRESSURE UNIT CONVERSION TABLE

From	To	kPa	MPa	kgf/cm ²	mmHg	psi	bar	inHg	mmAq
1 kPa	1	0.001000	0.010197	7.500616	0.145038	0.010000	0.2953	101.97	
1 MPa	1000	1	10.197	7500.616	145.038	10	295.2998	10197.4	
1 kgf/cm ²	98.0665	0.0980665	1	735.559	14.2233	0.980665	28.9579	10000	
1 mmHg	0.13332	0.001333	0.001333	1	0.019336	0.001333	0.039370	13.595	
1 psi	6.895	0.006895	0.007031	51.7157	1	0.06895	2.036074	703.1	
1 bar	100.0000	0.100000	1.01972	750.062	14.5038	1	29.52998	10197.2	
1 inHg	3.386388	0.003386	0.034530	25.40000	0.491141	0.033863	1	345.30	
1 mmAq	0.009806	0.000009	0.0001	0.0735559	0.001423	0.000098	0.0029	1	

※ Actual value is 10 times display value while pressure unit is mmAq.

