

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.
- Sensors at end-of-life must be disposed of in accordance with E-Waste regulations of the country/region, NOT disposed of with regular garbage.

A. SPECIFICATIONS			
MODEL	PSC47-□-□ (Compound Pressure)	PSV47-□-□ (Vacuum Pressure)	PSN47-□-□ (Positive Pressure)
Rated pressure range	-100.0~100.0 kPa	0.0~101.3 kPa	-0.100~1.000 MPa
Set pressure range	-103.0~103.0 kPa	10.0~103.0 kPa	-0.103~1.030 MPa
Withstand pressure	500 kPa		1.5 MPa
Fluid	Air, Non-corrosive / Non-flammable gas		
Set Pressure Resolution	kPa	0.1	—
	MPa	—	0.001
	kgf/cm ²	0.001	0.01
	bar	0.001	0.01
	psi	0.01	0.1
	inHg	0.1	—
	mmHg	1	—
Power supply voltage	12 ~ 24V DC ±10%, Ripple (P-P) ≤ 10%		
Current consumption	≤ 30mA (With no load)		
Switch output	NPN : open collector outputs Max. load current : 80mA Max. supply voltage : 30V DC Residual voltage : ≤ 1V PNP : open collector outputs Max. load current : 80mA Max. supply voltage : 24V DC Residual voltage : ≤ 1V		
Repeatability	±0.3% 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 selectable)		
Output short circuit protection	Yes		
Display	4 digital, 7 segment LCD display (Red / Green / Orange) (Sampling rate : 0.2, 0.5, 1 sec. / time)		
Indicator accuracy	±1% F.S., ±1 digit (ambient temperature : 25 ±3℃)		
Switch on indicator	Orange Indicator 1 : OUT1 & Orange Indicator 2 : OUT2		
Analog output (Voltage output)	Output Voltage : 1 ~ 5V ±2.5% F.S. (within rated pressure range) Linearity : ±1% F.S. Output impedance : about 1 kΩ Output Voltage : 0 ~ 5V ±2.5% F.S. (within rated pressure range) Linearity : ±1% F.S. Output impedance : about 1 kΩ		
Enclosure	IP40		
	Ambient temp. range Operation : 0 ~ 50 °C, Storage : -10 ~ 60 °C (No condensation or freezing)		
Environment	Ambient humidity range Operation / Storage : 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)		
	Vibration Total amplitude 1.5mm or 10G, 10Hz ~ 150Hz ~ 10Hz scan for 1 minute, 2 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℃) at temp. (Range of 0~50℃)		
Port size	R1/8", M5		
Lead wire	Ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm ²) - 4 cores		
Weight	Approx. 67g (with 2 meter lead wire)		
*1.Hysteresis value is adjustable within 1 ~ 8 digits for one point set mode and window comparator mode			

Measure mode

Press **SET** button for more than 5 seconds.

Fixed hysteresis value selection

Press **▲** or **▼** button to adjust fixed hysteresis value.

Display color selection

Press **▲** or **▼** button to select LCD display color relation OUT1 or OUT2.

Display refresh time setting

Use the **▲** or **▼** button to select refresh time.

Power-Save Mode

Press **▲** or **▼** button to turn Power-Save mode on or off.

Restore factory setting

Press **▲** or **▼** button to select to restore to default factory settings.

Display fine adjustment mode

Press **▲** or **▼** button to select to display fine adjustment mode.

Measure mode

【NOTE :】

*1. This setting mode will not display OUT2 when output spec. is 1 OUT.

*2. When setting is "OFF", the power-save mode is active.
Please refer to the item "POWER-SAVE MODE" in detailed.

*3. When setting is "OFF", the display fine adjustment mode is active.
Please refer to the item "FINE ADJUSTMENT MODE" 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.

Measure mode

No button operation for 30 seconds

Press any button

Power-Save mode

(Main display is off, sub-display will flash "SLP")

PS□47-01-□

1 NPN+Analog Output(1-5V)
(0.6-5V only positive)

PS□47-03-□

1 PNP+Analog Output(1-5V)
(0.6-5V only positive)

PS□47-02-□

2 NPN Output

PS□47-04-□

2 PNP Output

C. ORDERING INFORMATION

Pressure Range

C : Compound pressure (-103.0~103.0 kPa)
V : Vacuum pressure (10.0~103.0 kPa)
N : Positive pressure (-0.103~1.030 MPa)

Output Specifications

01 : 1 NPN output + Analog output (1 - 5V)
02 : 2 NPN output
03 : 1 PNP output + Analog output (1 - 5V)
04 : 2 PNP output

Optional Parts

BT-14 : Mounting bracket
BT-15 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

D. PANEL DESCRIPTION

Lock Indicator

Output 1 Indicator

Output 2 Indicator

Pressure Unit Display Section

2 Color Main Display

Setting Mode Sub-display Section

(▲)Button Setting Button (▼)Button

E. DIMENSIONS

Unit:mm

J. PRESSURE SETTING MODE (2 OUT)

Setting Condition 1 :

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

Setting Condition 2 :

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

Setting Condition 3 :

OUT 1 mode setting :
"oP5" (One point set mode)
OUT 2 mode setting :
"H5" (Hysteresis mode)
"u" (Window comparator mode)

Setting Condition 4 :

OUT 1 mode setting :
"H5" (Hysteresis mode)
"u" (Window comparator mode)
OUT 2 mode setting :
"oFF" (Not used)

Setting Condition 5 :

OUT 1 mode setting :
"H5" (Hysteresis mode)
"u" (Window comparator mode)
OUT 2 mode setting :
"oP5" (One point set mode)

Setting Condition 6 :

OUT 1 mode setting :
"H5" (Hysteresis mode)
"u" (Window comparator mode)
OUT 2 mode setting :
"H5" (Hysteresis mode)
"u" (Window comparator mode)

【NOTE :】

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

F. OPTIONAL PARTS DIMENSIONS

Mounting bracket

BT-14

BT-15

Panel Mounting

PA-C

PA-D

Caution :

*1. Screws suitable hexagonal wrench size is 2.5mm.
*2. Use non-standard screws, the length must be limited to 5mm.

K. PRESSURE SETTING MODE (1 OUT)

Setting Condition 1 :

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

Setting Condition 2 :

OUT 1 mode setting :
"H5" (Hysteresis mode)
"u" (Window comparator mode)

【NOTE :】

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

L. OUTPUT TYPE

(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. Pressure setting value of P-2, L-2 or H-2 won't be shown when output spec. is 1 OUT.

*2. 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.

*3. 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.

M. ANALOG OUTPUT DESCRIPTION

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

(Compound Pressure) Analog output (V)

(Vacuum Pressure) Analog output (V)

(Positive Pressure) Analog output (V)

N. ZERO POINT SETTING

O. PEAK/BOTTOM HOLD FUNCTION

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

Measure mode

Press **SET** + **▼** button for more than 2 seconds.

Measure mode

G. INITIAL SETTING MODE

Measure mode

Press **SET** button for more than 3 seconds.

OUT1 type setting

OUT2 type setting

Response time setting

Display color setting

Unit setting

Measure mode

【NOTE :】

*1. This setting mode will not display when output spec. is 1 OUT.

*2. This setting mode will not display when output 2 is set to oFF.

*3. Pressure unit is MPa with positive pressure.
Pressure unit is kPa with vacuum and compound pressure.

*4. Only applicable for Vacuum/Compound.

P. KEY LOCK/UNLOCK MODE

Measure mode

Press **▲** + **SET** button for more than 2 seconds.

Lock mode

Measure mode

【NOTE :】

*1. Setting resolution is ±0.1% R.D.
*2. The signal would be changed with analog output after adjusting.

Q. FINE ADJUSTMENT MODE

Display fine adjustment mode

Use **▲** or **▼** button to change the set value.

Press **SET** button to exit.

Display calibration range

【NOTE :】

*1. Setting resolution is ±0.1% R.D.
*2. The signal would be changed with analog output after adjusting.

R. ERROR CODE INSTRUCTION

Error Type	Error Code	Error Condition	Troubleshooting
Excess load current error	out1 Er 1	Output 1 load current is more than 80 mA	Turn power off and check the cause of overload current or lower the current load under 80 mA, then restart.
Residual pressure error	out2 Er 2	Output 2 load current is more than 80 mA	Change input pressure to ambient pressure and perform zero reset again.
Applied pressure error	HHH LLL	Supply pressure exceeds the upper limit of pressure setting. Supply pressure exceeds the lower limit of pressure setting.	Adjust the pressure within operating pressure range.
System error	Er 4	Internal system error	Turn power off, and then restart.
	Er 5	Internal system error	If error condition remains, please return to factory for inspection.
	Er 6	Internal data error	

S. PRESSURE UNIT CONVERSION TABLE

From	To	Pa	kPa	MPa	kgf/cm ²	mmHg	psi	bar	inHg
1 Pa	1	0.001	0.000001	0.000010197	0.000145038	0.0000145038	0.00002953	0.00001	0.0002953
1 kPa	1000.000	1	0.001000	0.010197	7.500618	0.145038	0.145038	0.010000	0.2953
1 MPa	1000000	1000	1	10.197	750.0618	14.5038	14.5038	10	29.5298
1 kgf/cm ²	98066.5	98.0665	0.0980665	0.00980665	735.559	14.2233	0.960865	0.0980665	2.4414
1 mmHg	133.322	0.133322	0.0001333	0.00133322	1	0.0133322	0.00133322	0.00133322	0.00133322
1 psi	6895	6.895	0.006895	0.07031	51.7157	1	0.06895	0.06895	2.036074
1 bar	100000	100.000	0.100000	1.01972	750.062	14.5038	14.5038	1	29.5298
1 inHg	3386.388	3.386388	0.003386	0.034530	25.40000	0.491411	0.033863	0.033863	1

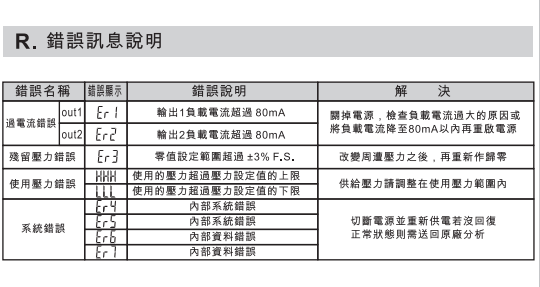
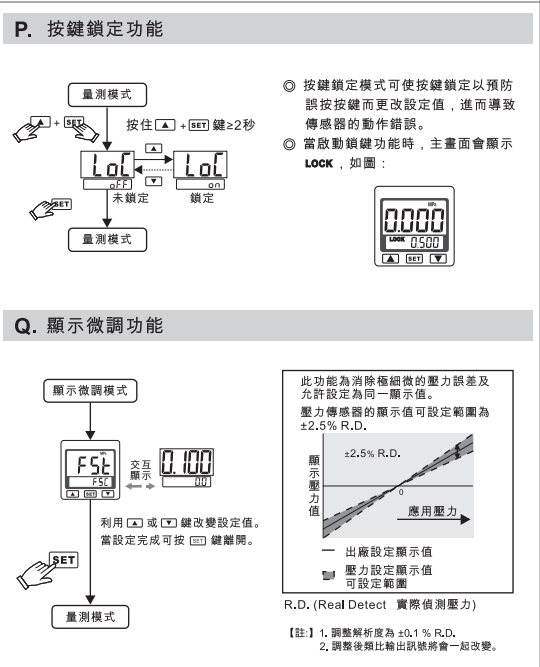
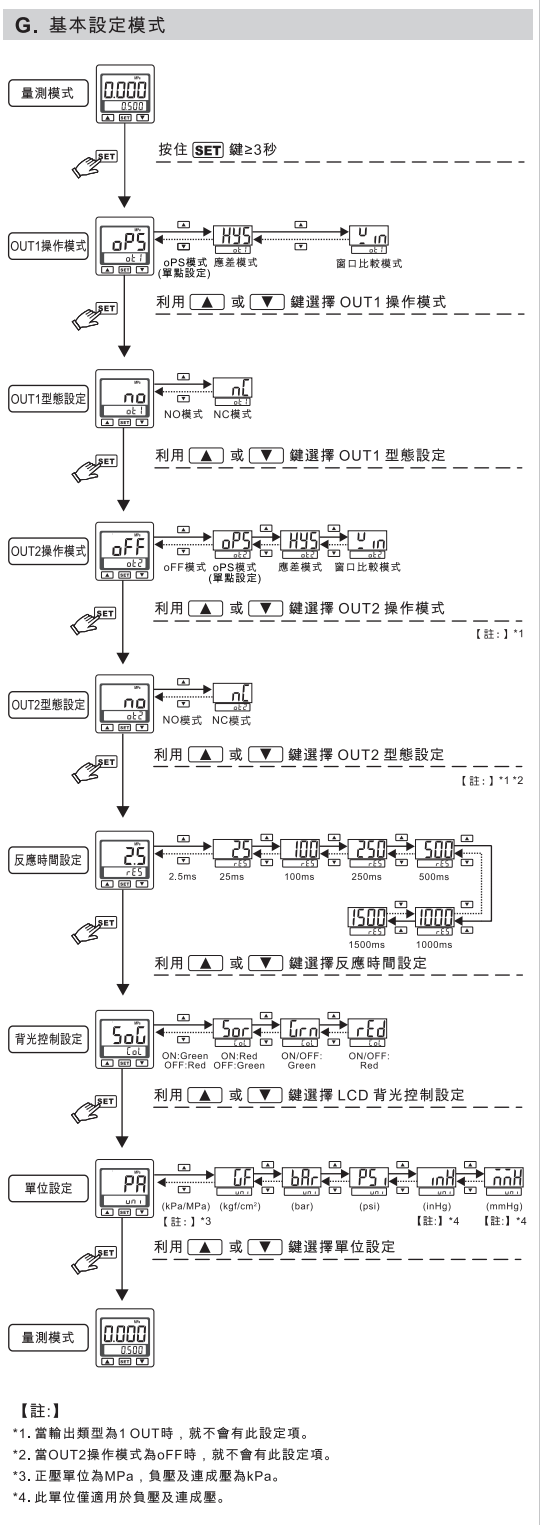
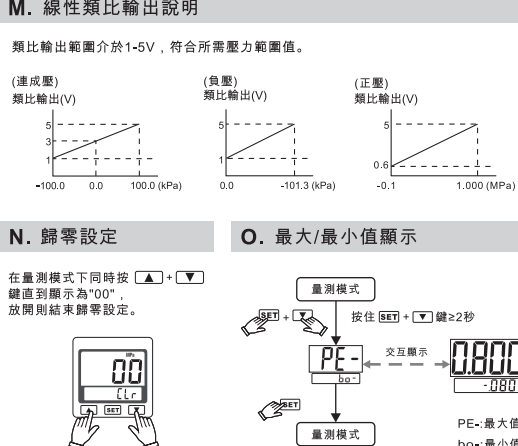
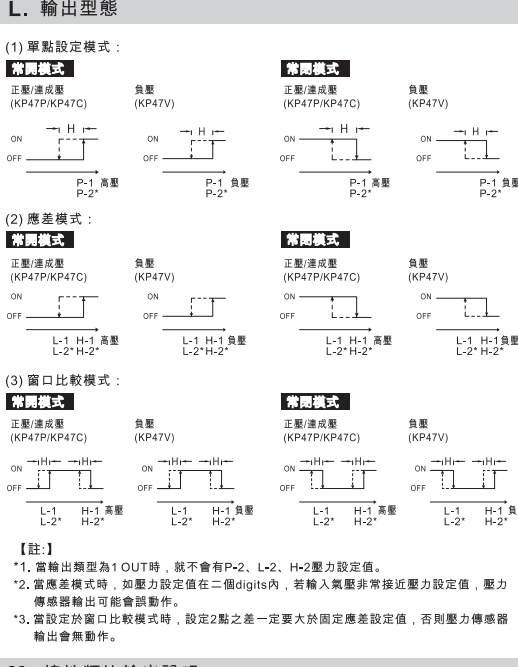
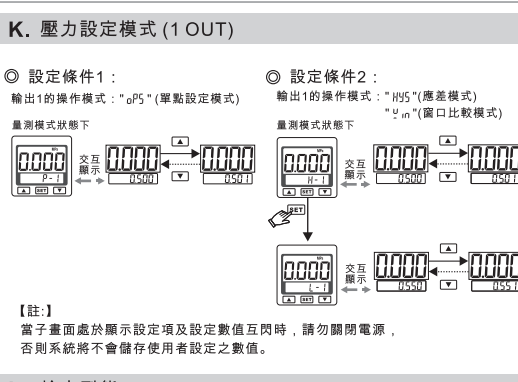
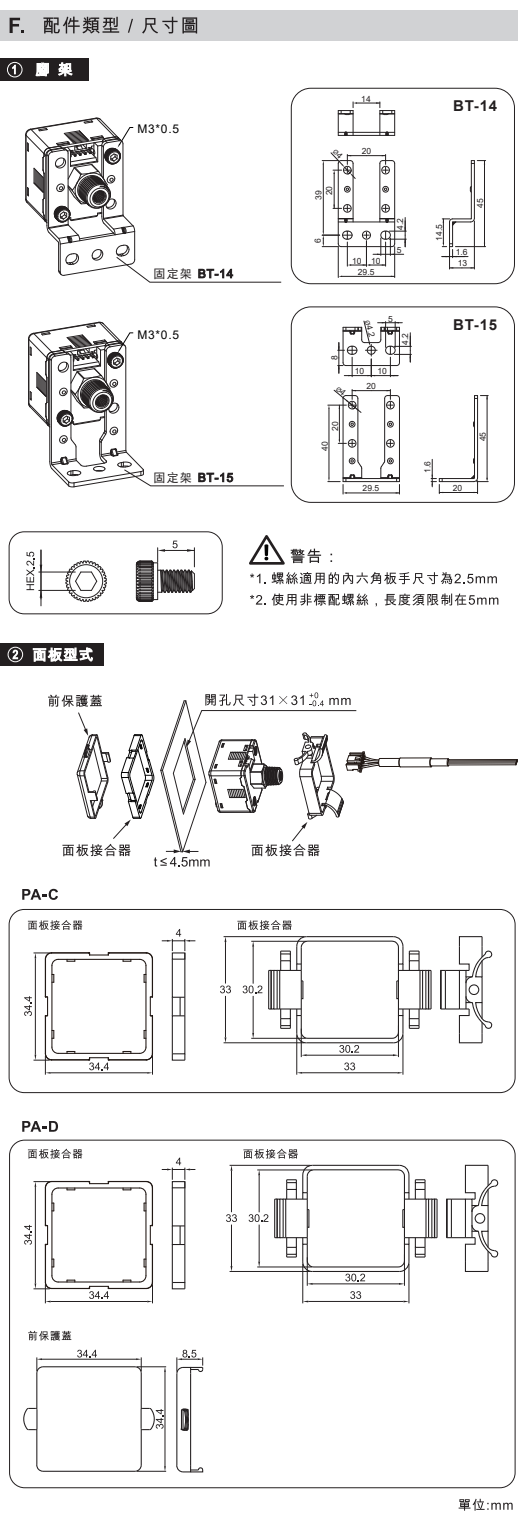
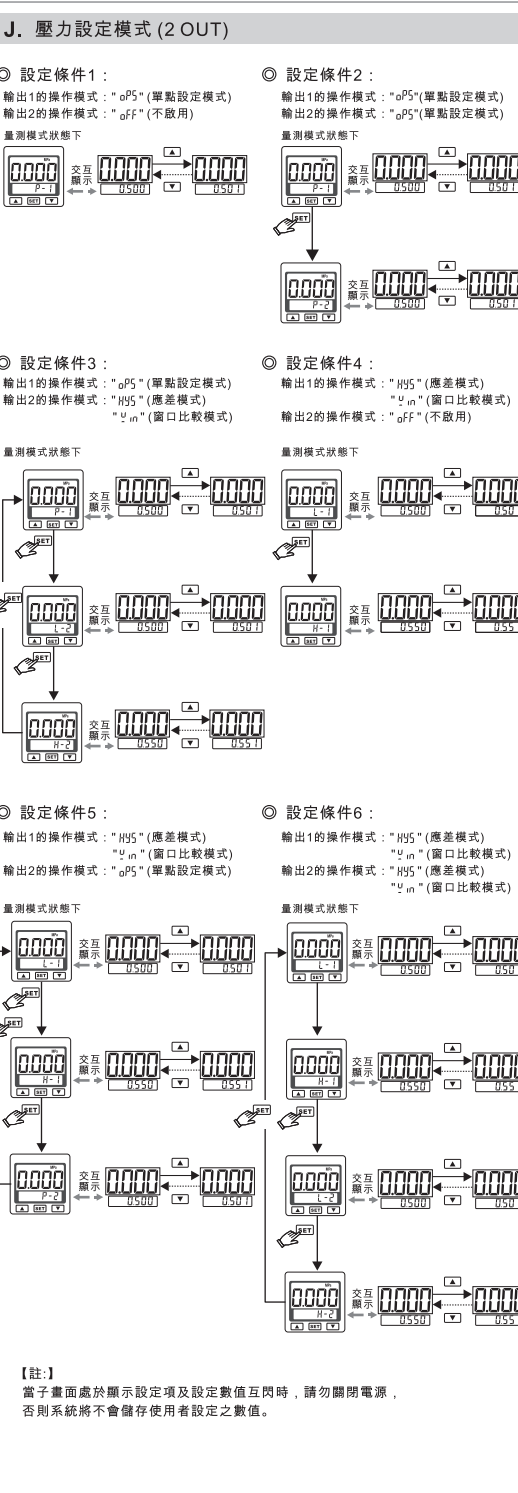
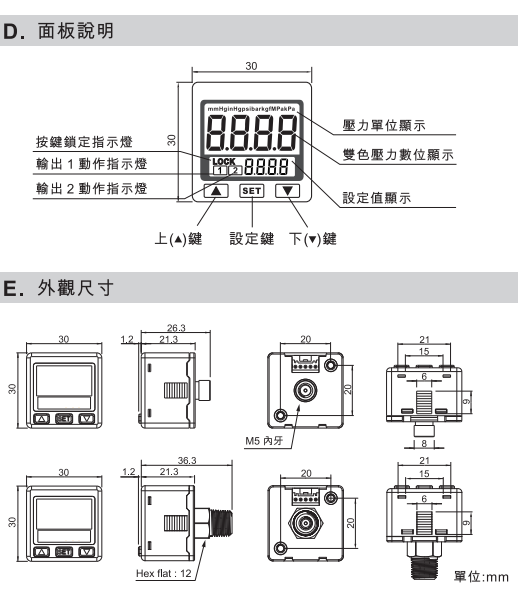
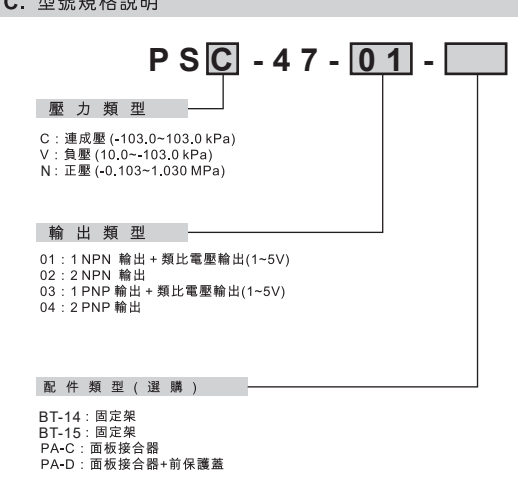
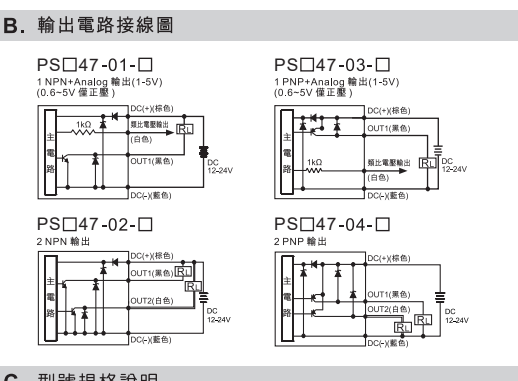
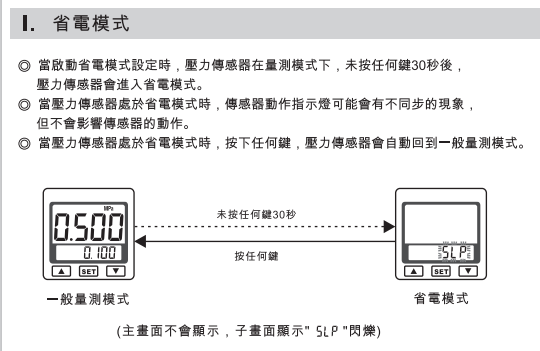
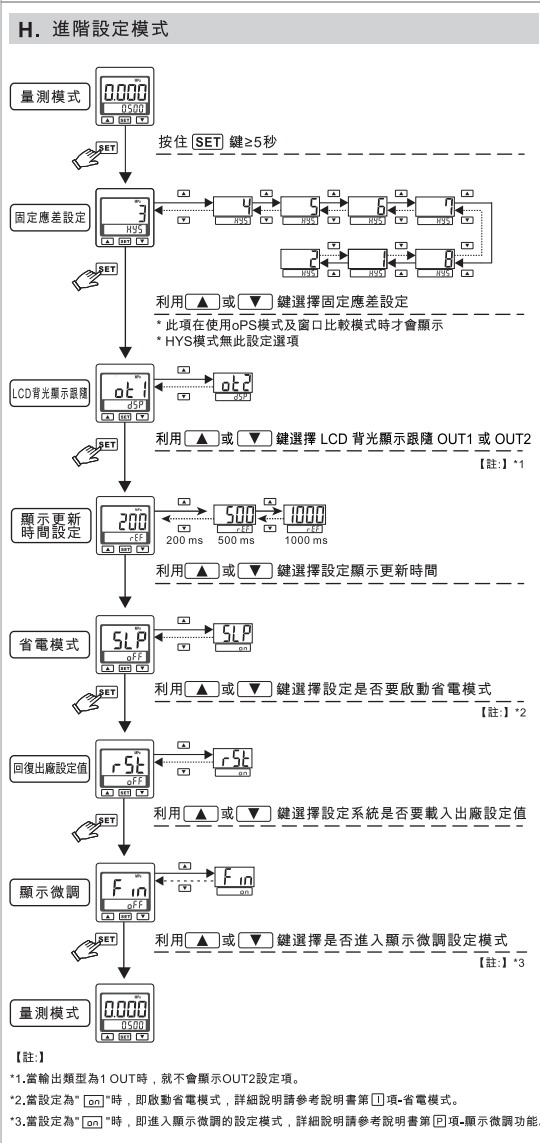
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- 使用本產品應注意事項：
- 禁止使用於腐蝕性及易燃性的氣體或任何液體。
 - 請在規格表內的額定壓力範圍內使用，若供給之壓力超過最大耐壓會使本產品損壞，導致功能異常。
 - 裝設本產品時，請勿用力撞擊或從高處掉落，即使外觀未受損害也可能因內部零件損壞而導致功能異常。
 - 在連接本產品於電路控制系統時，應先關掉電源，因為錯誤的接線或短路會導致本產品損壞。
 - 本產品請勿使用在有水氣或油霧的環境中。
 - 本系列產品並未有防爆驗證，請勿使用於空氣中含有爆炸性氣體或粉塵環境中。
 - 不可將連接本產品的導線與電源線或其它高壓電線綁在一起，以避免雜訊的干擾，而影響到本產品的功能。
 - 報廢的傳感器必須依所在國家/地區的電子廢棄物法規進行處理，不應與一般廢棄物一起處理。

A. 規格表			
型號	PSC47-□-□ (連成壓)	PSV47-□-□ (負壓)	PSN47-□-□ (正壓)
額定壓力範圍	-100.0~100.0 kPa	0.0~101.3 kPa	-0.100~1,000 MPa
設定壓力範圍	-103.0~103.0 kPa	10.0~103.0 kPa	-0.103~1,030 MPa
耐壓力	500 kPa		1.5 MPa
適用氣體	空氣，非腐蝕性，不可燃性		
壓力單位 設定最小 刻度	kPa	0.1	—
	MPa	—	0.001
	kgf/cm ²	0.001	0.01
	bar	0.001	0.01
	psi	0.01	0.1
	inHg	0.1	—
	mmHg	1	—
電源電壓	12~24V DC ±10%，漣波峰值 ≤10%		
消費電流	≤30mA (無負載時)		
開關輸出	NPN 開集極輸出 最大負載電流：80mA 最大供應電壓：30V DC 內部壓降：≤1V		PNP 開集極輸出 最大負載電流：80mA 最大供應電壓：24V DC 內部壓降：≤1V
重複精度	±0.3% F.S. ±1 digit		
應差	單點設定模式 應差模式 窗口比較模式	可調 (*1)	
反應時間	≤2.5ms (預防誤動作功能：25ms, 100ms, 250ms, 500ms, 1000ms 和 1500ms 可選擇)		
輸出短路保護	有		
顯示	4 位，7 段 LCD 顯示 (紅色 / 綠色 / 橙色) (取樣率：0.2, 0.5, 1 秒 / 次)		
顯示精度	±1% F.S. ±1 digit (在周圍溫度：25 ±3℃)		
動作顯示燈	綠色指示燈 1：OUT1 & 紅色指示燈 2：OUT2		
線性類比輸出 (電壓輸出)	輸出電壓：1~5V ±2.5% F.S. (額定壓力範圍下) 溫度特性：±1% F.S. 輸出阻抗約 1 kΩ		輸出電壓：0.6~5V ±2.5% F.S. (額定壓力範圍下) 溫度特性：±1% F.S. 輸出阻抗約 1 kΩ
防護等級	IP40		
	動作：0~50℃，保存：-10~60℃ (無水露及不結冰狀況下)		
周圍濕度	動作及保存：35~85% RH (無水露)		
	耐電壓 1000V AC 1 分鐘 (引線及外殼間)		
絕緣阻抗	≥50MΩ (500V DC) (引線及外殼間)		
	耐振動 橫振幅 1.5mm 或 10G，每 1 分鐘 10Hz~150Hz~10Hz，X、Y、Z 每個方向各 2 小時		
耐衝擊	100m/s ² (10G)，X、Y、Z 每個方向各 3 次		
	溫度特性 ±2% F.S. 比較參考溫度 25℃ (0~50℃ 溫度範圍內)		
接管口徑	R1/8", M5		
電線規格	Ø4 耐油 PVC-26 AWG (0.15mm ²) -4 芯		
重量	約 67g (包含 2 公尺的電線)		



R. 錯誤訊息說明

錯誤名稱	錯誤顯示	錯誤說明	解決
通電流錯誤	out1 Er1 out2 Er2	輸出 1 負載電流超過 80mA 輸出 2 負載電流超過 80mA	關掉電源，檢查負載電流過大的原因或將負載電流降至 80mA 以內再重新啟動
殘留壓力錯誤	Er3	零值設定範圍超過 ±3% F.S.	改變周圍壓力之後，再重新作歸零
使用壓力錯誤	H1H1	使用的壓力超過壓力設定值的上限	供給壓力請調整在使用壓力範圍內
系統錯誤	Er4 Er5 Er6 Er7	內部系統錯誤 內部系統錯誤 內部資料錯誤 內部資料錯誤	切斷電源並重新供電嘗試回復 正常狀態則需送回原廠分析

S. 壓力單位轉換表

From	TO	Pa	kPa	MPa	kgf/cm ²	mmHg	psi	bar	inHg
1 Pa	1	0.001	0.000001	0.000000001	0.0000145038	0.0000145038	0.0000145038	0.0000145038	0.0000145038
1 kPa	1000.000	1	0.001000	0.001000	0.010197	7.500616	0.145038	0.010000	0.295298
1 MPa	1000000	1000	1.000000	1	10.1972	7500.616	145.038	10	295.298
1 kgf/cm ²	98066.5	98066.5	0.0980665	0.0980665	1	735.559	14.2233	0.980665	28.9590
1 mmHg	133.322	0.133322	0.00133322	0.00133322	1	0.019336	0.00133322	0.00133322	0.00133322
1 psi	6895	6.895	0.006895	0.006895	0.07031	51.7151	1	0.06895	2.03607
1 bar	100000	100000	0.100000	0.100000	1.01972	750.062	14.5038	1	29.5298
1 inHg	3386.388	3.386388	0.003386388	0.003386388	0.034530	25.4000	0.491411	0.0338638	0.0338638