

For your safety, please read the following before using.

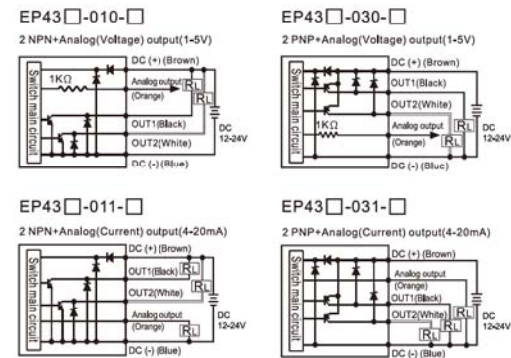
- Do not use corrosive or flammable gas or liquid with this product.
- Please use within the rating pressure range. Do not apply pressure beyond recommended maximum withstand pressure, permanent damage to the pressure sensor may occur.
- Do not drop, hit or allow excessive shock. Even if switch body 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	EP43P-□-□ (Positive)	EP43V-□-□ (Vacuum)	EP43C-□-□ (Compound)
Rated pressure range	0.0~1,000kPa	0.0~101.3kPa	-100.0~100.0kPa
Setting pressure range	-0.100~1,000kPa	10.0~101.3kPa	-101.0~101.0kPa
Withstand pressure	1.5MPa	300kPa	300kPa
Fluid	Air, Non-corrosive / Non-flammable gas		
	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
	mmHg	—	1
Power supply voltage	12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption	≤ 40mA (With no load)		
Switch output	NPN: open collector 2 outputs Max. load current: 125mA Max. supply voltage: 30V DC Residual voltage: ≤ 1.5V	PNP: open collector 2 outputs Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: ≤ 1.5V	
Repeatability(Switch output)	±0.2% F.S. ±1 digit		
One point set mode	Adjustable (*1)		
Hysteresis Hysteresis mode	Adjustable (*1)		
Window comparator mode	Adjustable (*1)		
Response time	≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections)		
Output short circuit protection	Yes		
7 segment LCD display	Two color(Red/Green) main & unit display, Orange sub-display (Sampling rate: 5 times/1sec.)		
Indicator accuracy	±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)		
Switch ON Indicator	Orange (1 & 2 Indicator) OUT1 OUT2		
Analog output (Voltage Output) *2	Output Voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		
Analog output (Current Output) *3	Output Current: 4 to 20mA ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Max. Load Impedance: 300Ω at power supply of 12V, 600Ω at power supply of 24V Min. Load impedance: 90Ω		
Ends	IP 40		
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	50MΩ (at 500V DC, between case and 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	±2.5% 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"(BSPF), M5		
Lead wire	Oil-resistance cable(0.15mm ²)		
Weight	Approx. 80g (with 2 meter lead wire)		

*1.Hysteresis value is adjustable within 1 ~ 8 digits for one point set mode and window comparator mode.
*2.If analog voltage output is selected, the analog current output cannot be selected at the same time.
*3.If analog current output is selected, the analog voltage output cannot be selected at the same time.

B. OUTPUT CIRCUIT WIRING DIAGRAMS



C. ORDERING INFORMATION

EP43C-010-F1

Pressure Range
C : Compound (-101.0~101.0kPa)
V : Vacuum (10.0~101.3kPa)
P : Positive (-0.100~1,000kPa)

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)

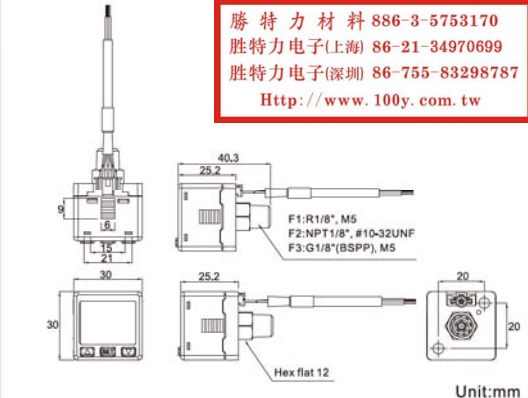
Pressure Port
F1 : R1/8", M5
F2 : NPT1/8", #10-32UNF
F3 : G1/8"(BSPF), M5

Optional Parts
BT-12 : Mounting bracket
BT-13 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

D. PANEL DESCRIPTION

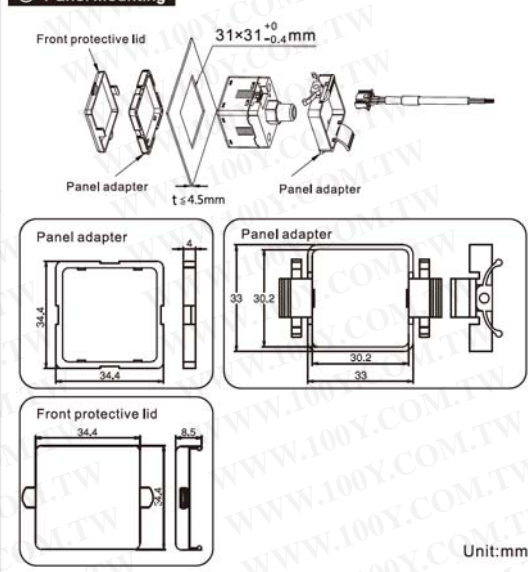
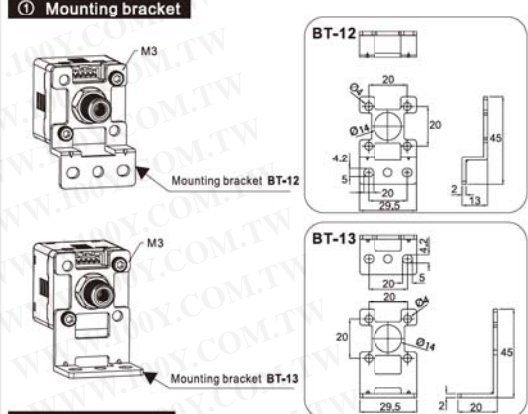


E. DIMENSIONS

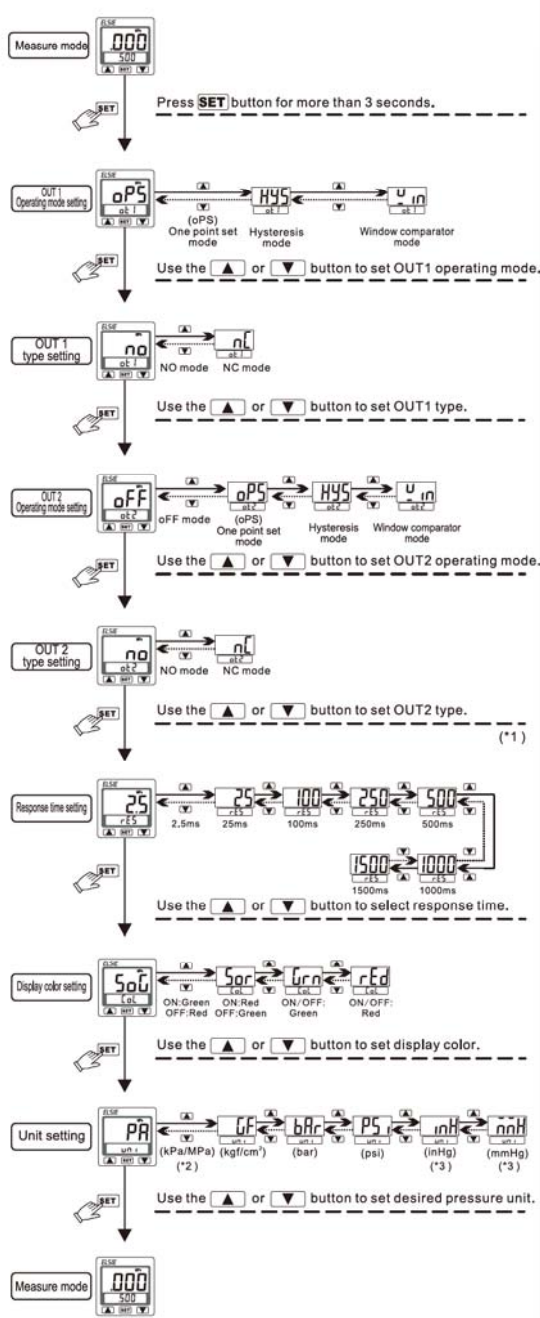


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F. OPTIONAL PARTS DIMENSIONS

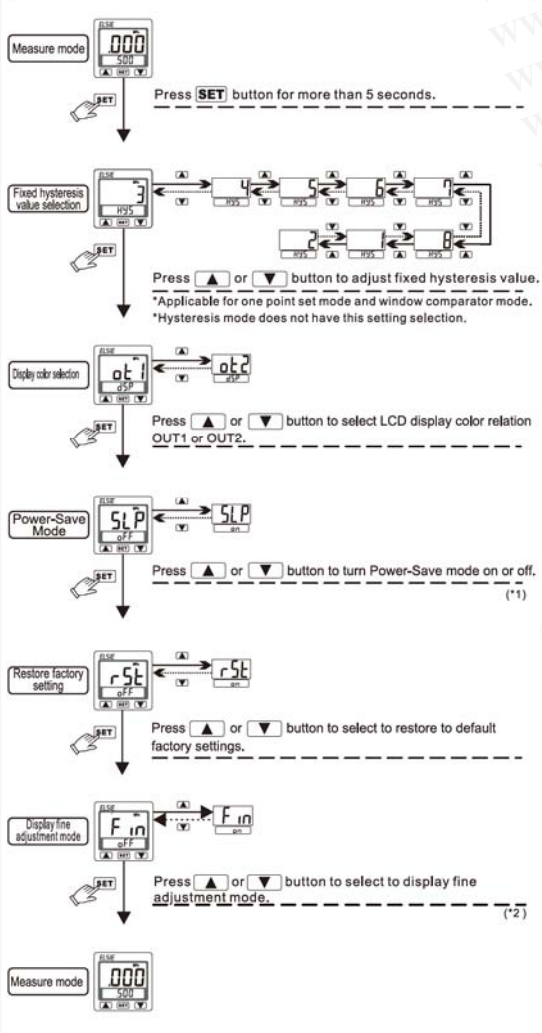


G. INITIAL SETTING MODE



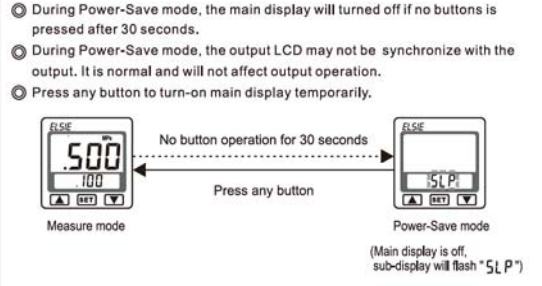
[NOTE:]
*1. This setting mode will not display when output 2 is set to OFF.
*2. Pressure unit is MPa by positive & pressure unit is kPa by vacuum and compound
*3. Only applicable for Vacuum/Compound.

H. ADVANCE SETTING MODE

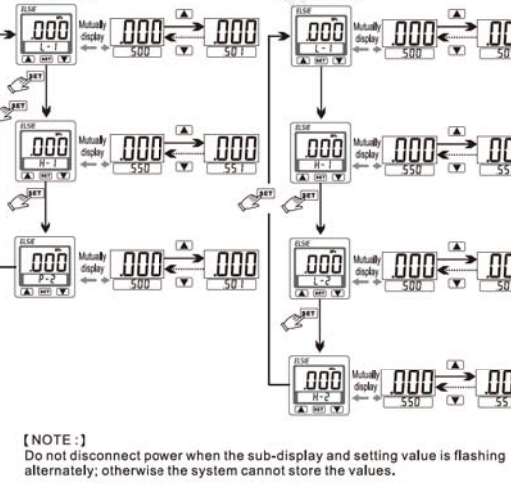
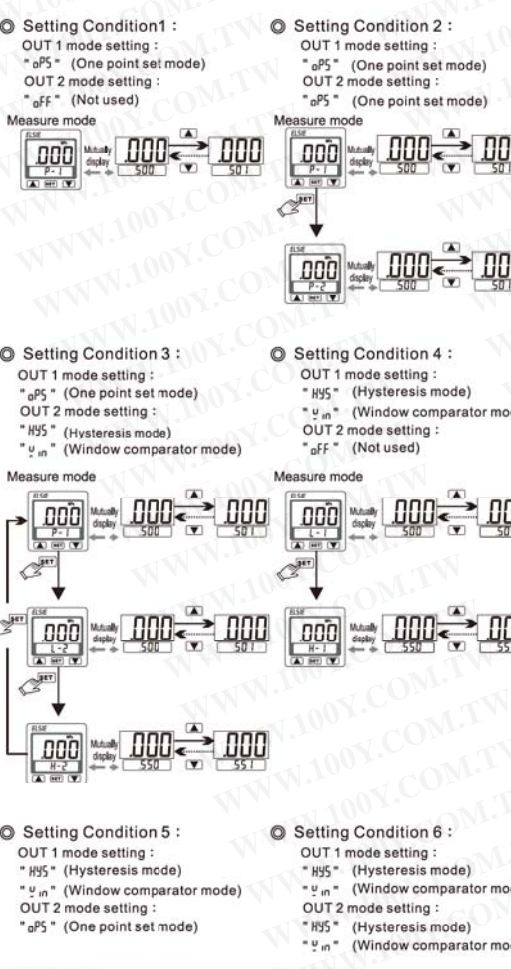


[NOTE:]
*1. When setting is "SLP", the power-save mode would be started. Please refer the item "I" in detailed.
*2. When setting is "F ADJ", the display fine adjustment mode would be started. Please refer the item "P" in detailed.

I. POWER-SAVE MODE

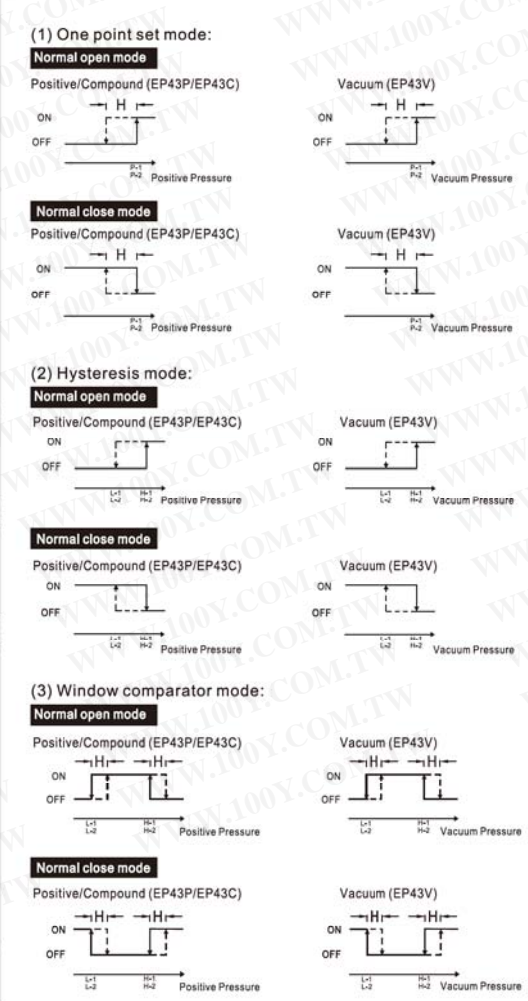


J. PRESSURE SETTING MODE



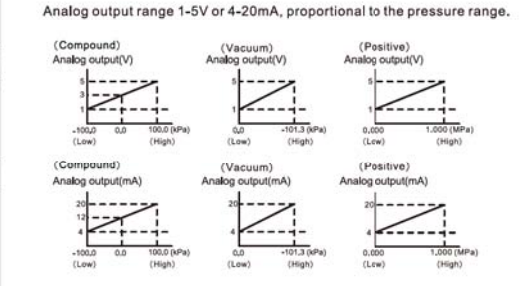
[NOTE:]
Do not disconnect power when the sub-display and setting value is flashing alternately; otherwise the system cannot store the values.

K. OUTPUT TYPE

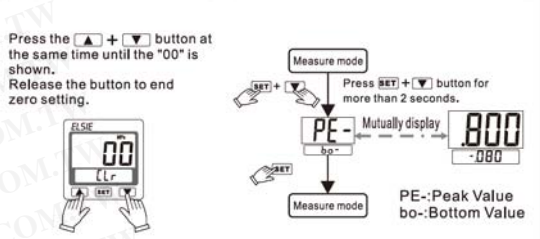


[NOTE:]
*1. In case hysteresis is set at less than or equal to 2 digits, switch output may chatter if input pressure fluctuates near the set point.
*2. When using window comparator mode, the difference between two set points must be greater than the fixed hysteresis, otherwise will cause the switch output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

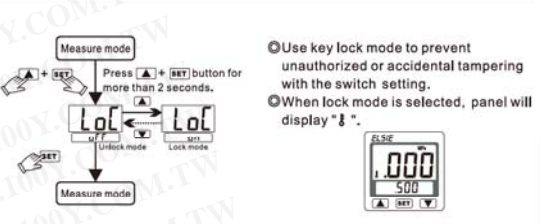
L. ANALOG OUTPUT DESCRIPTION



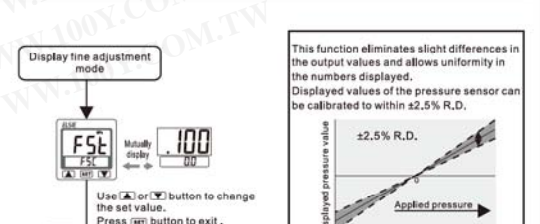
M. ZERO POINT SETTING



N. PEAK/BOTTOM HOLD FUNCTION



O. KEY LOCK/UNLOCK MODE



P. FINE ADJUSTMENT MODE



[NOTE:] 1. setting resolution is ±0.1% R.D.
2. The signal would be changed with analog output after adjusting.

Q. ERROR CODE INSTRUCTION

Error Type	Error Code	Error Condition	Troubleshooting
Excess load current error	Er-1	Output 1 load current is more than 125 mA	Turn power off and check the cause of overlead current or lower the current load under 125 mA, then restart.
Residual pressure error	Er-2	Output 2 load current is more than 125 mA	Turn power off and check the cause of overlead current or lower the current load under 125 mA, then restart.
Applied pressure error	HHH	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.	Adjust the pressure within operating pressure range.
	Er-3	Internal system error	Turn power off, and then restart.
	Er-4	Internal system error	Turn power off, and then restart.
	Er-5	Internal data error	Turn power off, and then restart.
	Er-6	Internal data error	Turn power off, and then restart.
	Er-7	Internal data error	Turn power off, and then restart.

R. PRESSURE UNIT CONVERSION TABLE

Pa	Pi	kPa	MPa	kgf/cm ²	mmHg	psi	bar	inHg
1 Pa	1	0.001	0.000001	0.00010197	0.00750062	0.000145038	0.00001	0.0002953
1 kPa	1000.000	1	0.001000	0.101972	7.500616	0.145038	0.010000	0.2953
1 MPa	1000000.0	1000	1	10.1972	75.0062	1.45038	10	29.53
1 kgf/cm ²	98.0665	98.0665	0.0980665	1	735.559	14.2233	0.0980665	29.5275
1 mmHg	133.322	0.133322	0.00133322	0.00133322	1	0.0193353	0.00133322	0.0393701
1 psi	6894.76	6.89476	0.00689476	0.0703071	51.7152	1	0.0689476	2.036024
1 bar	100000.0	100.000	0.100000	1.01972	7.50062	0.145038	1	29.52998
1 inHg	3386.39	3.38639	0.00338639	0.0344530	25.40000	0.491147	0.0338639	1

數位顯示型壓力傳感器 EP43 系列

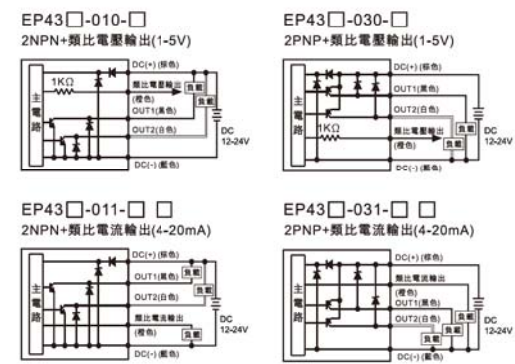
- 使用本產品應注意事項：
- 禁止用於高壓及易燃性的氣體或任何液體。
 - 請在規格表內的額定壓力範圍內使用，若供給之壓力超過最大額定壓力會使本產品損壞，導致功能異常。
 - 裝設本產品時，請勿用力推擊或從高處掉落，即使外觀未受損壞也可能因內部零件損壞而導致功能異常。
 - 在連接本產品於電路控制系統時，應先關掉電源，因為錯誤的接線或短路會導致本產品損壞。
 - 本產品請勿使用在有水氣或油霧的環境中。
 - 本系列產品並未作防塵驗證，請勿用於空氣中含有爆炸性氣體或粉塵環境中。
 - 不可將連接本產品的導線與電源線或其它高壓電線綁在一起，以免產生電磁干擾，而影響到本產品的功能。

A. 規格表

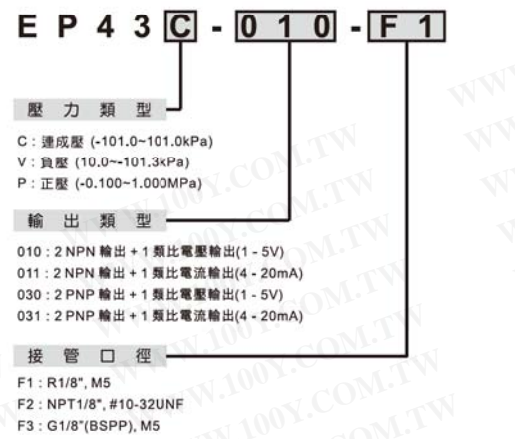
型號	EP43P-□-□ (正壓)	EP43V-□-□ (負壓)	EP43C-□-□ (差壓)
額定壓力範圍	0.0~1,000kPa	0.0~101.3kPa	-100.0~100.0kPa
設定壓力範圍	-0.100~1,000kPa	10.0~101.3kPa	-101.0~101.0kPa
耐壓力	1.5MPa	300kPa	300kPa
適用氣體	空氣、非腐蝕性、不可燃性		
壓力單位	kPa	—	0.1
MPa	0.001	—	—
kgf/cm ²	0.01	—	0.001
bar	0.01	—	0.001
psi	0.1	—	0.01
inHg	—	—	0.1
mmHg	—	—	1
電源電壓	12至24V DC ±10%，濾波係數 10% 以下		
消費電流	≤40mA 以下(無負載時)		
傳感器輸出	2 NPN 開集極輸出 最大負載電流：125mA 最大供應電壓：30V DC 內部壓降：1.5V 以下	2 PNP 開集極輸出 最大負載電流：125mA 最大供應電壓：24V DC 內部壓降：1.5V 以下	—
重複精度	±0.2% F.S. ±1 digit 以下		
oPS 模式	—		
應變	可調 *1		
窗口比較模式	—		
反應時間	≤2.5ms (預防誤動作功能：25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms 可選擇)		
輸出短路保護	有		
顯示	3色(紅/綠/藍)顯示(取樣率：5次/秒)		
顯示精度	±2% F.S. ±1 digit(在適溫溫度：25±3°C)		
動作指示燈	綠色 (1&2 指示燈) OUT1 OUT2		
線性類比輸出 (電壓輸出)*2	輸出電壓：1-5V ±2.5% F.S. (額定壓力範圍下) 直線性：±1% F.S. 輸出阻抗約1kΩ		
線性類比輸出 (電流輸出)*3	輸出電流：4-20mA ±2.5% F.S. (額定壓力範圍下) 直線性：±1% F.S. 負載阻抗最大：300Ω 在電壓為12V，600Ω 在電壓為24V 負載阻抗最小：50Ω		
防護等級	IP 40		
適溫溫度	動作：0~50°C，保存：-10~60°C (無水露及不結冰狀況下)		
耐濕度	動作及保存：35~85% RH (無水露)		
耐電壓	1000V AC 1分鐘 (引線及塑膠外殼間)		
絕緣阻抗	50MΩ 以上 (500V DC)(引線及塑膠外殼間)		
耐振動	震盪幅1.5mm，每1分鐘10Hz~55Hz~10Hz，X、Y、Z 每軸方向各2小時		
耐衝擊	100ms*(10G) X、Y、Z 每軸方向各3次		
溫度特性	±2.5% F.S. 比較參考溫度25°C (0~50°C 溫度範圍內)		
接管口徑	F1:R1/8", M5; F2:NPT1/8", #10-32UNF; F3:G1/8"(BSPP), M5		
電線規格	耐油PVC電線(0.15mm ²)		
重量	約 80g (包含2公尺的電線)		

*1. 單點設定模式及窗口比較模式可調整1-8digits的應變。
*2. 選擇電壓輸出時就無電流輸出，二種輸出型態可選擇其一。
*3. 選擇電流輸出時就無電壓輸出，二種輸出型態可選擇其一。

B. 輸出電路接線圖



C. 型號規格說明

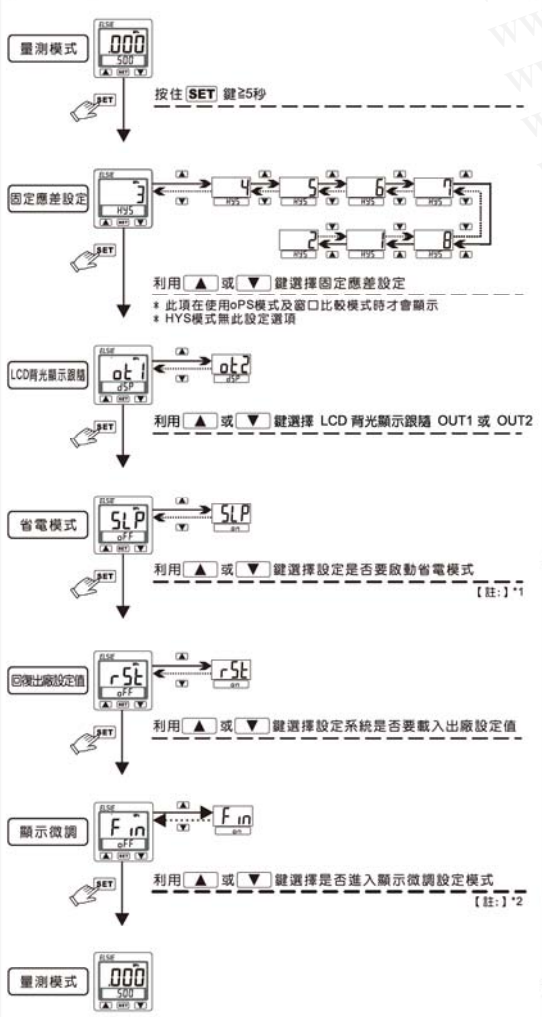


D. 面板說明



【註：】
*1. 單點設定模式及窗口比較模式可調整1-8digits的應變。
*2. 選擇電壓輸出時就無電流輸出，二種輸出型態可選擇其一。
*3. 選擇電流輸出時就無電壓輸出，二種輸出型態可選擇其一。

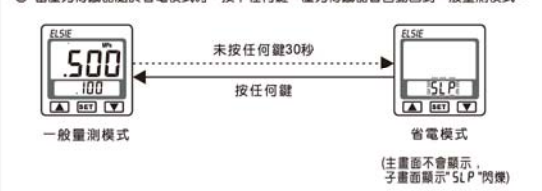
H. 進階設定模式



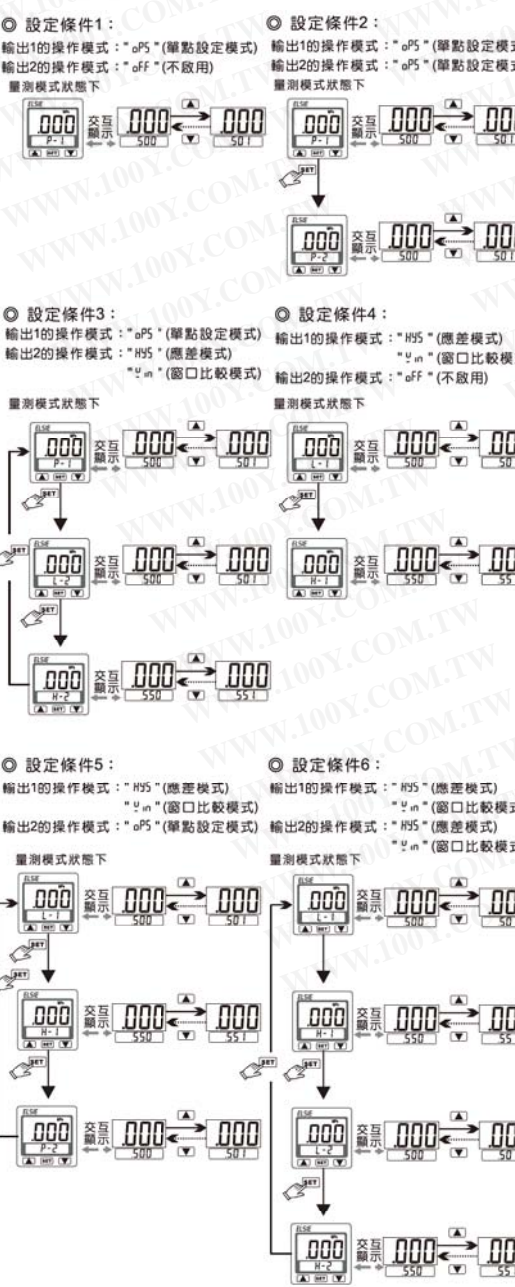
【註：】
*1. 當設定為 "on" 時，即啟動省電模式，詳細說明請參閱說明書第 11 項。
*2. 當設定為 "off" 時，即進入顯示微調的設定模式，詳細說明請參閱說明書第 12 項。

I. 省電模式

- 當啟動省電模式設定時，壓力傳感器在量測模式下，未接任何鍵30秒後，壓力傳感器會進入省電模式。
- 當壓力傳感器處於省電模式時，傳感器動作指示燈可能會有不同步的現象，但不會影響傳感器的動作。
- 當壓力傳感器處於省電模式時，按下任何鍵，壓力傳感器會自動回到一般量測模式。



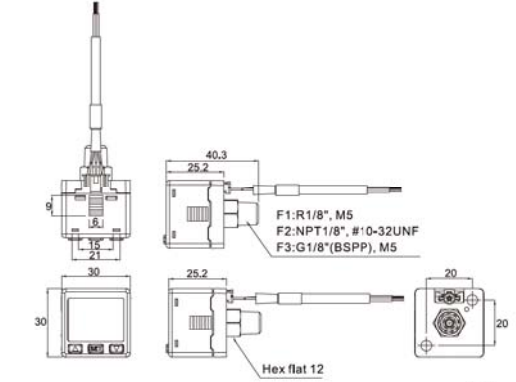
J. 壓力設定模式



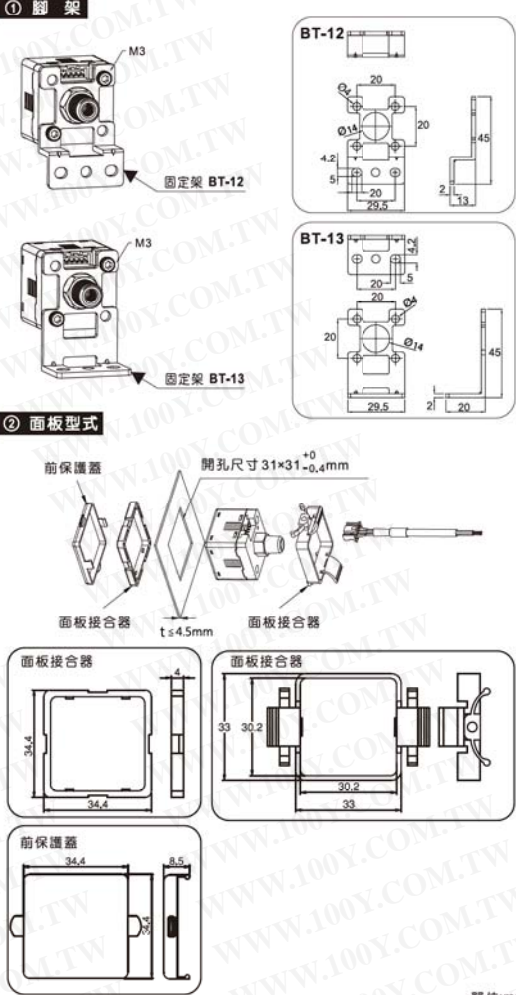
【註：】
當子畫面處於顯示設定項及設定數值互閃時，請勿關閉電源，否則系統將不會儲存使用者設定之數值。

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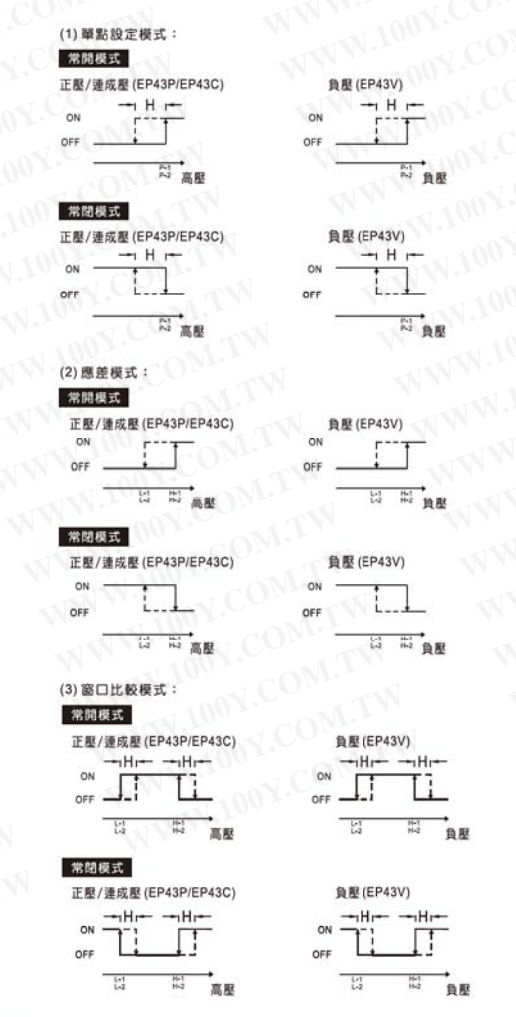
E. 外觀尺寸



F. 配件類型/尺寸圖

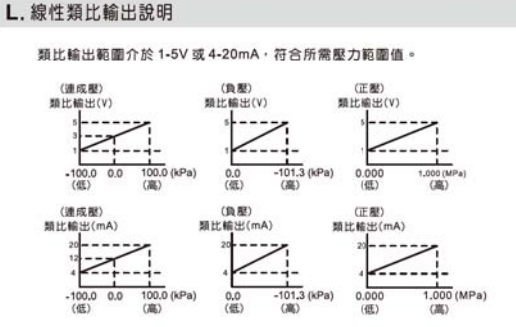


K. 輸出型態

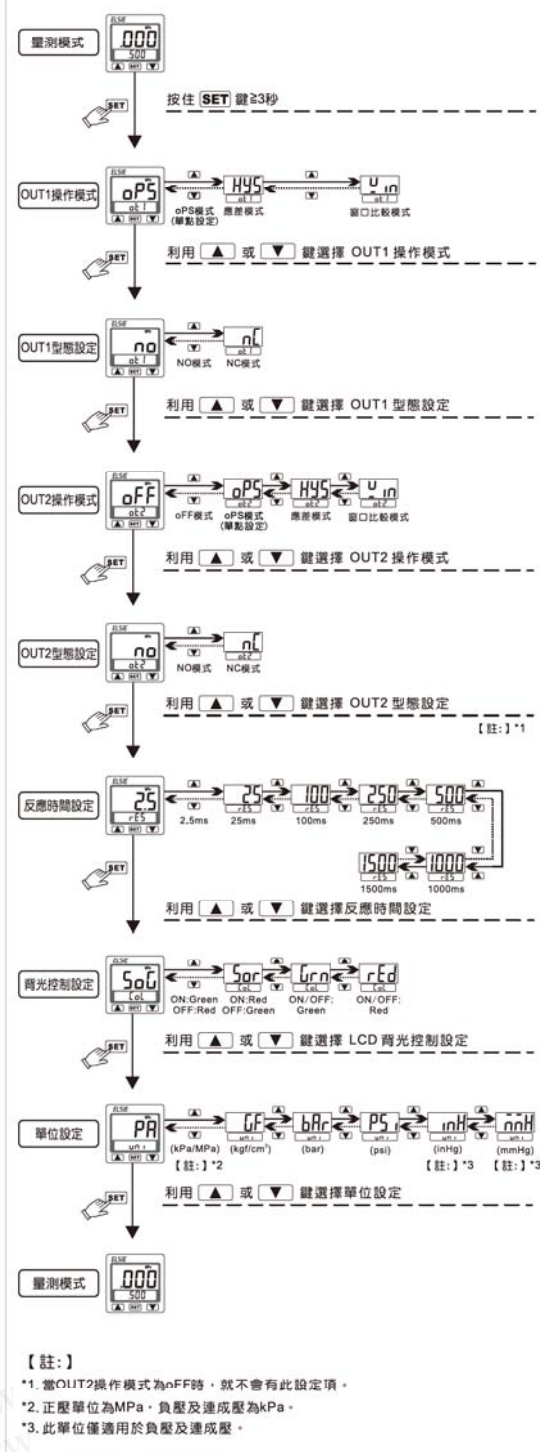


【註：】
*1. 當應變模式時，如壓力設定值在二個digits內，若輸入氣壓非常接近壓力設定值，壓力傳感器輸出可能會誤動作。
*2. 當設定於窗口比較模式時，設定2點之差一定要大於固定應變設定值，否則壓力傳感器輸出會無動作。

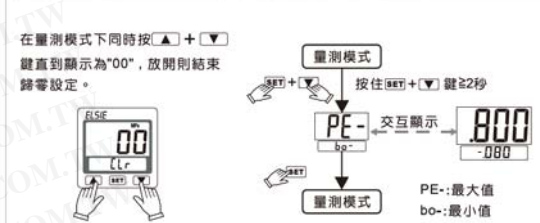
L. 線性類比輸出說明



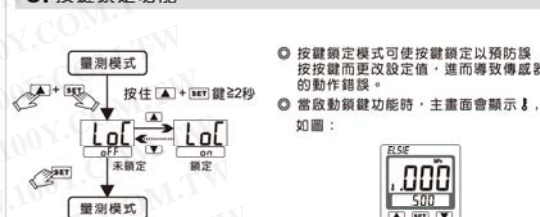
G. 基本設定模式



M. 歸零設定



N. 最大/最小值顯示



O. 按鍵鎖定功能



P. 顯示微調功能



Q. 錯誤訊息說明

錯誤名稱	錯誤說明	解決
過電流錯誤	輸出1負載電流超過125mA	請檢查負載電流過大的原因或將負載電流降至125mA以內再重新傳感
殘留壓力錯誤	輸出2負載電流超過125mA	改變周圍壓力之後，再重新作傳感
使用壓力錯誤	零值設定範圍超過 ±3% F.S.	供給壓力請調整在使用壓力範圍內
系統錯誤	使用的壓力超過壓力設定值的下限	供給壓力請調整在使用壓力範圍內
系統錯誤	內部系統錯誤	切斷電源並重新供電後再送回廠
系統錯誤	內部系統錯誤	正常狀態用兩週送回廠分析
系統錯誤	內部系統錯誤	

R. 壓力單位轉換表

Pa	kPa	MPa	kgf/cm ²	mmHg	psi	bar	inHg
1 Pa	0.001	0.000001	0.0000102	0.00750062	0.000145038	0.00001	0.000295281
1 kPa	1000.000	0.001000	0.101972	7.500616	0.145038	0.010000	0.295298
1 MPa	1000000	1000	101.972	7500.616	145.038	10	295.298
1 kgf/cm ²	98066.5	0.00980665	1	735.559	14.2233	0.0980665	2.95298
1 mmHg	133.322	0.00133322	0.0133322	1	0.019336	0.0133322	0.0393701
1 psi	6895	0.006895	0.0703071	51.7147	1	0.06895	2.03602
1 bar	100000.0	0.100000	1.01972	750.062	14.5038	1	29.5298
1 inHg	3386.39	0.00338639	0.0344530	25.4000	0.491141	0.0338639	1