KP47S Series | Economical Pressure Sensor

KITA

PR-0585D 2023/03 Online Version

For your safety, please read the following before using.

① Do not use corrosive or flammable gas or liquid with this product.
② Please use within the rating pressure range. Do not apply pressure beyond recommended maximum withstand pressure, permanent damage to the pressure sensor may occur.
③ Do not drop, hit or allow excessive shock. Even if switch body appears undamaged, internal components may be broken and can cause malfunction.
④ Turn power off before connecting wiring. Wrong wiring or short circuit will damage and / or cause malfunction.
⑤ Do not use in environment containing steam or oil vapor.
⑥ This product is not explosion-proof rated. Do not use in atmosphere containing flammable or explosive gases.
⑦ Wiring for pressure sensor should avoid power source line and high voltage line. If use in the same circuit, noise may cause malfunction.
⑧ 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		KP47S								
Pressure range type		01	02	03	04	05	06	07	08	09
Rated pressure range (kPa)		0.00 ~ -10.00	0.00 ~ -5.00	0.00 ~ -3.00	0.00 ~ 10.00	0.00 ~ 5.00	0.00 ~ 3.00	-10.00 ~ 10.00	-5.00 ~ 5.00	-3.00 ~ 3.00
Set pressure range (kPa)		0.00 ~ -10.10	0.00 ~ -5.10	0.00 ~ -3.10	0.00 ~ 10.10	0.00 ~ 5.10	0.00 ~ 3.10	-10.10 ~ 10.10	-5.10 ~ 5.10	-3.10 ~ 3.10
Withstand pressure		20 kPa								
Fluid		Filtered air, Non-corrosive / Non-flammable gas								
Set pressure resolution		0.01 kPa								
Power supply voltage		12 ~ 24 V DC ± 10 %, Ripple (P-P) ≤ 10 %								
Current consumption		≤ 30mA (with no load)								
Switch output		NPN : open collector outputs Max. Load Current : 80 mA Max. Supply Voltage : 30 V DC Residual Voltage : ≤ 1 V				PNP : open collector outputs Max. Load Current : 80 mA Max. Supply Voltage : 24 V DC Residual Voltage : ≤ 1 V				
Repeatability		≤ ±0.4 kPa								
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		≤ ±0.4 kPa								
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								
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 1.5 mm or 10 G, 10 Hz ~ 150 Hz ~ 10 Hz scan for 1 minute, 2 hours each direction of X, Y and Z								
	Shock	100 m/s² (10 G), 3 times each in direction of X, Y and Z								
Temperature characteristic		±0.4 kPa of detected pressure (25℃) at temp. (Range of 0 ~ 50℃)								
Port size		F1: R1/8", M5 ; F2 : NPT1/8", #10-32 UNF ; F3 : G1/8"(BSPP), M5 ; M5 : M5 female thread								
Lead wire		Ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm²) - 4 cores								
Weight (with 2 meter lead wire)		Approx. 67g								

※1. Hysteresis value is adjustable within 1 ~ 8 digits for one point set mode and window comparator mode.

B ORDERING INFORMATION

K P 4 7 S - 0 1 - F 1

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

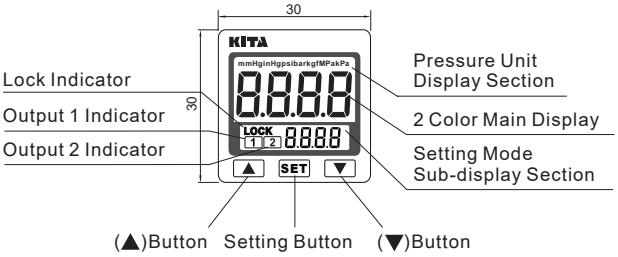
Pressure Port

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

Optional Parts

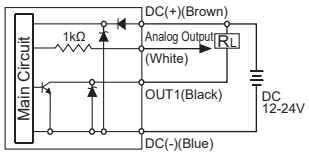
BT-22 : Mounting bracket
BT-23 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

C PANEL DESCRIPTION

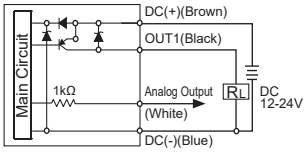


D OUTPUT CIRCUIT WIRING DIAGRAMS

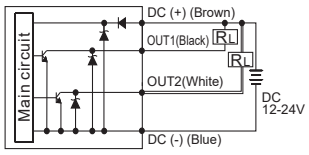
KP47S-01
1 NPN+Analog Output(1-5V)



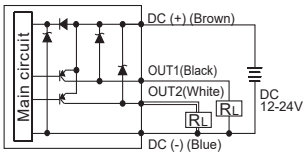
KP47S-03
1 PNP+Analog Output(1-5V)



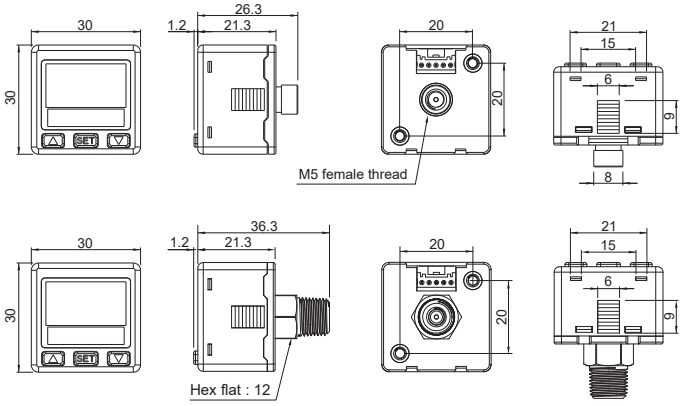
KP47S-02
2 NPN Output



KP47S-04
2 PNP Output



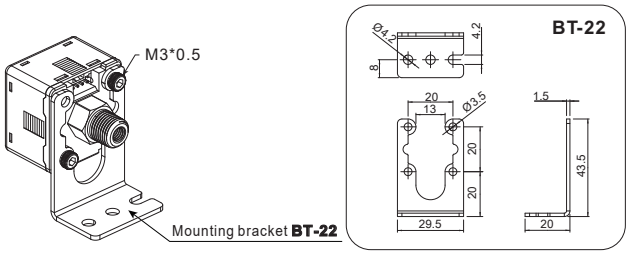
E DIMENSIONS

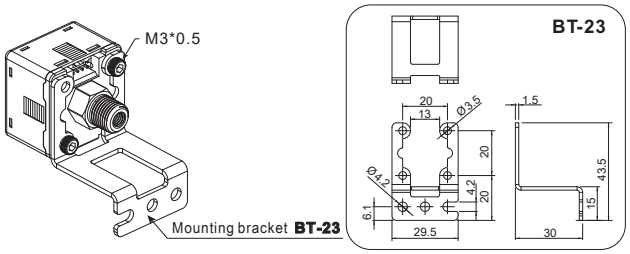


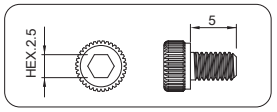
Unit:mm

F OPTIONAL PARTS DIMENSIONS

① Mounting bracket

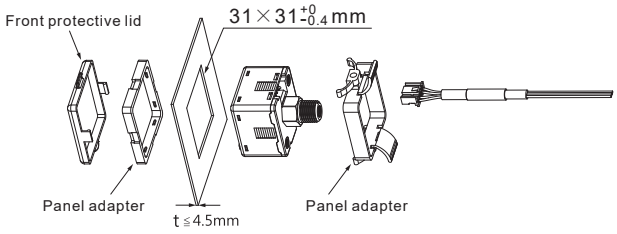




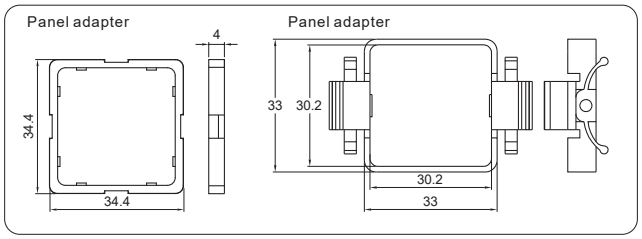


⚠ Caution :
*1. Screws suitable hexagonal wrench size is 2.5mm.
*2. Use non-standard screws, the length must be limited to 5mm.

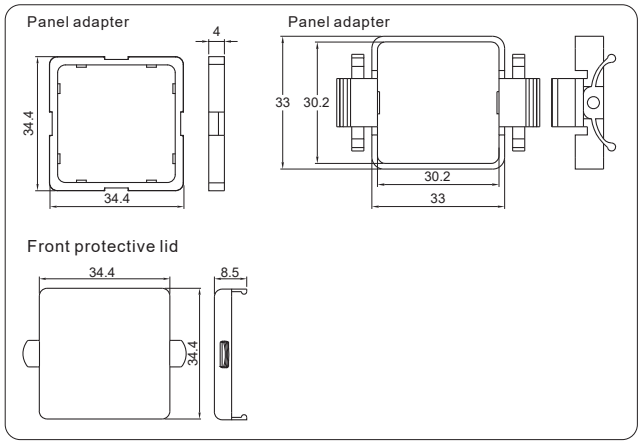
② Panel Mounting



PA-C

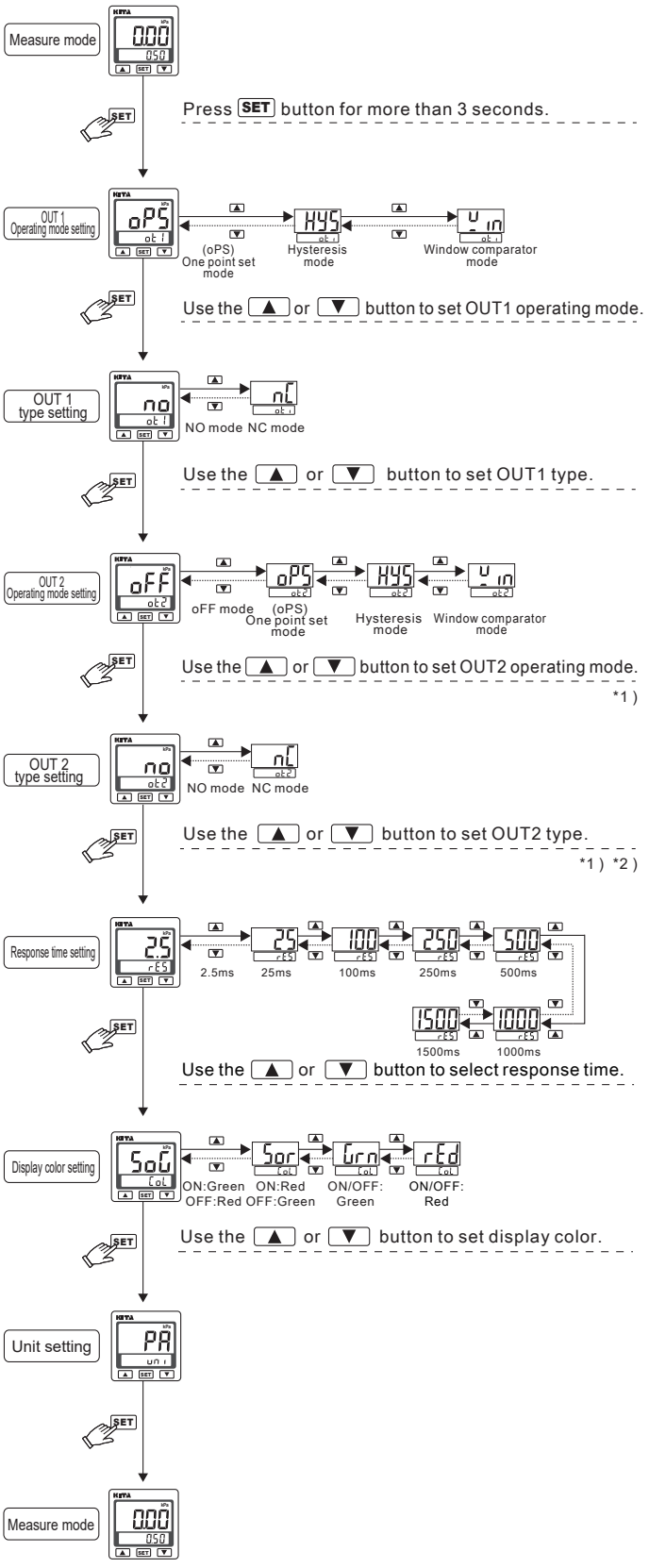


PA-D



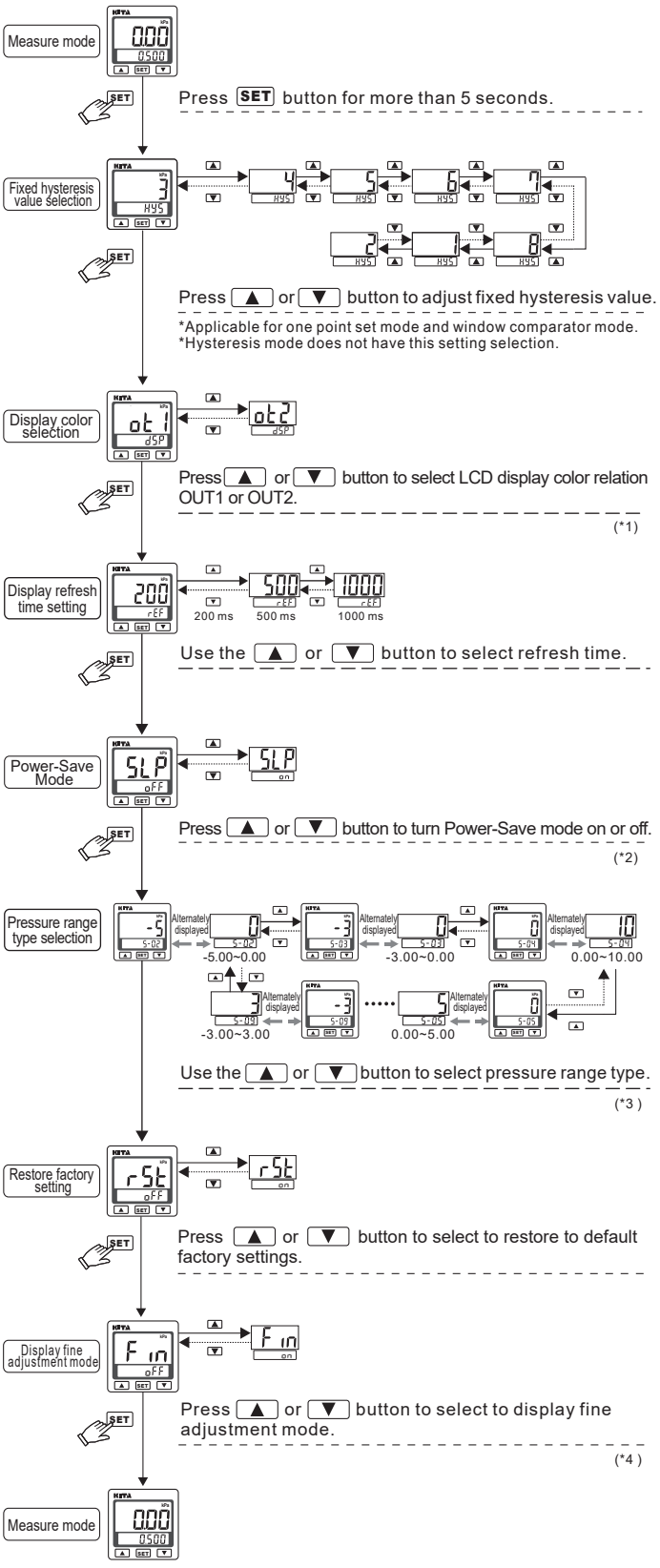
Unit:mm

G INITIAL SETTING 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.

H ADVANCE SETTING MODE

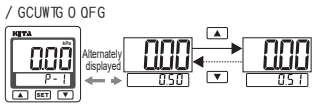


【NOTE :】
*1. This setting mode will not display OUT2 when output spec. is 1 OUT.
*2. When setting is " on ", the power-save mode is active.
Please refer to the item "M POWER-SAVE MODE" in detailed.
*3. After selecting pressure range type, please return to zero.
Please refer to the item "N ZERO POINT SETTING" in detailed.
*4. When setting is " on ", the display fine adjustment mode is active.
Please refer to the item "Q FINE ADJUSTMENT MODE" in detailed.

I PRESSURE SETTING MODE (2 OUT)

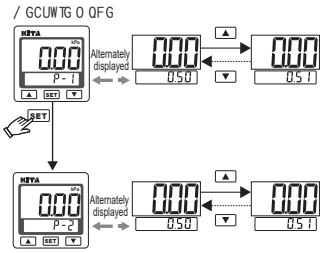
◎ Setting Condition 1 :

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



◎ Setting Condition 2 :

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

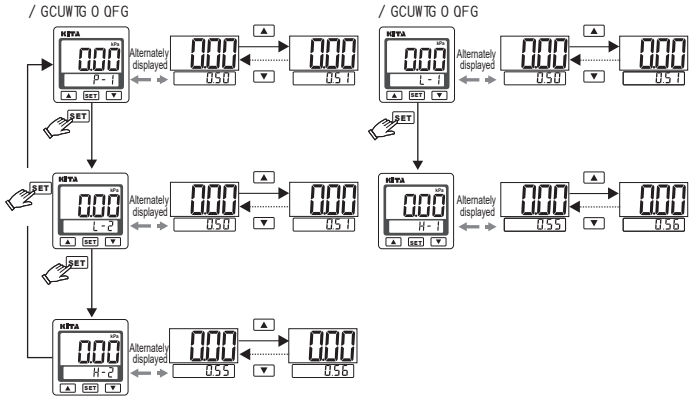


◎ Setting Condition 3 :

OUT 1 mode setting :
" oPS " (One point set mode)
OUT 2 mode setting :
" HYS " (Hysteresis mode)
" U in " (Window comparator mode)

◎ Setting Condition 4 :

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

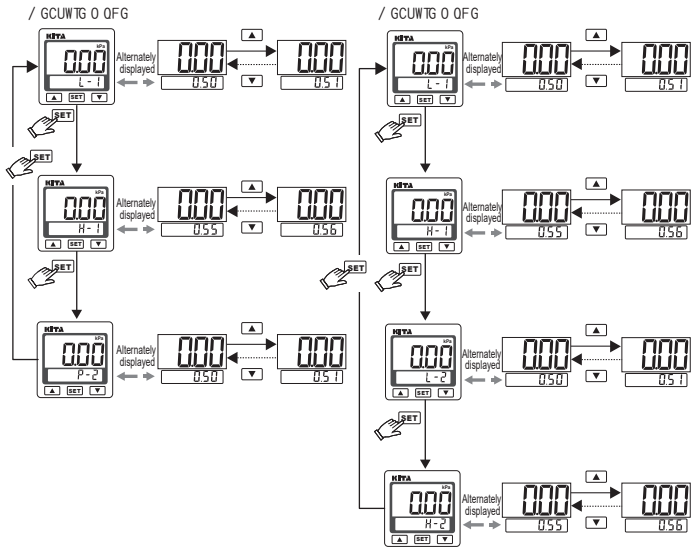


◎ Setting Condition 5 :

OUT 1 mode setting :
" HYS " (Hysteresis mode)
" U in " (Window comparator mode)
OUT 2 mode setting :
" oPS " (One point set mode)

◎ Setting Condition 6 :

OUT 1 mode setting :
" HYS " (Hysteresis mode)
" U in " (Window comparator mode)
OUT 2 mode setting :
" HYS " (Hysteresis mode)
" U in " (Window comparator mode)

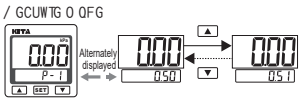


【NOTE :】
Do not disconnect power when the sub-display and setting value is flashing alternately; otherwise the system cannot store the values.

J PRESSURE SETTING MODE (1 OUT)

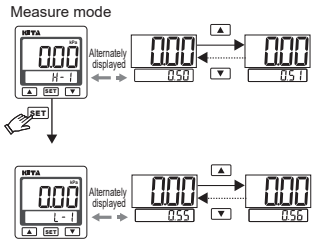
◎ Setting Condition 1 :

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



◎ Setting Condition 2 :

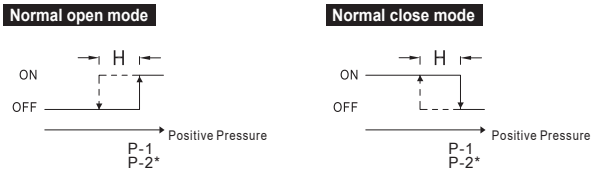
OUT 1 mode setting :
" HYS " (Hysteresis mode)
" U in " (Window comparator mode)



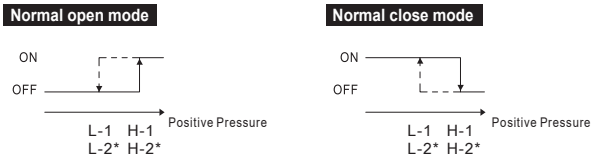
【NOTE :】
Do not disconnect power when the sub-display and setting value is flashing alternately; otherwise the system cannot store the values.

K OUTPUT TYPE

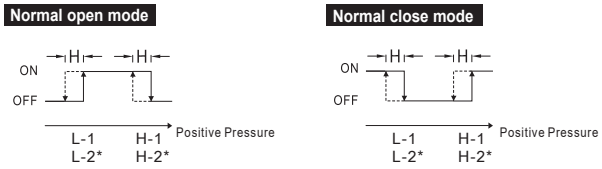
(1) One point set mode:



(2) Hysteresis mode:



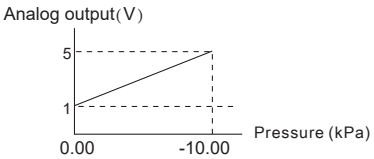
(3) Window comparator mode:



【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.

L ANALOG OUTPUT DESCRIPTION

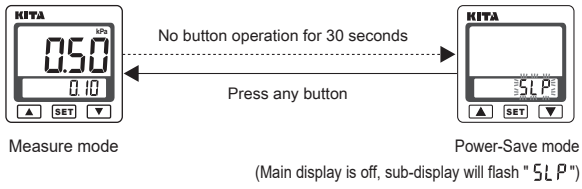
Analog output range 1-5V, proportional to the pressure range.



01 :	0.00	-10.00
02 :	0.00	-5.00
03 :	0.00	-3.00
04 :	0.00	10.00
05 :	0.00	5.00
06 :	0.00	3.00
07 :	-10.00	10.00
08 :	-5.00	5.00
09 :	-3.00	3.00

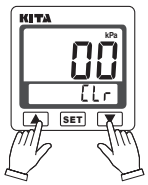
M POWER-SAVE MODE

◎ 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.

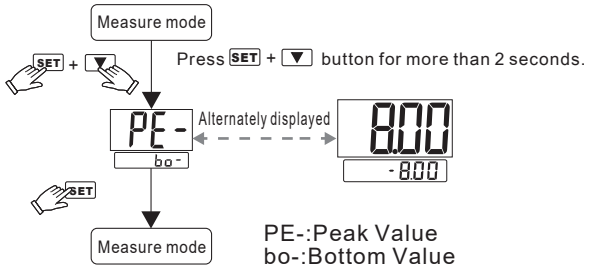


N ZERO POINT SETTING

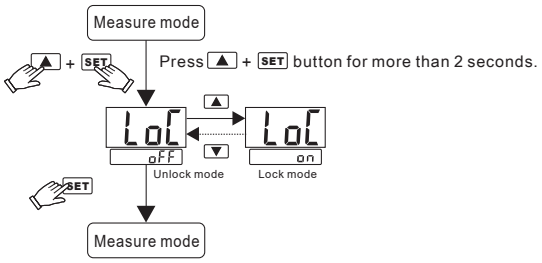
Press the ▲ + ▼ button at the same time until the "00" is shown.
Release the button to end zero setting.



O PEAK/BOTTOM HOLD FUNCTION

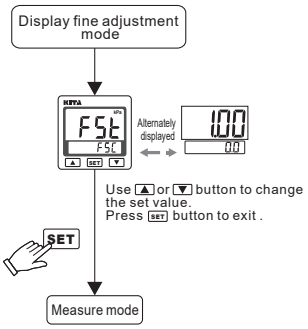


P KEY LOCK/UNLOCK MODE

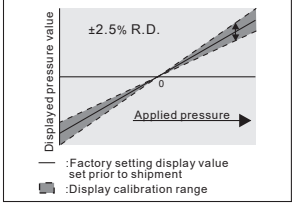


◎ Use key lock mode to prevent unauthorized or accidental tampering with the switch setting.
◎ When lock mode is selected, panel will display " **LOCK** ".

Q FINE ADJUSTMENT MODE



This function eliminates slight differences in the output values and allows uniformity in the numbers displayed.
Displayed values of the pressure sensor can be calibrated to within ±2.5% R.D.



R.D. (Real Detect)
【NOTE :】1. Setting resolution is ±0.1% R.D.
2.The signal would be changed with analog output after adjusting.

R China RoHS

Part Name	Hazardous Substances					
	Pb	Hg	Cd	Cr Vi	PBB	PBDE
Metal Part	X	O	O	O	O	O
Plastic Part	O	O	O	O	O	O
Electronic	X	O	O	O	O	O
Cable & Cabling accessories	O	O	O	O	O	O

This table is made according to SJ/T 11364.
O: Indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in GB/T 26572.
X: Indicates that concentration of hazardous substance in at least one of the homogeneous materials used for this part is above the limit as stipulated in GB/T 26572.