

KP800 Series

Differential Pressure Sensor

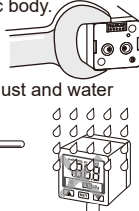
PR-0469F 2023/03 Online Version

KITA®

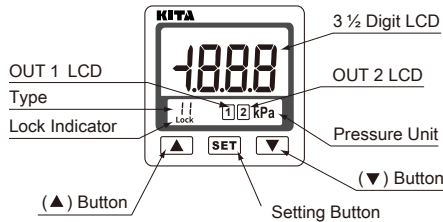


For your safety, please read the following before using.

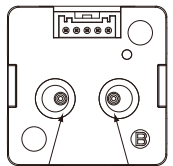
- Do not use corrosive or flammable gas or liquid with this product.
- Please use within the specifications.
- Please ensure the pressure difference between port A and port B is within the withstand pressure.
- When mounting, please never apply a wrench to the plastic body.
- Do not insert metal or sharp objects into the pressure port.
With IP40 compliance, please protect the sensor against dust and water splash.
- Please use a separate route for the sensor product wiring and keep separate from any other power or high voltage wiring to avoid noise interruption.
- If cable is longer than 100 meters and 0.3mm² cable, please use shielded wire as the output wire.
- 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 PANEL DESCRIPTION



B INLET DESCRIPTION



※ KP801, KP802, KP805
Please use Port B for high-pressure side and Port A for low-pressure side.

C SPECIFICATIONS

MODEL		KP801	KP811	KP802	KP812	KP805	KP815
Rated pressure range		0~1000 Pa	-1000~1000 Pa	0.00~2.00 kPa	-2.00~2.00 kPa	0.0~5.00 kPa	-5.00~5.00 kPa
Set pressure range		-100~1000 Pa	-1000~1000 Pa	-0.20~2.00 kPa	-2.00~2.00 kPa	-0.50~5.00 kPa	-5.00~5.00 kPa
Withstand pressure		3 kPa		6 kPa		15 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas					
Set pressure resolution	Pa	1		—			
	kPa	—		0.01			
Power supply voltage		12 ~ 24V DC ±10%,Ripple (P-P) ≤ 10%					
Current consumption		≤ 40mA (With no load)					
Switch output		2 NPN: open collector 2 outputs Max. load current :125mA Max. supply voltage: 30V DC Residual voltage : ≤ 1.5V			2 PNP: open collector 2 outputs Max. load current :125mA Max. supply voltage: 24V DC Residual voltage : ≤ 1.5V		
Repeatability		±0.5% F.S. ±1 digit					
Hysteresis	Hysteresis mode	Adjustable					
	Window comparator mode						
Response time		≤ 2.0ms (chattering-proof function: 32ms, 128ms, 1024ms selectable)					
Output short circuit protection		Yes					
Display		3 ½ digital, 7 segment LCD display (White) (Sampling rate: 0.1~3 sec select)					
Indicator accuracy		±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)					
Switch on indicator		White Indicator 1 : OUT1 & White 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 1kΩ					
Analog output (Current Output)		Output Current : 4 ~ 20mA ±2.5% F.S. (within rated pressure range) Linearity : ±1% F.S. Max.Load Impedance : 250Ω at power supply of 12V 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	≥ 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		±3% F.S. of detected pressure (25°C) at temp. (Range of 0 ~ 50°C)					
Port size		M5 : M5 female thread					
Lead wire		Ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm ²) - 5 cores					
Weight		Approx. 75g (with 2 meter lead wire)					

D ORDERING INFORMATION

K P 8 0 1 - 0 1 0 - M 5

Pressure Range

01 : -100~1000 Pa
02 : -0.20~2.00 kPa
05 : -0.50~5.00 kPa
11 : -1000~1000 Pa
12 : -2.00~2.00 kPa
15 : -5.00~5.00 kPa

Output Specifications

010 : 2 NPN output + Analog(Voltage) output (1~5V)
011 : 2 NPN output + Analog(Current) output (4~20mA)
030 : 2 PNP output + Analog(Voltage) output (1~5V)
031 : 2 PNP output + Analog(Current) output (4~20mA)

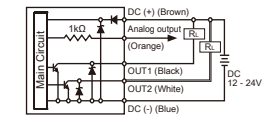
Optional Parts

BT-20 : Mounting bracket
BT-21 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

E OUTPUT CIRCUIT WIRING DIAGRAMS

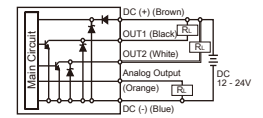
KP8□ - 010 - M5

2 NPN + Analog Output (1~5V)



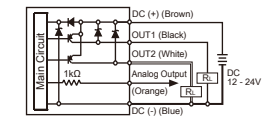
KP8□ - 011 - M5

2 NPN + Analog Output (4~20mA)



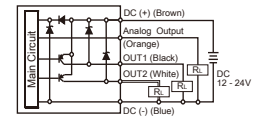
KP8□ - 030 - M5

2 PNP + Analog Output (1~5V)

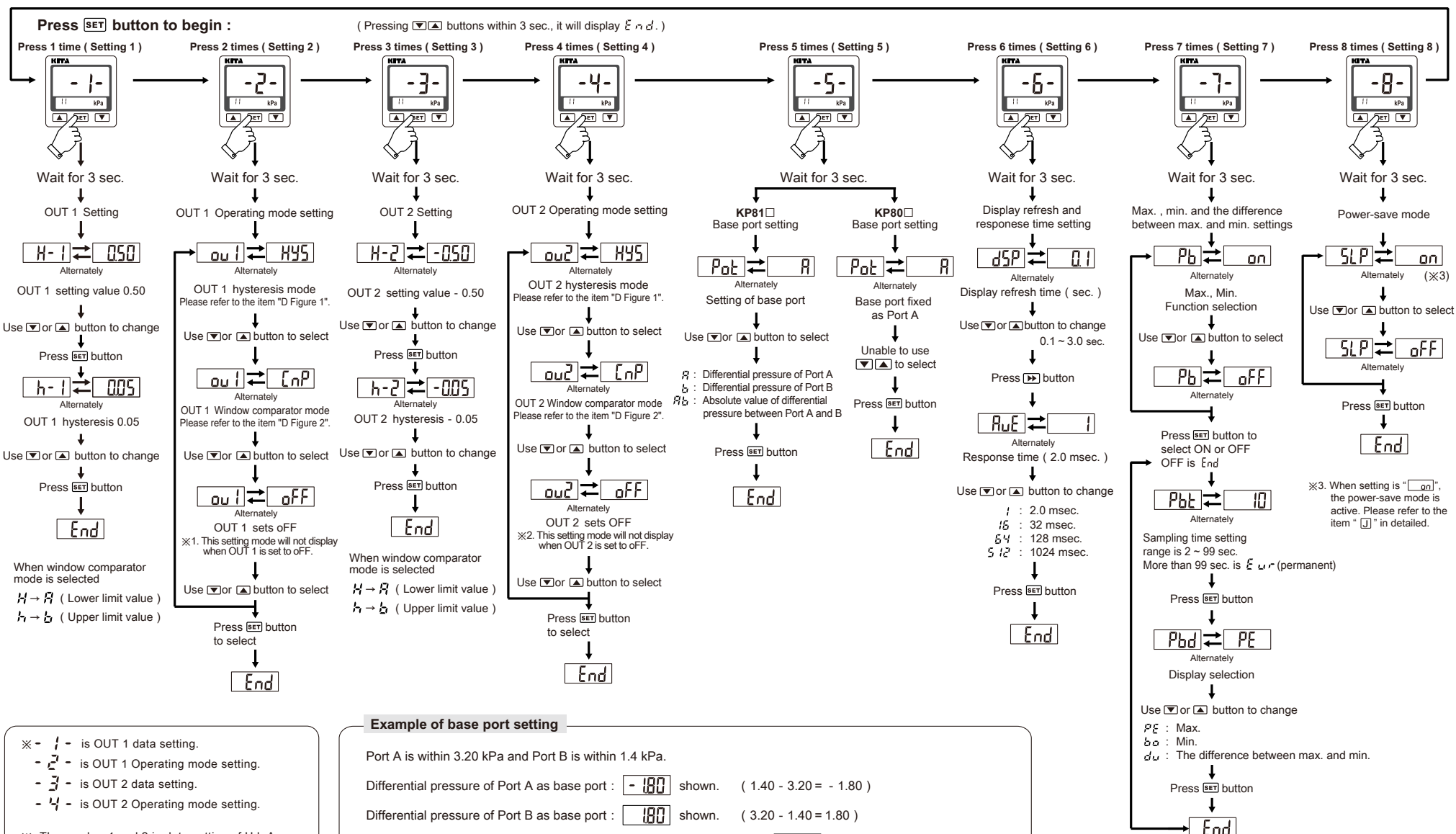


KP8□ - 031 - M5

2 PNP + Analog Output (4~20mA)



F ADJUSTMENT METHOD



- ※ -1- is OUT 1 data setting.
- 2- is OUT 1 Operating mode setting.
- 3- is OUT 2 data setting.
- 4- is OUT 2 Operating mode setting.
- ※ The number 1 and 2 in data setting of H,h,A,a indicate OUT1 and OUT2 respectively.

Example of base port setting

Port A is within 3.20 kPa and Port B is within 1.4 kPa.

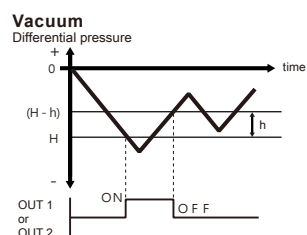
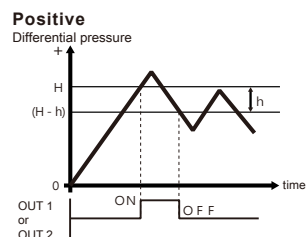
Differential pressure of Port A as base port: **-1.80** shown. (1.40 - 3.20 = -1.80)

Differential pressure of Port B as base port: **1.80** shown. (3.20 - 1.40 = 1.80)

Absolute value of differential pressure between Port A and B as base port: **1.80** shown. (|1.40 - 3.20| = 1.80)

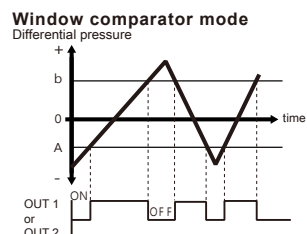
G OPERATION CHART

1. Hysteresis mode



Set the sensor ON point "H" and hysteresis "h".
(Notice: Please set "h" value equal or higher than 2 to avoid "Error")
H: Sensor ON
H-h: Sensor OFF

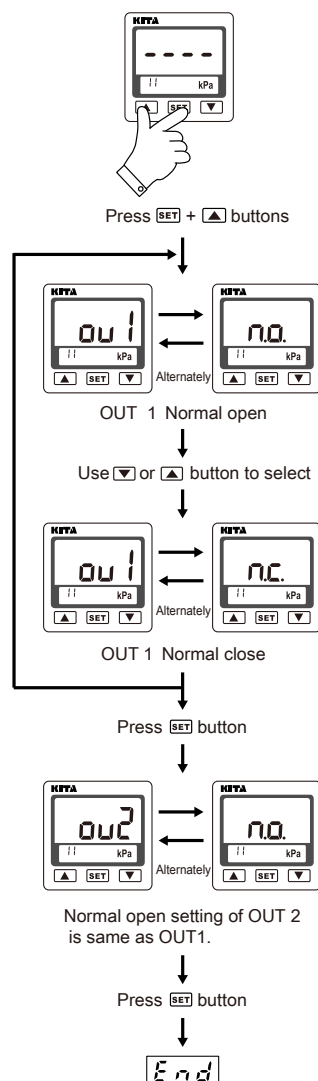
2. Window comparator mode



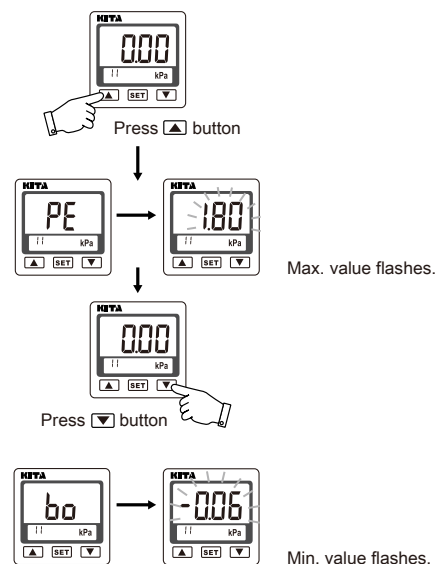
A is lower limit value of window comparator mode.
b is upper limit value of window comparator mode.
(It can not be set $A > b$.)

H CHANGE OUTPUT TYPE

Normal open or Normal close mode setting:

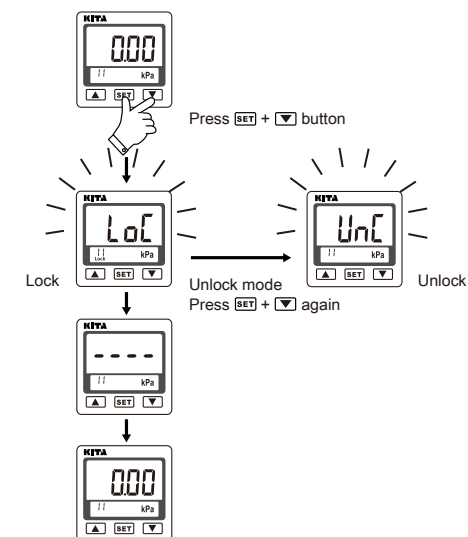


I THE MAX. & MIN. DISPLAY MODE



* This data shows the max. (min.) pressure detected when power supplied.

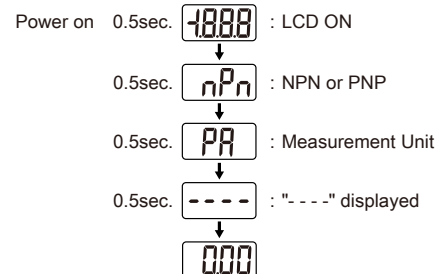
J KEY LOCK / UNLOCK MODE



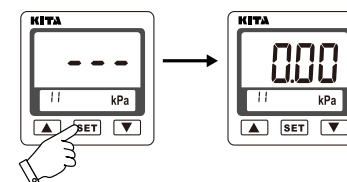
[NOTE:]
Use key lock mode to prevent unauthorized or accidental tampering with the switch setting.

K INITIAL DISPLAY

First 2 seconds after Power-ON, LCD will display OUTPUT setting.



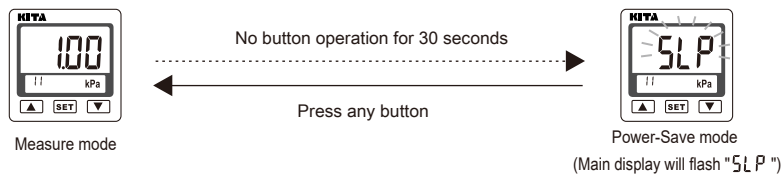
L ZERO POINT SETTING



Do not perform zero reset with pressure apply to ports A and B.
The range that can be reset to zero is within $\pm 3\%$ F.S.

M POWER-SAVE MODE

- During Power-Save mode, the main display will turn off if no buttons is pressed after 30 seconds.
- During Power-Save mode, the output LCD may not synchronize with the output. It is normal and will not affect output operation.
- Press any button to turn-on main display temporarily.

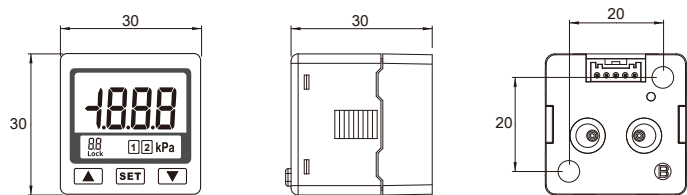


N ERROR CODE INSTRUCTION

Error code	Error Type	Error Condition	Troubleshooting
EE1	OUT 1 excess load current error	Load current is more than 125mA	Turn power off and check the cause of overload current or lower the current load under 125mA, then restart.
EE2	OUT 2 excess load current error	Load current is more than 125mA	
Ers	Zero point setting error	During zero point setting, ambient pressure is over ±3% F.S.	Change input pressure to ambient pressure and perform zero reset again.
Er1	System error	Internal error	Turn power off, and then restart. If error condition remains, please return to factory for inspection.
FFF	Applied pressure error	Supply pressure is exceed the upper limit of pressure setting.	Upper limit of differential pressure.
-FF	Applied pressure error	Supply pressure is exceed the lower limit of pressure setting.	Adjust the pressure within setting pressure range.

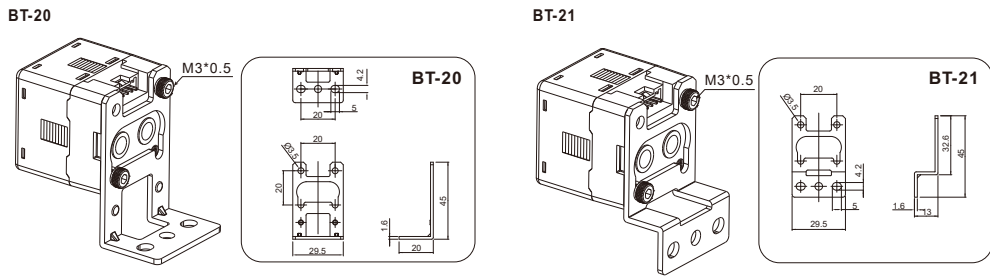
O DIMENSIONS / OPTIONAL PARTS DIMENSIONS

① Pressure sensor



O DIMENSIONS / OPTIONAL PARTS DIMENSIONS

② Mounting bracket



③ Panel Mounting

