

Display Digital Pressure Sensor



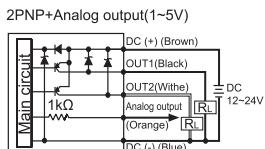
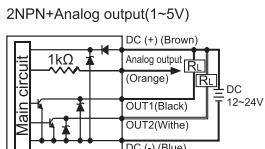
For your safety, please read the following before using.

- 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.

A. SPECIFICATIONS

TYPE	ZK15
Rated pressure range	0.0~101.3kPa
Set pressure range	10.0~101.3kPa
Withstand pressure	500kPa
Fluid	Filtered Air, Non-corrosive / Non-flammable gas
kPa	0.1
MPa	—
kgf/cm ²	0.001
bar	0.001
psi	0.01
inHg	0.1
mmHg	1
Power supply voltage	12 to 24V DC ±10%, Ripple (P-P) 10% or less
Current consumption	≤ 40 mA (With no load)
Output type	2 NPN or 2 PNP open collector
Max. load current	125 mA
Max. supply voltage	30V DC (at NPN output), 24V DC (at PNP output)
Switch output	≤ 1.5V
Response time	≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections)
Output short circuit protection	Yes
Analog output	Voltage output: 1~5V ±2.5% F.S. Voltage Impedance: About 1kΩ Linearity: ±1% F.S.
Display	LED display: 4digit, 7segment(red) Switch ON Indicator: OUT1 red / OUT2 green Updates time: About 0.2s Indicator accuracy: ±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)
Repeatability(Switch output)	±0.2% F.S. ±1 digit
Environment	Enclosure: IP40 Operation ambient temp. range: 0 ~ 50°C Storage ambient temp. range: -10 ~ 60°C (No condensation or freezing) Ambient humidity range: 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, two hours each direction of X, Y and Z Shock: 980m/s ² (100G), 3 times each in direction of X, Y and Z Temperature characteristic: ±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C Lead wire: Oil-resistance cable (0.14mm ²) Weight: Approx. 53g (with 2 meter lead wire)

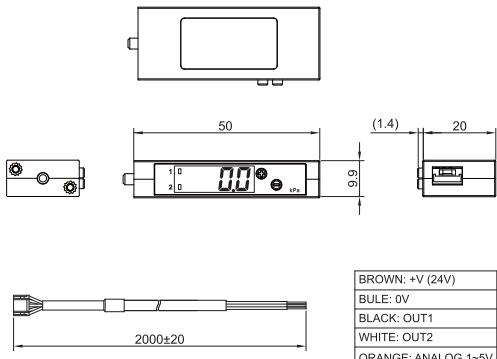
B. OUTPUT CIRCUIT WIRING DIAGRAMS



C. ORDERING INFORMATION

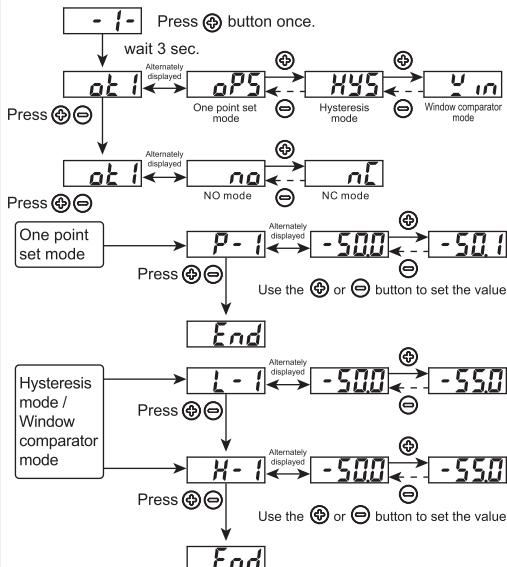
Model	
ZK15-VGVE-PNP-C6-24LZD	
ZK15-VGVE-PNP-C8-24LZD	
ZK15-VGVE-NPN-C6-24LZD	
ZK15-VGVE-NPN-C8-24LZD	

D. DIMENSIONS

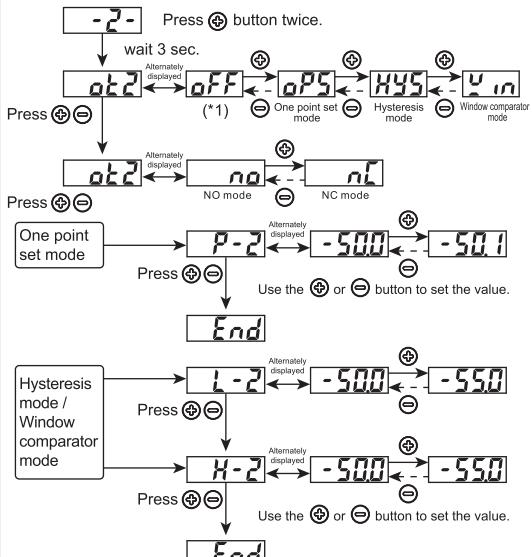


E. INITIAL SETTING MODE

1 OUT1 type setting



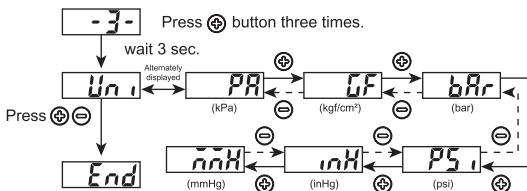
2 OUT2 type setting



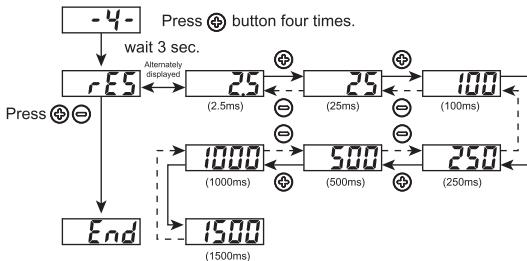
【NOTE :】

*1 When OUT2 Setting "off" directed end.

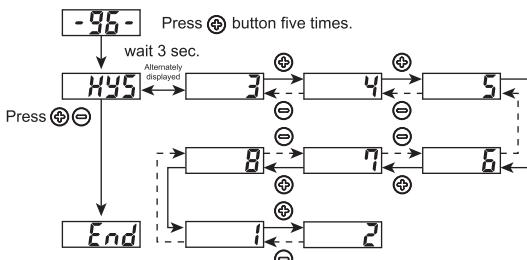
3 Unit setting



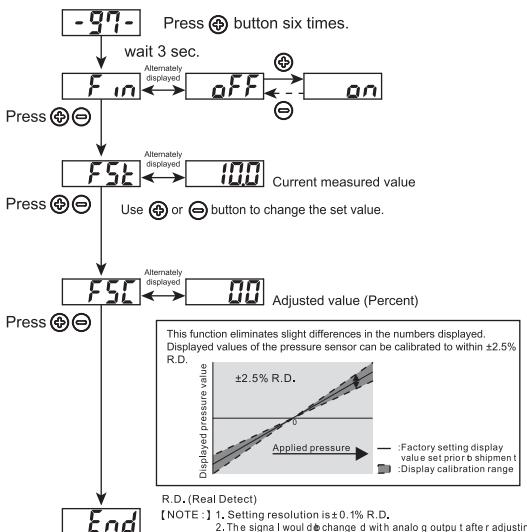
4 Response time setting



5 Fixed hysteresis value selection

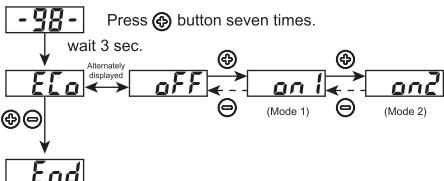


6 Display fine adjustment mode

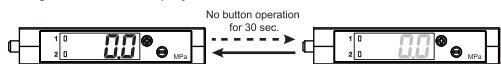


7 Power-Save mode

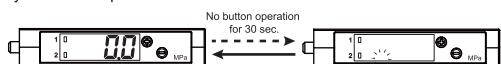
- During Power-Save mode, the main display will turn off if no buttons are pressed after 30 seconds.
- During Power-Save mode, the output LCD may not be synchronized with the output. It is normal and will not affect output operation.
- Press any button to turn-on main display temporarily.



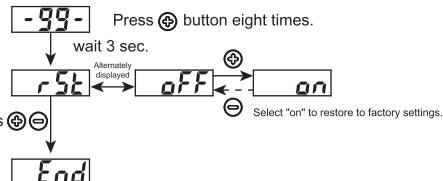
Mode 1
The brightness of the display is reduced.



Mode 2
Only the decimal point flashes.

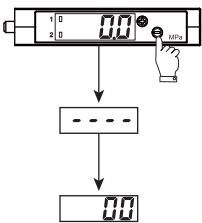


8 Restore factory setting



F. ZERO POINT SETTING

Press **⊖** button for more than 3 sec. until "00" is shown.

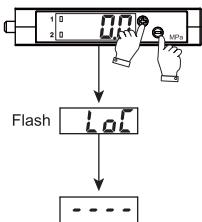


※Zero resetting is possible only with an atmospheric pressure equivalent to 3% or less of F.S.

G. KEY LOCK MODE

Key lock mode can prevent operation mistakes.

Press **⊕** button and **⊖** button at the same time for 3 sec.

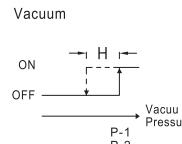


※Unlock setting : Press **⊕** button and **⊖** button at the same time until the **Unl** is displayed.

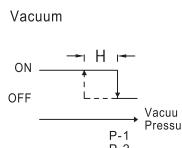
H. OUTPUT TYPE

(1) One point set mode:

Normal open mode

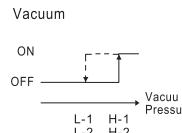


Normal close mode

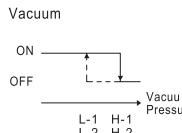


(2) Hysteresis mode:

Normal open mode

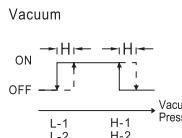


Normal close mode

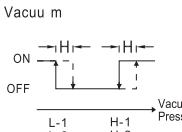


(3) Window comparator mode:

Normal open mode



Normal close mode

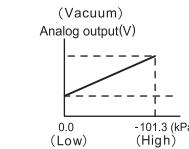


[NOTE :]

- 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.
- 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.

I. ANALOG OUTPUT DESCRIPTION

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



J. PRESSURE UNIT CONVERSION TABLE

From	To	Pa	kPa	MPa	kgf/cm ²	psi	bar	inHg
1 Pa	1	0.001	0.000001	0.00000010197	0.000145038	0.00001	0.0002953	
1 kPa	1000.000	1	0.001000	0.010197	0.145038	0.010000	0.2953	
1 MPa	1000000	1000	1	10.197	145.038	10	295.2998	
1 kgf/cm ²	98066.5	98.0665	0.980665	1	14.2233	0.980665	28.95979	
1 psi	6895	6.895	0.006895	0.07031	1	0.06895	2.036074	
1 bar	100000.0	100.0000	0.100000	1.01972	14.5038	1	29.52998	
1 inHg	3386.388	3.386388	0.003386	0.034530	0.491141	0.033863	1	

K. ERROR CODE INSTRUCTION

Error Type	Error code	Error Condition	Troubleshooting
Excess load current error	Er1	Output 1 load current is more than 125 mA	Turn power off and check the cause of overcurrent load or lower the current load under 125 mA, then restart.
Excess load current error	Er2	Output 2 load current is more than 125 mA	Turn power off and check the cause of overcurrent load or lower the current load under 125 mA, then restart.
Residual pressure error	Err	During zero reset, ambient pressure is over ±3% F.S.	Change input pressure to ambient pressure and perform zero reset again.
Applied pressure error	FFF	Supply pressure exceeds the upper limit of pressure setting.	Adjust the pressure within operating pressure range.
Applied pressure error	-FF	Supply pressure exceeds the lower limit of pressure setting.	Adjust the pressure within operating pressure range.
System error	Er4	Internal system error Internal data error	Turn power off, and then restart. If error condition remains, please return to factory for inspection.