

SCHMALZ VS-W-D K 3C-D Series

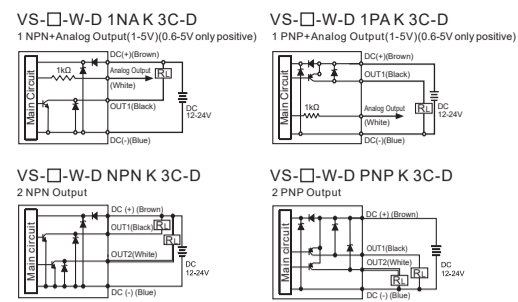
For your safety, please read the following before using.

- 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	VS-P10-W-D □ K 3C-D (Positive)	VS-V-W-D □ K 3C-D (Vacuum)
Rated pressure range	-1.00~10.00 bar	0.000~1.013 bar
Set pressure range	-1.03~10.30 bar	-1.03~1.030 bar
Withstand pressure	15 bar	5 bar
Value of Presetting	H1: 5.50 bar L1: 5.00 bar H2: 5.00 bar L2: 4.50 bar Normal open mode	H1: -0.750 bar L1: -0.600 bar H2: -0.550 bar L2: -0.500 bar Normal open mode
Fluid	Air, Non-corrosive / Non-flammable gas	
Set Pressure Resolution	kPa	0.1
	MPa	0.001
	kgf/cm ²	0.01
	bar	0.01
	psi	0.01
Switch Output	Max. supply voltage	30V DC (at NPN output), 24V DC (at PNP output)
	Residual voltage	≤ 1.0V
Analog Output	0.6 ~ 5V ±2.5% F.S. (within rated pressure range)	1 ~ 5V ±2.5% F.S. (within rated pressure range)
	Output Impedance: about 1kΩ	Output Impedance: about 1kΩ
Response time	≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections)	≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections)
	Display	4 digital, 7 segment LCD display (Red / Green / Orange) (Sampling rate: 0.2, 0.5, 1 sec. / time)
Display	Indicator accuracy	±1% F.S. ±1 digit (ambient temperature: 25 ±3°C)
	Repeatability (Switch output)	±0.3% F.S. ±1 digit
Enclosure	Operating temp.	0 ~ 50 °C
	Temp. characteristic	±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C
Environment	Ambient temp. range	Storage: -10 ~ 60 °C (No condensation or freezing)
	Ambient humidity range	Operation / Storage: 35~85% RH (No condensation)
Withstand voltage	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)
	Vibration	Total amplitude 1.5mm, 10Hz ~ 150Hz ~ 10Hz scan for 1 minute, two hours each direction of X, Y and Z
Shock	Port size	G1/8" (BSPP)
	Lead wire	Ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm ²) - 4 cores
Weight	Approx. 67g (with 2 meter lead wire)	

B. OUTPUT CIRCUIT WIRING DIAGRAMS



C. ORDERING INFORMATION

VS-V-W-D 1PA K 3C-D

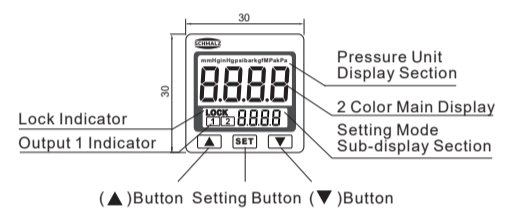
Pressure Range
V : Vacuum (0.100~1.030 bar)
P10 : Positive (-1.03~10.30 bar)

Output Specifications
1NA : 1 NPN output + Analog output (1 - 5V)
1PA : 1 PNP output + Analog output (1 - 5V)
NPN : 2 NPN output
PNP : 2 PNP output

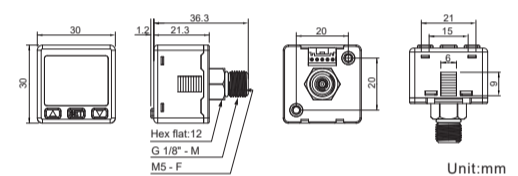
Part No.	Code	Pressure Range	Output Specification
10.06.02.00678	VS-V-W-D PNP K 3C-D	Vacuum(0.100~1.030 bar)	2 PNP
10.06.02.00679	VS-V-W-D NPN K 3C-D	Vacuum(0.100~1.030 bar)	2 NPN
10.06.02.00719	VS-V-W-D 1PA K 3C-D	Vacuum(0.100~1.030 bar)	1 PNP
10.06.02.00720	VS-V-W-D 1NA K 3C-D	Vacuum(0.100~1.030 bar)	1 NPN
10.06.02.00680	VS-P10-W-D PNP K 3C-D	Positive(-1.03~10.30 bar)	2 PNP
10.06.02.00681	VS-P10-W-D NPN K 3C-D	Positive(-1.03~10.30 bar)	2 NPN
10.06.02.00721	VS-P10-W-D 1PA K 3C-D	Positive(-1.03~10.30 bar)	1 PNP
10.06.02.00722	VS-P10-W-D 1NA K 3C-D	Positive(-1.03~10.30 bar)	1 NPN

Optional Parts
10.06.02.00685 BT-22 : Mounting bracket
10.06.02.00686 BT-23 : Mounting bracket
10.06.02.00427 PA-D : Panel adapter + Front protective lid

D. PANEL DESCRIPTION

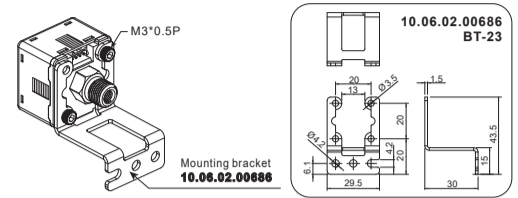
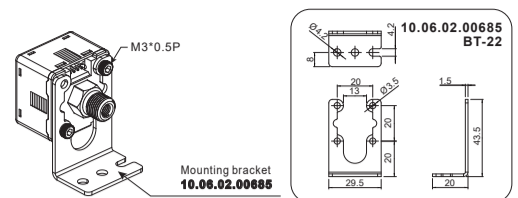


E. DIMENSIONS



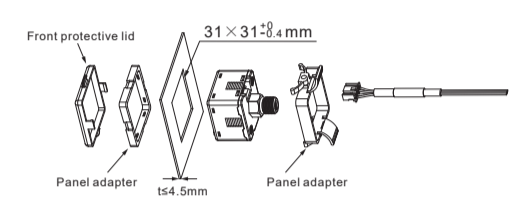
F. OPTIONAL PARTS DIMENSIONS

① Mounting bracket

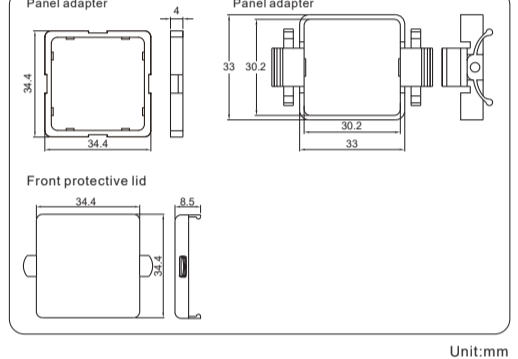


Caution :
*1. Screws suitable hexagonal wrench size is 2.5mm.
*2. Use non-standard screws, the length must be limited to 5mm.

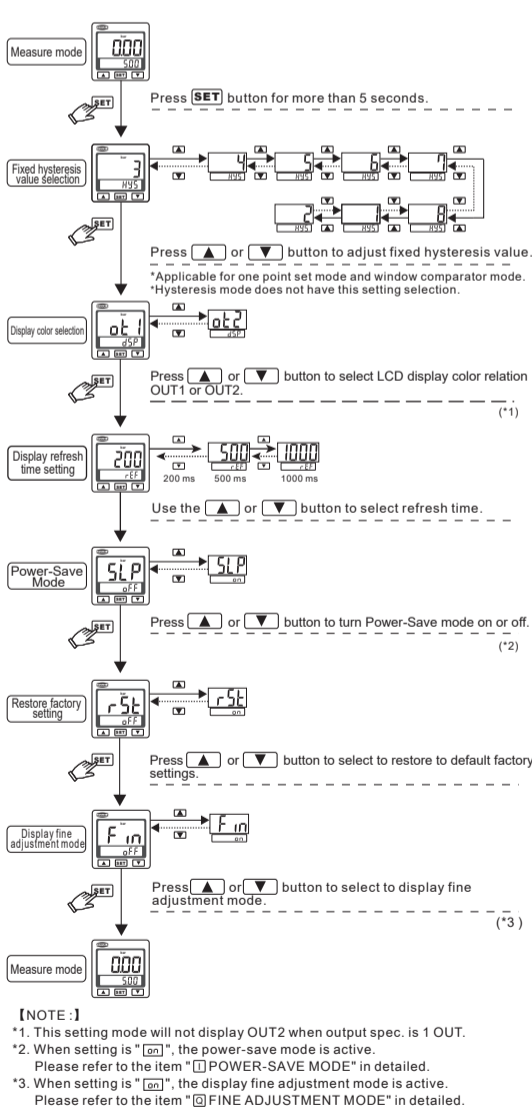
② Panel Mounting



10.06.02.00427 PA-D

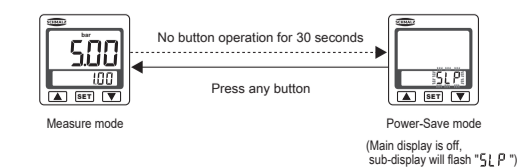


H. ADVANCE SETTING MODE

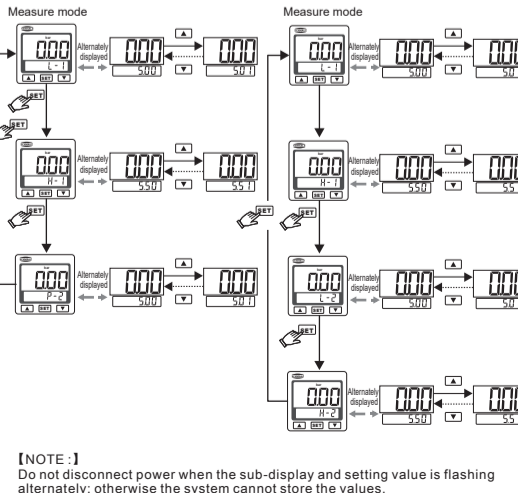
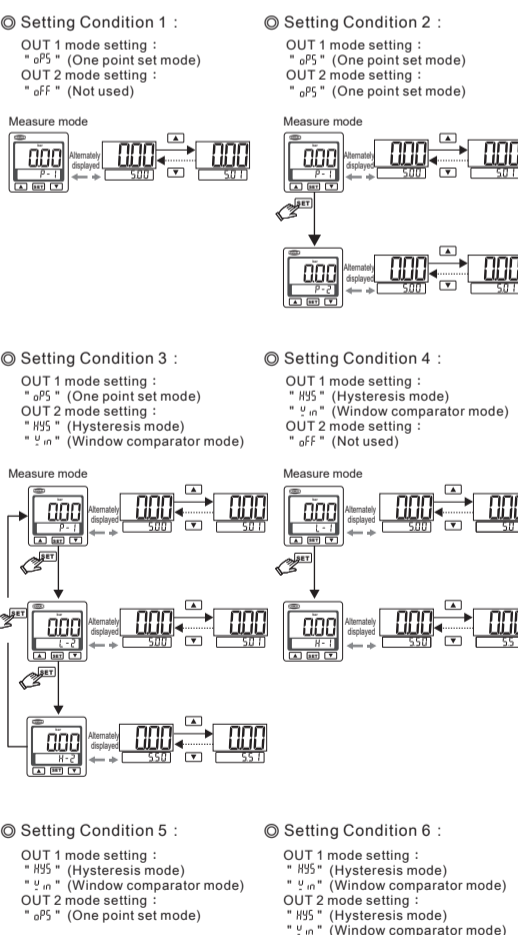


I. POWER-SAVE MODE

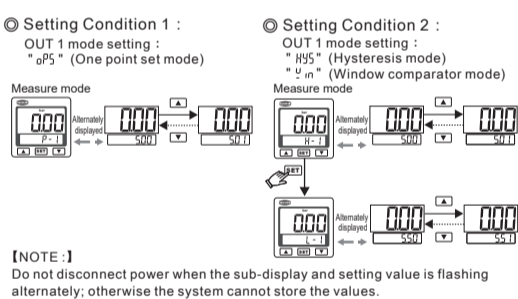
During Power-Save mode, the main display will be turned off if no buttons are pressed after 30 seconds. During Power-Save mode, the output LCD may not be synchronized with the output. It is normal and will not affect output operation. Press any button to turn-on main display temporarily.



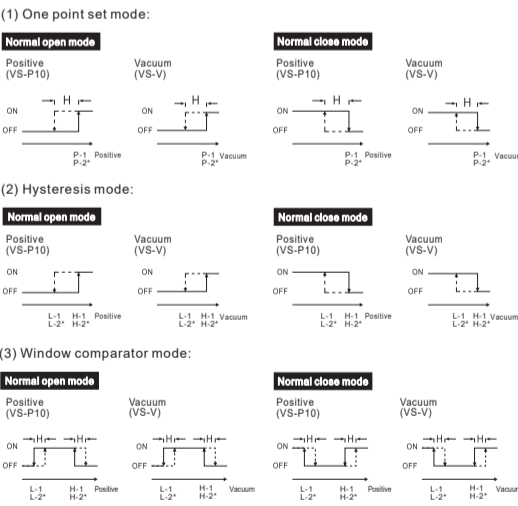
J. PRESSURE SETTING MODE (2 OUT)



K. PRESSURE SETTING MODE (1 OUT)

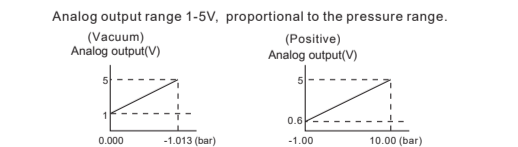


L. OUTPUT TYPE

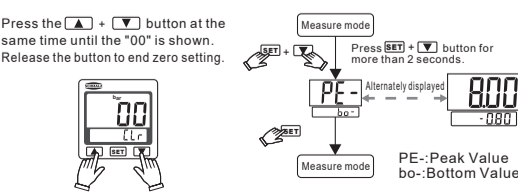


[NOTE:]
*1. Pressure setting value of P-2, L-2 or H-2 won't be shown when output spec. is 1 OUT.
*2. In case hysteresis is set at less than or equal to 2 digits, switch output may chatter if input pressure fluctuates near the set point.
*3. When using window comparator mode, the difference between two set points must be greater than the fixed hysteresis, otherwise will cause the switch output to malfunction.

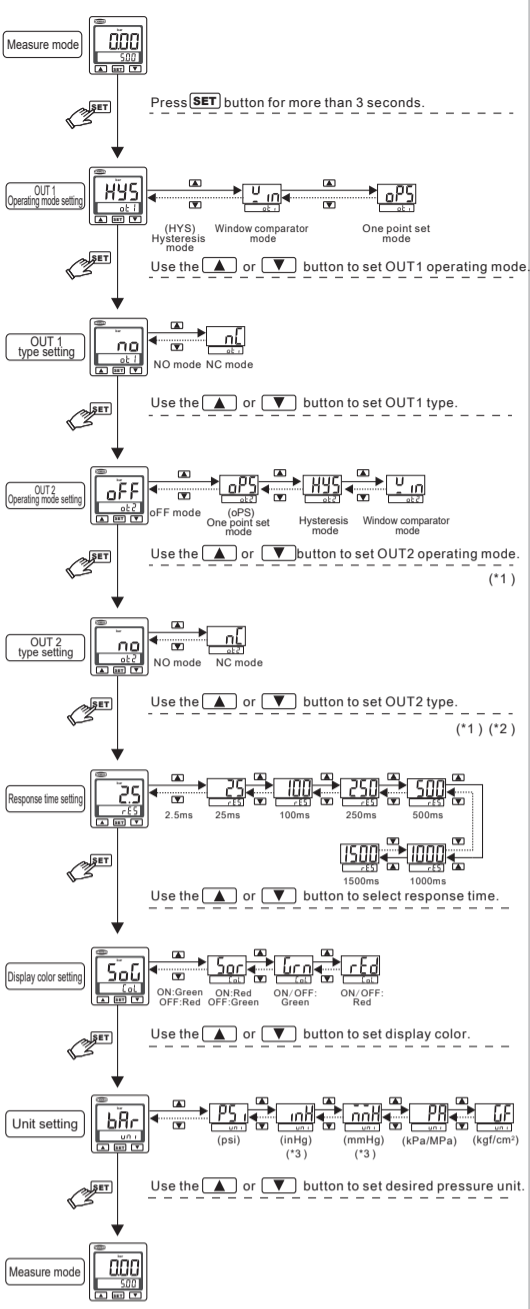
M. ANALOG OUTPUT DESCRIPTION



N. ZERO POINT SETTING

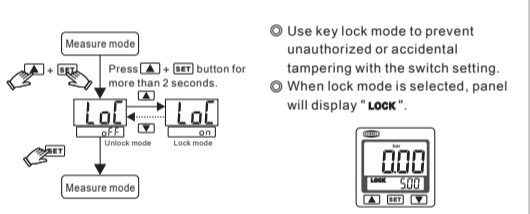


G. INITIAL SETTING MODE

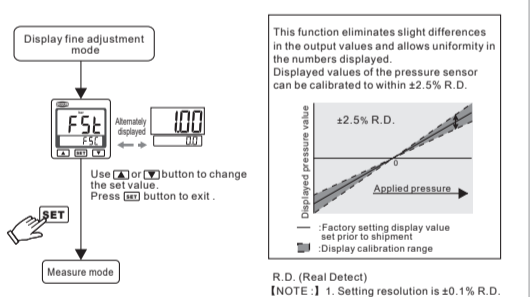


[NOTE:]
*1. This setting mode will not display when output spec. is 1 OUT.
*2. This setting mode will not display when output 2 is set to OFF.
*3. Only applicable for Vacuum.

P. KEY LOCK/UNLOCK MODE



Q. FINE ADJUSTMENT MODE



R. ERROR CODE INSTRUCTION

Error Type	Error code	Error Condition	Troubleshooting
Excess load current error	Er1	Output 1 load current is more than 100 mA	Turn power off and check the cause of overload current or lower the current load under 100 mA, then restart.
Residual pressure error	Er2	Output 2 load current is more than 100 mA	Turn power off and check the cause of overload current or lower the current load under 100 mA, then restart.
Applied pressure error	Er3	During zero reset, ambient pressure is over ±3% F.S.	Change input pressure to ambient pressure and perform zero reset again.
System error	Er4	Supply pressure exceeds the upper limit of pressure setting.	Adjust the pressure within operating pressure range.
	Er5	Supply pressure exceeds the lower limit of pressure setting.	Adjust the pressure within operating pressure range.
Internal system error	Er6	Internal system error	Turn power off, and then restart.
	Er7	Internal data error	If error condition remains, please return to factory for inspection.
	Er8	Internal data error	

S. PRESSURE UNIT CONVERSION TABLE

Pa	kPa	MPa	kgf/cm ²	mmHg	psi	bar	mHg
1 Pa	0.001	0.000001	0.000010197	0.00750062	0.00014329	0.00001	0.00029533
1 kPa	1000.000	0.0010000	0.010197	7.500616	0.14329	0.010000	0.29533
1 MPa	1000000.000	1.000	10.197	7500.616	143.29	10.0000	295.33
1 kgf/cm ²	98066.5	0.0980665	1	735.559	14.2233	0.0980665	28.5133
1 mmHg	133.322	0.00133322	0.0133322	1	0.0193335	0.00133322	0.033421
1 psi	6894.76	0.00689476	0.070309	51.7147	1	0.00689476	2.03307
1 bar	100000.0	0.100000	1.01972	750.062	14.5038	1	29.5298
1 mHg	3386.38	0.00338638	0.034530	25.4000	0.401141	0.0338638	1

T. 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.