



- 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	VUS-33R-N2 (Compound)	VUS-33R-P2 (Compound)
Rated pressure range	-100.0 ~ 100.0kPa	
Setting pressure range	-101.0 ~ 101.0kPa	
Withstand pressure	500kPa	
Fluid	Filtered air, Non-corrosive/Non-flammable gases	
Set pressure resolution	kPa	0.1
	kgf/cm <sup>2</sup>	0.01
	bar	0.01
	psi	0.1
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 Max. load current: 125mA Max. supply voltage: 30V DC Residual voltage: ≤ 1.5V	PNP open collector Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: ≤ 1.5V
Repeatability(Switch output)	±0.2% F.S. ±1 digit	
Hysteresis	Adjustable	
Response time	Chattering-proof function: 50ms, 250ms, 500ms, 1000ms, 2000ms, 3000ms selections	
	Yes	
Output short circuit protection	Two color (Red/Green) main & unit display, Orange sub-display (Sampling rate: Adjustable)	
Indicator accuracy	±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)	
Switch ON Indicator	Orange out 1&2 Indicator	
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 100m/s <sup>2</sup> , 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z	
	Shock	100m/s <sup>2</sup> , 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(0.15mm <sup>2</sup> )	
Weight	Approx. 65g(with 2 meter lead wire)	

\* Pressure unit switching feature is disabled at the factory.  
Setting steps for the function active.  
1) Please shut the power off before following procedure.  
2) Turn on pressing "set" and "down" key.  
3) Press "Up" and "Down" key.  
4) Press "down" key → display "on".  
5) Press "set" key.

### H.PRESSURE SETTING MODE

③ Setting Condition 1 :  
OUT 1 mode setting :  
"oP5" (One point set mode)  
OUT 2 mode setting :  
"oFF" (Not used)

Measure mode

③ Setting Condition 2 :  
OUT 1 mode setting :  
"oP5" (One point set mode)  
OUT 2 mode setting :  
"oP5" (One point set mode)

Measure mode

③ Setting Condition 3 :  
OUT 1 mode setting :  
"oP5" (One point set mode)  
OUT 2 mode setting :  
"HYS" (Hysteresis mode)  
"V.in" (Window comparator mode)

Measure mode

③ Setting Condition 4 :  
OUT 1 mode setting :  
"HYS" (Hysteresis mode)  
OUT 2 mode setting :  
"oFF" (Not used)

Measure mode

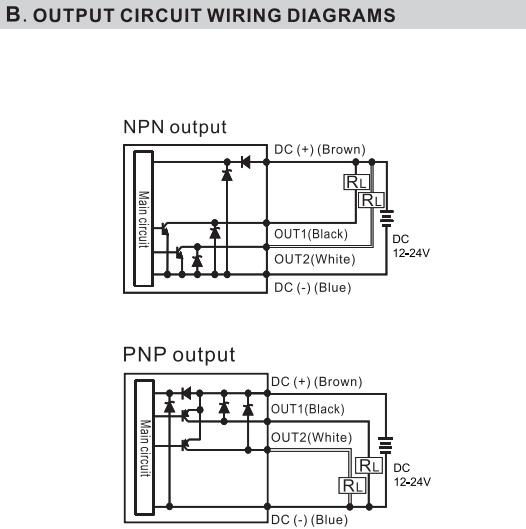
③ Setting Condition 5 :  
OUT 1 mode setting :  
"HYS" (Hysteresis mode)  
"V.in" (Window comparator mode)  
OUT 2 mode setting :  
"oP5" (One point set mode)

Measure mode

③ Setting Condition 6 :  
OUT 1 mode setting :  
"HYS" (Hysteresis mode)  
"V.in" (Window comparator mode)  
OUT 2 mode setting :  
"HYS" (Hysteresis mode)  
"V.in" (Window comparator mode)

Measure mode

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

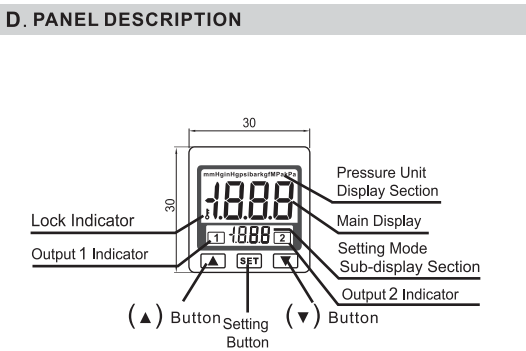


### C. ORDERING INFORMATION

**VUS-33R-N2**

**Pressure Range**  
Compound (-101.0~101.0 kPa)

**Output Specifications**  
N2 : 2 NPN Output  
P2 : 2 PNP Output



### I. OUTPUT TYPE

(1) One point set mode: **Normal open mode**

(2) Hysteresis mode: **Normal open mode**

(3) Window comparator mode: **Normal open mode**

**[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.

### J. ZERO POINT SETTING

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

### K. PEAK/BOTTOM HOLD FUNCTION

Press **SET** + **(▼)** button for more than 2 seconds.

PE-:Peak Value  
bo-:Bottom Value

### L. KEY LOCK/UNLOCK MODE

Press (▲) + **SET** button for more than 2 seconds.

③ Use key lock mode to prevent unauthorized or accidental tampering with the switch setting.  
③ When lock mode is selected, panel will display "L".

### M. FINE ADJUSTMENT MODE

Display fine adjustment mode

Use (▲) or (▼) button to change the set value.  
Press **SET** button to exit.

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 :] setting resolution is ±0.1% R.D.

### E. INITIAL SETTING MODE

Press **SET** button for more than 3 seconds.

Use the (▲) or (▼) button to set OUT1 operating mode.

Use the (▲) or (▼) button to set OUT1 type.

Use the (▲) or (▼) button to set OUT2 operating mode.

Use the (▲) or (▼) button to set OUT2 type.

Use the (▲) or (▼) button to select response time.

Use the (▲) or (▼) button to set display color.

Use the (▲) or (▼) button to set desired pressure unit.

**[NOTE :]**  
\*1. This setting mode will not display when output 2 is set to oFF.

### F. ADVANCE SETTING MODE

Press **SET** button for more than 5 seconds.

Press (▲) or (▼) button to adjust fixed hysteresis value.  
\*Applicable for one point set mode and Window comparator mode.

Press (▲) or (▼) button to select LCD display color relation OUT1 or OUT2.

Use the (▲) or (▼) button to select refresh time.

Press (▲) or (▼) button to turn power-Save mode on or off. (\*1)

Press (▲) or (▼) button to select to restore to default factory settings.

Press (▲) or (▼) button to turn display fine adjustment mode on or off. (\*2)

**[NOTE :]**  
\*1. When the sub-display shows "ON", Power-Save mode is activated.  
Please refer to section 10 for detailed explanation.  
\*2. When the sub-display shows "ON", Display fine adjustment mode is activated.  
Please refer to section 10 for detailed explanation.

### G. POWER-SAVE MODE

③ During Power-Save mode, the main display will turned off if no buttons is pressed after 30 seconds.  
③ During Power-Save mode, the output LCD may not be synchronize with the output. It is normal and will not affect output operation.  
③ Press any button to turn-on main display temporarily.

Measure mode

Power-Save mode  
(Main display is off, sub-display will flash "5LP")

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 overload current or lower the current load under 125 mA, then restart.
	Er2	Output 2 load current is more than 125 mA	
Residual pressure error	Er3	During zero reset, ambient pressure is over ±3% F.S.	Change input pressure to ambient pressure and perform zero reset again.
Applied pressure error	HHR	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.	
System error	Er4	Internal system error	Turn power off, and then restart. If error condition remains, please return to factory for inspection.
	Er5	Internal system error	
	Er6	Internal data error	

**[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.