

# SM-300 series

## Digital Pressure Gauge Controller

- Power supply voltage 12~24VDC
- Indicator accuracy  $\pm 1.0\%$  F.S
- Ambient Temp range 0 ~ 70 °C
- Pressure connect port : 9/16-18UNF VCR Fitting
- Sensor input 4~20mA or 1~5V
- Application : non-ionic, non-corrosive gas
- Mounting bracket and cable

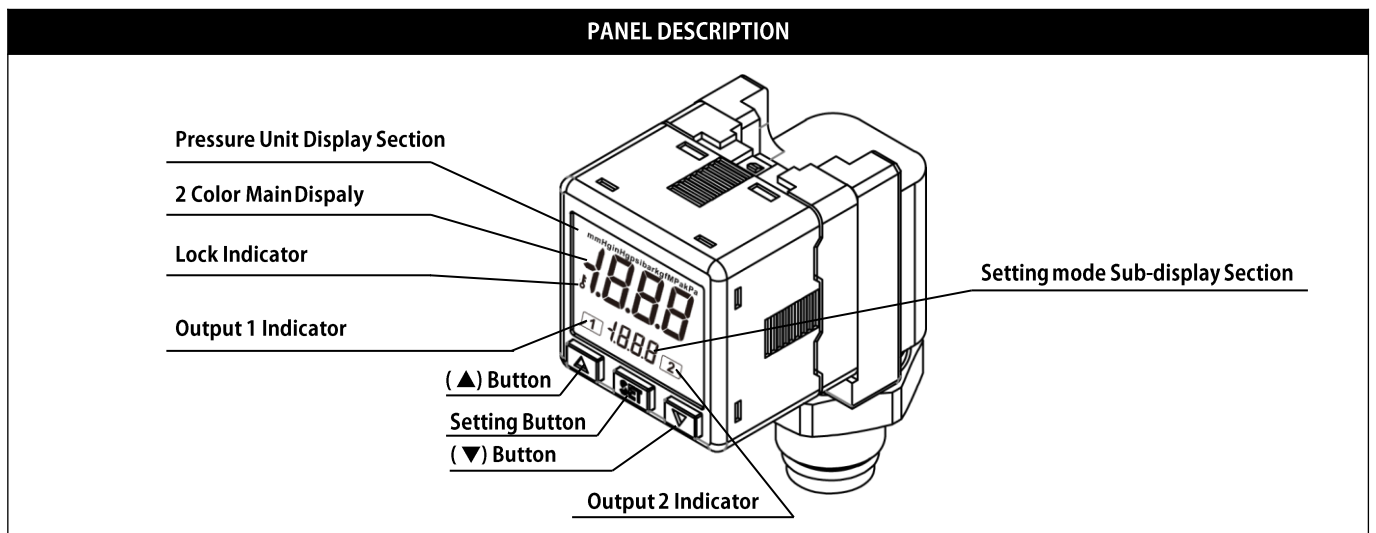


SM-300 series

### □ SPECIFICATIONS

MODEL		SM300 series											
SENSOR TYPE		S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12
Rated pressure range		0~101.3 kPa	0~100 kPa	0~2 kPa	0~5 kPa	-100~100 kPa	-101~500 kPa	-0.100~1 MPa	0~2 MPa	0~2.5 MPa	0~10 MPa	0~25 MPa	0~40 MPa
Setting pressure range		10~101.3 kPa	-10~100 kPa	-0.2~2 kPa	-0.5~5 kPa	-100~100 kPa	-101~500 kPa	-0.100~1 MPa	-0.100~2 MPa	-0.100~2.5 MPa	0~10 MPa	0~25 MPa	0~40 MPa
Setting pressure range (Auto-shift input)		101.3~-101.3 kPa	-100~100 kPa	-2~2 kPa	-5~5 kPa	-100~100 kPa	-500~500 kPa	-1~1 MPa	-2~2 MPa	-2.5~2.5 MPa	-10~10 MPa	-25~25 MPa	-40~40 MPa
Set pressure resolution	kPa	0.1	0.1	0.01	0.01	0.1	1	-	-	-	-	-	-
	Mpa	-	-	-	-	-	-	0.001	0.01	0.01	0.01	0.1	0.1
	kgf/cm <sup>2</sup>	0.001	0.001	-	-	0.001	0.01	0.01	0.1	0.1	0.1	1	1
	Bar	0.001	0.001	-	-	0.001	0.01	0.01	0.1	0.1	0.1	1	1
	Psi	0.01	0.01	-	-	0.01	0.1	0.1	1	1	1	1 <sup>4</sup>	1 <sup>4</sup>
	inHg	0.1	-	-	-	0.1	-	-	-	-	-	-	-
	mmHg	1	-	0.1	0.1	1	-	-	-	-	-	-	-
Power supply voltage		12 to 24V DC $\pm 10\%$ , Ripple (P-P) 10% or less											
Current consumption		$\leq 40$ mA (With no load)											
Sensor input		1~5V or 4~20mA											

### □ PANEL DESCRIPTION



## □ SPECIFICATIONS DETAILED

MODEL		SM300	
Switch output	NPN: open collector 2 outputs Max. load current: 125mA Max. supply voltage: 30V DC Residual voltage: $\leq 1.5V$	PNP: open collector 2 outputs Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: $\leq 1.5V$	
Repeatability (Switch output)	$\pm 0.1\%$ F.S. $\pm 1$ digit		
Hysteresis	<ul style="list-style-type: none"> <li>• One point set mode</li> <li>• Window comparator mode</li> <li>• Hysteresis mode</li> </ul>		
Response time	$\leq 2.5ms$ (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selections)		
Output short circuit protection	Yes		
7 segment LCD display	Two color(Red/Green) main & unit display, Orange sub-display (Sampling rate: 5 times/1sec.)		
Indicator accuracy	$\pm 1\%$ F.S. $\pm 1$ digit (ambient temperature: $25 \pm 3^\circ C$ )		
Switch ON Indicator	Orange (1 & 2 Indicator) OUT1 OUT2		
Analog output (Voltage Output) *2	<ul style="list-style-type: none"> <li>• Output Voltage: 1 to 5V <math>\pm 2\%</math> F.S. (within rated pressure range)</li> <li>• Linearity: <math>\pm 1\%</math> F.S.</li> <li>• Output impedance: about 1k<math>\Omega</math></li> </ul>		
Analog output (Current Output) *3	<ul style="list-style-type: none"> <li>• Output Current: 4 to 20mA <math>\pm 2\%</math> F.S.(within rated pressure range)</li> <li>• Linearity: <math>\pm 1\%</math> F.S.</li> <li>• Max.Load Impedance: 300<math>\Omega</math> at power supply of 12V,</li> <li>• 600<math>\Omega</math> at power supply of 24V</li> <li>• Min.Load impedance: 50<math>\Omega</math></li> </ul>		
Environment	Enclosure	IP40	
	Ambient temp.	Operation: 0 ~ 50 $^\circ C$ , Storage: -10 ~ 60 $^\circ C$ ( No condensation or freezing)	
	Ambient humidity	Operation/Storage: 35 ~ 85% RH ( No condensation)	
	Withstand voltage	1000V AC in 1-min (between case and lead wire)	
	Insulation resistance	50Mohm min. (at 500V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z	
	Shock	100m/s <sup>2</sup> (10G), 3 times each in direction of X, Y and Z	
Temperature characteristic	$\pm 0.5\%$ F.S. of detected pressure (25 $^\circ C$ ) at temp. Range of 0~50 $^\circ C$		
Lead wire	Oil-resistance cable(0.15mm <sup>2</sup> )		
Weight	Approx. 67g (with 2 meter lead wire)		

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

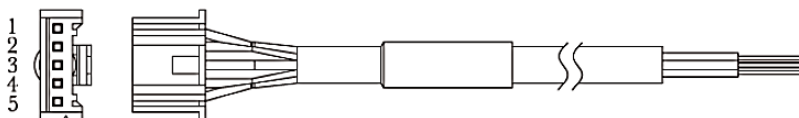
\*2.If analog voltage output is selected, the analog current output cannot be selected at the same time.

\*3.If analog current output is selected, the analog voltage output cannot be selected at the same time.

\*4.If set pressure unit is psi, the value requires to ten multiply by display value.

## □ Wiring

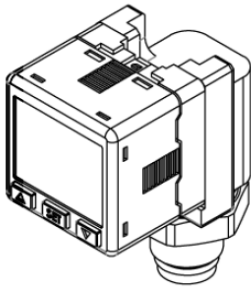
Power and output lead wire with connector



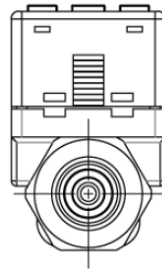
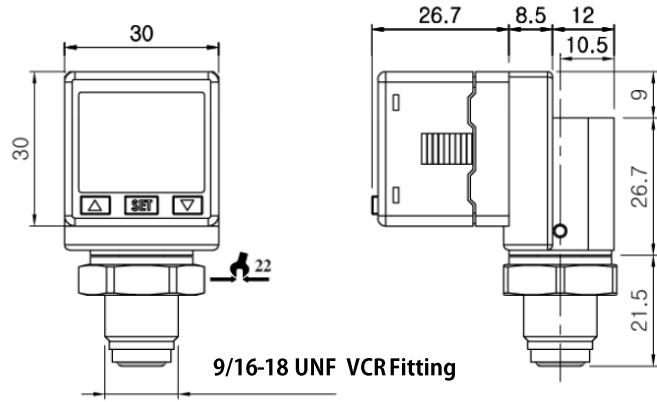
PIN No.	Wire Color
1	Brown (DC+)
2	Orange (Analog)
3	White (Out2)
4	Black (Out1)
5	Blue (DC-)

## OPTIONAL PARTS DIMENSIONS

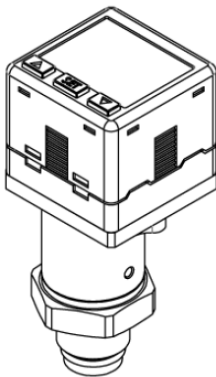
### Bracket type1



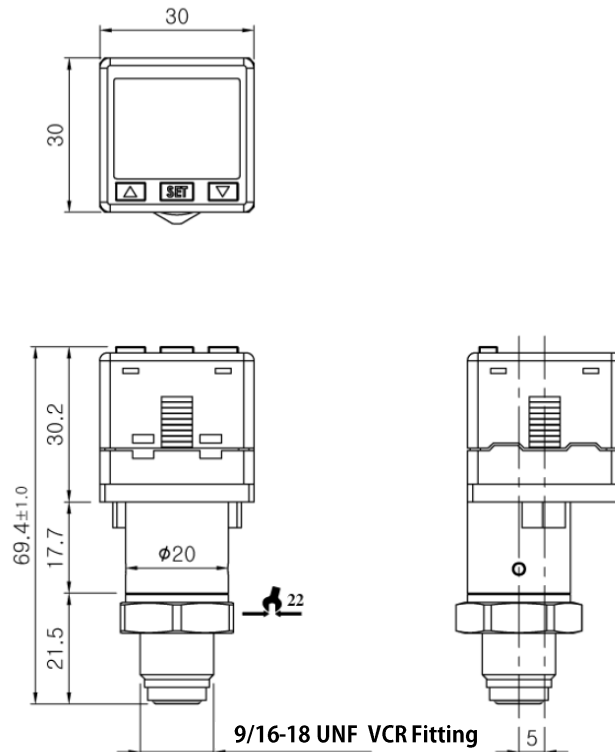
ISOMETRIC VIEW



### Bracket type2

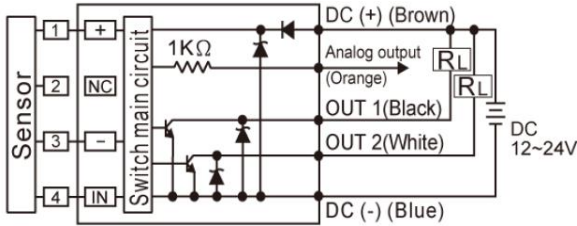


ISOMETRIC VIEW

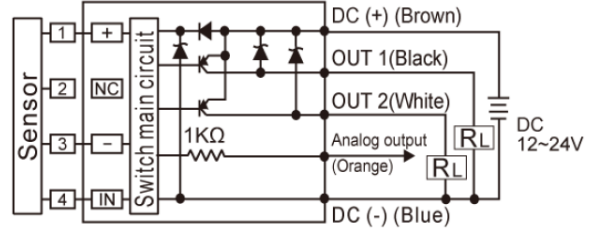


## OUTPUT CIRCUIT WIRING DIAGRAMS

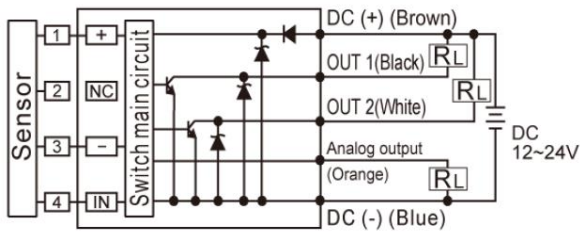
**[SM300-A]**  
2NPN+Analog(Voltage)output



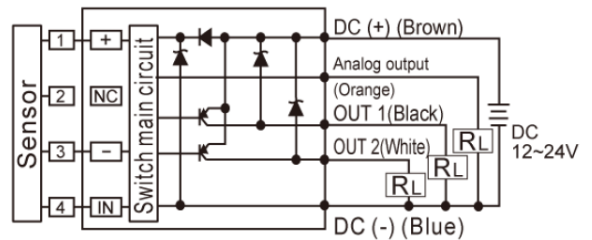
**[SM300-D]**  
2PNP+Analog(Voltage)output



**[SM300-B]**  
2NPN+Analog(Current)output



**[SM300-E]**  
2PNP+Analog(Current)output

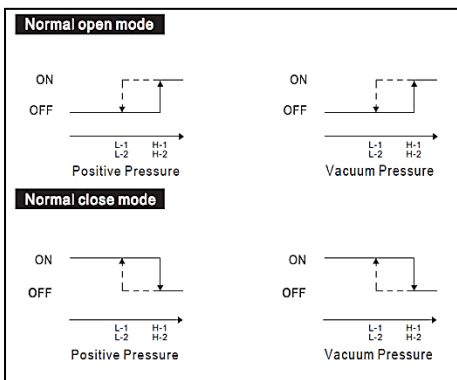


※ Two wire current input only can be used "+" & "OUT" type.

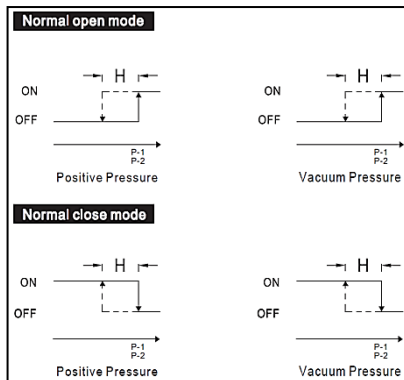
## OUTPUT TYPE

### Output Type

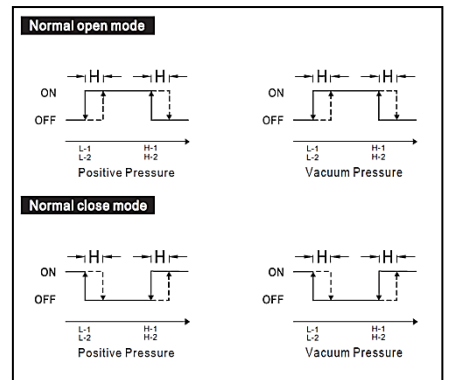
#### < One point set mode >



#### < Window comparator mode >



#### < Hysteresis mode >



### [NOTE :]

- \*1. In case hysteresis is set at less than or equal to 3 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.

## ORDER CODE

### Order Info.

**S M 3 0 0 - A - 1 - L**

#### Input / Output SPEC.

- A** 2 NPN output + 1 Analog output (1~5V)
- B** 2 NPN output + 1 Analog output (4~20mA)
- D** 2 PNP output + 1 Analog output (1~5V)
- E** 2 PNP output + 1 Analog output (4~20mA)

#### Bracket type

- 1** Bracket type 1
- 2** Bracket type 2

#### Port Option

- L** 1/4" LOK Fitting
- U** 9/16-18 UNF VCR Fitting

History of document

Document#	DATE	Description
Rev1.0	2018.09.11	First Release.
Rev1.1	2018.10.18	Changed to Mode "S-7" Pressure range.
Rev1.2(Rev1.2.1)	2019.02.11	Changed to Weight and photo.

**DISCLAIMER**

We hereby expressly disclaims any liability of us to any customer, licensee or any other third party, and any such customer, licensee and any other third party hereby waives any liability of us for any damages in connection with or arising out of the furnishing, performance or use of this technical data, whether based on contract, warranty, tort (including negligence), strict liability, or otherwise. This datasheet is applies to a product under development. Its characteristics and specifications are subject to change without notice and we assumes no obligation regarding future manufacture unless otherwise agreed to in writing. However, under no circumstances shall us be liable to any customer, licensee, or any other third party for any special, indirect, incidental, or consequential damages of any kind or nature whatsoever arising out of or in any way related to the furnishing, performance, or use of this technical data.

Setting Info.

: Please refer to the manual supplied with the product.