

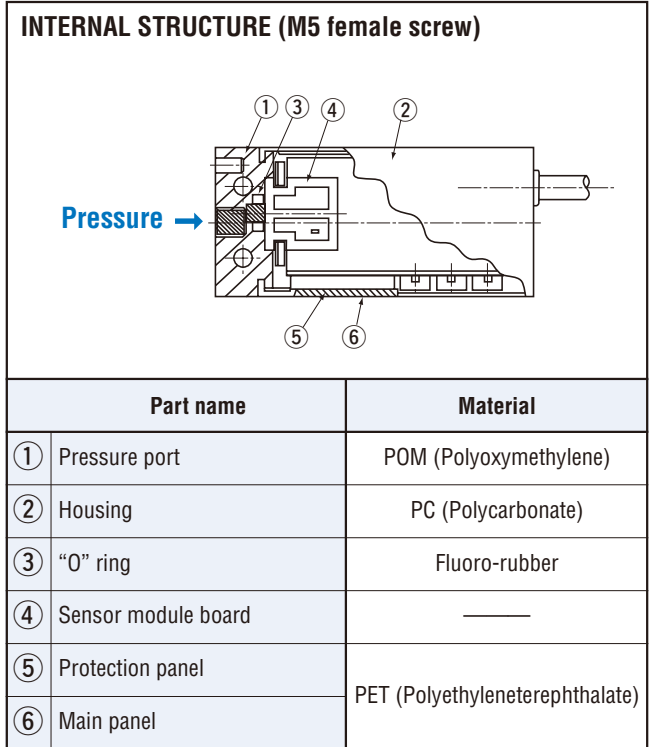
# PS6

## PRESSURE SWITCHES WITH GAUGE

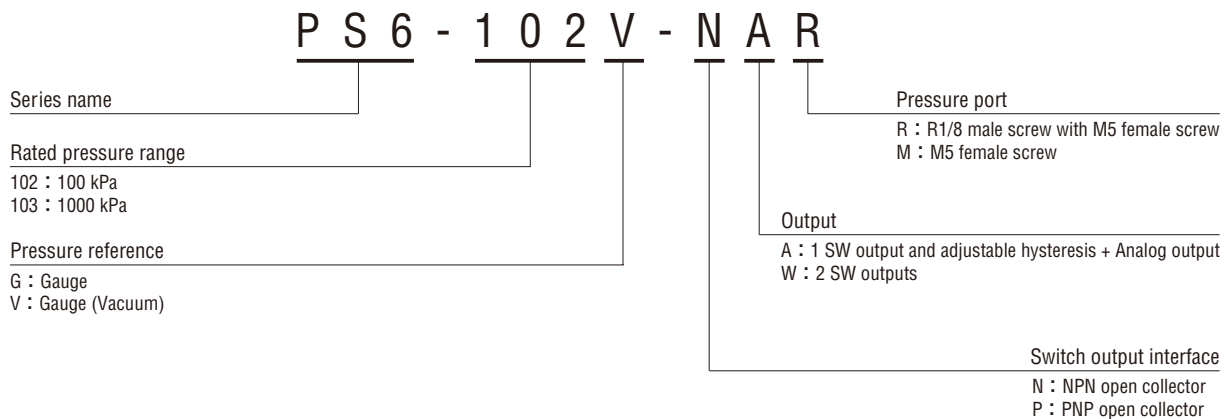


### FEATURES

- Solidstate pressure switch with no mechanical moving parts
- 2 types of pressure ports are available
- Open collector output of either NPN or PNP is available
- Analog output type available



### MODEL NUMBER DESIGNATION



### LIST OF MODEL NUMBERS

| Pressure port    | Outputs   | Switch output             | 102V         | 102G         | 103G         |
|------------------|---|---------------------------|--------------|--------------|--------------|
|                  |   |                           | 0 ~ 100 kPa  | 0 ~ 100 kPa  | 0 ~ 1000 kPa |
| R 1/8 male screw | Adjustable hysteresis switch output + Analog output | NPN open collector output | PS6-102V-NAR | PS6-102G-NAR | PS6-103G-NAR |
|                  |   | PNP open collector output | PS6-102V-PAR | PS6-102G-PAR | PS6-103G-PAR |
|                  | Switch outputs (2 points)                           | NPN open collector output | PS6-102V-NWR | PS6-102G-NWR | PS6-103G-NWR |
|                  |   | PNP open collector output | PS6-102V-PWR | PS6-102G-PWR | PS6-103G-PWR |
| M 5 female screw | Adjustable hysteresis switch output + Analog output | NPN open collector output | PS6-102V-NAM | PS6-102G-NAM | PS6-103G-NAM |
|                  |   | PNP open collector output | PS6-102V-PAM | PS6-102G-PAM | PS6-103G-PAM |
|                  | Switch outputs (2 points)                           | NPN open collector output | PS6-102V-NWM | PS6-102G-NWM | PS6-103G-NWM |
|                  |   | PNP open collector output | PS6-102V-PWM | PS6-102G-PWM | PS6-103G-PWM |

※Verify the above model numbers when placing orders.

**PS6**  
**PRESSURE SWITCHES WITH GAUGE**

**STANDARD SPECIFICATIONS**

● Unless otherwise specified, the specs are defined at an ambient temperature of  $25 \pm 5$  °C and excitation voltage of 12 V DC.

| Item                   | Model number  | PS6        |  |            |              |
|------------------------|---|------------|--|------------|--------------|
|                        |   | 102V       | 102G   | 103G       |              |
| General specifications | Pressure reference                                    | Gauge      |  |            |              |
|                        | Rated pressure range                                  | kPa        | 0 ~ -100   | 0 ~ 100    | 0 ~ 1000     |
|                        | Maximum pressure                                      | kPa        | 200  | 200        | 1500         |
|                        | Break-down pressure                                   | kPa        | 500  | 500        | 2000         |
|                        | Operating temp. range                                 | °C         | -10 ~ 60   |            |              |
|                        | Compensated temp. range                               | °C         | 0 ~ 50   |            |              |
|                        | Operating humidity                                    | %RH        | 35 ~ 85 (No condensation)  |            |              |
|                        | Storage temp.   | °C         | -20 ~ 70 (Atmospheric pressure, humidity 65 %RH maximum)         |            |              |
|                        | Pressure medium                                       |            | Non-corrosive gases  |            |              |
|                        | Insulation resistance                                 | MΩ min.    | 100 (500 V DC)   |            |              |
|                        | Dielectric strength                                   |            | 500 V AC, 60 s (Leakage current 1 mA maximum)                    |            |              |
|                        | Pressure port   |            | R 1/8 (Female screw) or M5メネジ                                    |            |              |
|                        | Net weight  | g          | Approx. 50 (Including cable)                                     |            |              |
| Power                  | Supply voltage  | V DC       | 12 ~ 24 V $\pm$ 10 % (Including ripple percentage)               |            |              |
|                        | Consumption current                                   | mA max.    | 35   |            |              |
| Display                | Display element                                       |            | 2-digit LED  |            |              |
|                        | Rated display range                                   |            | -0 ~ -99 kPa   | 0 ~ 99 kPa | .0 ~ .99 MPa |
|                        | Display accuracy<br>0~50°C<br>(Reference temp. 25 °C) |            | $\pm$ 3 %F.S.  |            |              |
|                        | Resolution  |            | 1 count  |            |              |
| Switch output          | No. of outputs  |            | 1 or 2   |            |              |
|                        | Output interface                                      |            | Open collector output (NPN or PNP)                               |            |              |
|                        | Setting method  |            | Adjustable by VR   | ※1         |              |
|                        | Adjustable range                                      |            | 0 ~ 100 of rated pressure  | ※2         |              |
|                        | Display   |            | Red LED ON (W type only : SW1 Red, SW2 Green)                    |            |              |
|                        | Accuracy<br>0~50°C<br>(Reference temp. 25 °C)         | %F.S.      | $\pm$ 3  |            |              |
|                        | Switch hysteresis                                     |            | Approx. 0 ~ 15 % of the set value (W type only 2 % F.S. maximum) |            |              |
|                        | Switching capacity                                    |            | 30 V 80 mA maximum   |            |              |
|                        | Residual voltage                                      | V maximum  | 0.8 (NPN), 1.2 (PNP)   |            |              |
| Response               | ms  | Approx. 2  |  |            |              |
| Analog output          | Output voltage  | V          | 1 ~ 5  |            |              |
|                        | Zero voltage  | V          | 1 $\pm$ 0.1  |            |              |
|                        | Span voltage  | V          | 4 $\pm$ 0.1  |            |              |
|                        | Output current  | mA maximum | 1 (Load resistance 5 kΩ minmum)                                  |            |              |

※1 : Please set adjusting torque at 30 mN·m maximum.

※2 : The actual setting range adjustable by VR has a little overrunning margin beyond the rated display of 0 through 99. This could cause the setting value of VR may be under "0" or over "99".

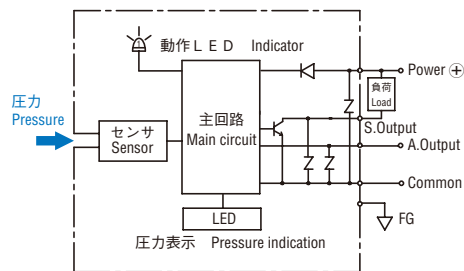
# PS6 PRESSURE SWITCHES WITH GAUGE

## ENVIRONMENTAL CHARACTERISTICS

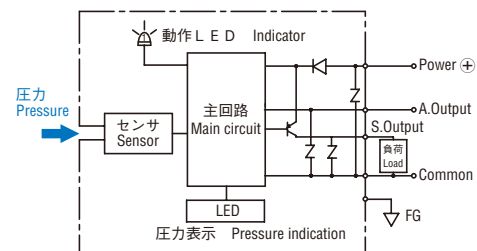
| Test item           | Test conditions   | Permissible change   |
|---------------------|---|--|
| Vibration           | 10 ~ 500 Hz, 1.5 mm maximum/98.1 m/s <sup>2</sup> , 3 directions for 2 hours each | Pressure indication, switch operating points and analog output variation :<br>± 2 %F.S., maximum each after test |
| Shock               | 196 m/s <sup>2</sup> , 3 directions for 3 times each                              |  |
| Moisture resistance | 40 °C, 90 ~ 95 %RH, 240 hrs.  |  |
| Pressure cycling    | 0 ~ Rated pressure, 10 <sup>6</sup> cycles  |  |
| EMC                 | EMI : EN55011 Group 1, Class B (1998)<br>EMS : EN61326-1 (1997), A1(1998)         | ± 5 %F.S., maximum during test   |

## CIRCUIT DIAGRAMS

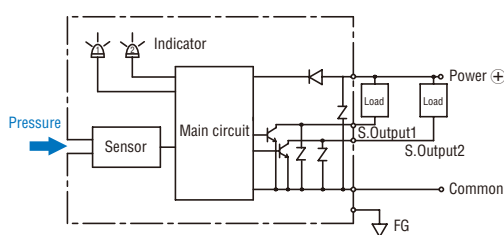
- NAM, NAR (NPN/応差可変スイッチ)
- NAN, NAR (NPN/Adjustable hysteresis switch)



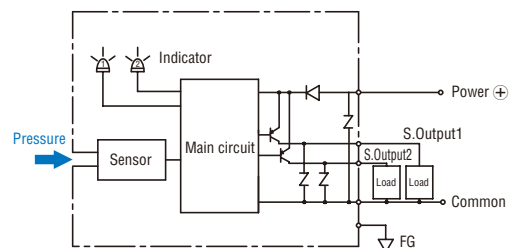
- PAM, PAR (PNP/応差可変スイッチ)
- PAN, PAR (PNP/Adjustable hysteresis switch)



- NWM, NWR (NPN/2点スイッチ)
- NWN, NWR (NPN/2 switch outputs)



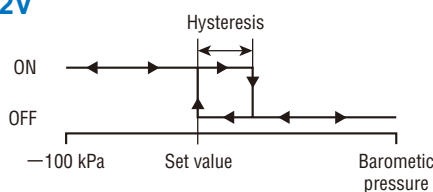
- PWM, PWR (PNP/2点スイッチ)
- PWN, PWR (PNP/2 switch outputs)



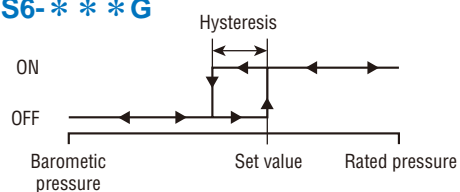
## スイッチ動作 SWITCHING OPERATION

- 設定圧力でONし、設定圧力から応差を引いた圧力でOFF  
The switch turns on at the set pressure and turns off at the set pressure minus the hysteresis.

### ● PS6-102V



### ● PS6-\*\*\*G



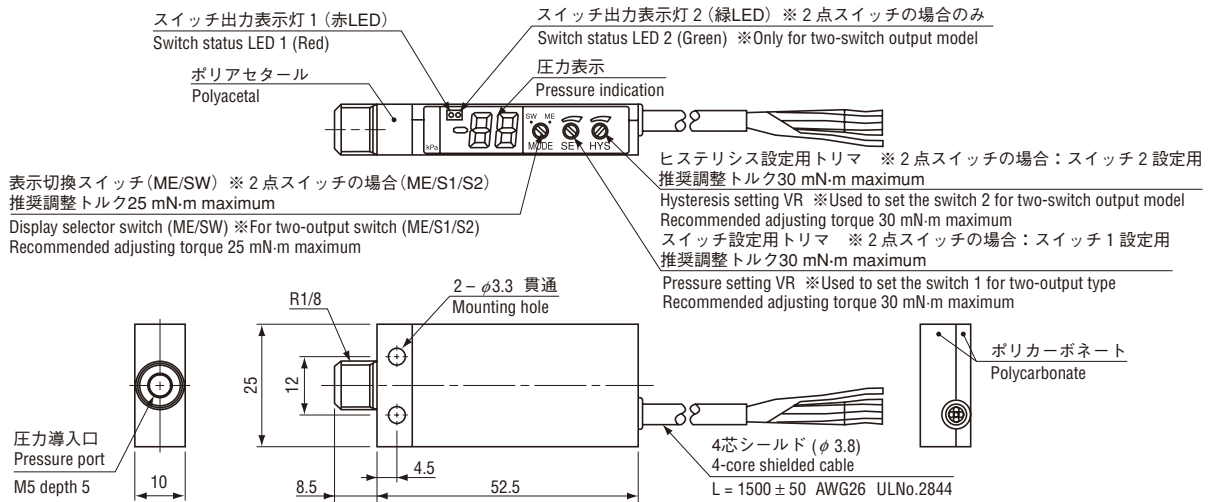
\*\*\*A\* は応差可変タイプ  
\*A\* is adjustable hysteresis type.

# PS6 PRESSURE SWITCHES WITH GAUGE

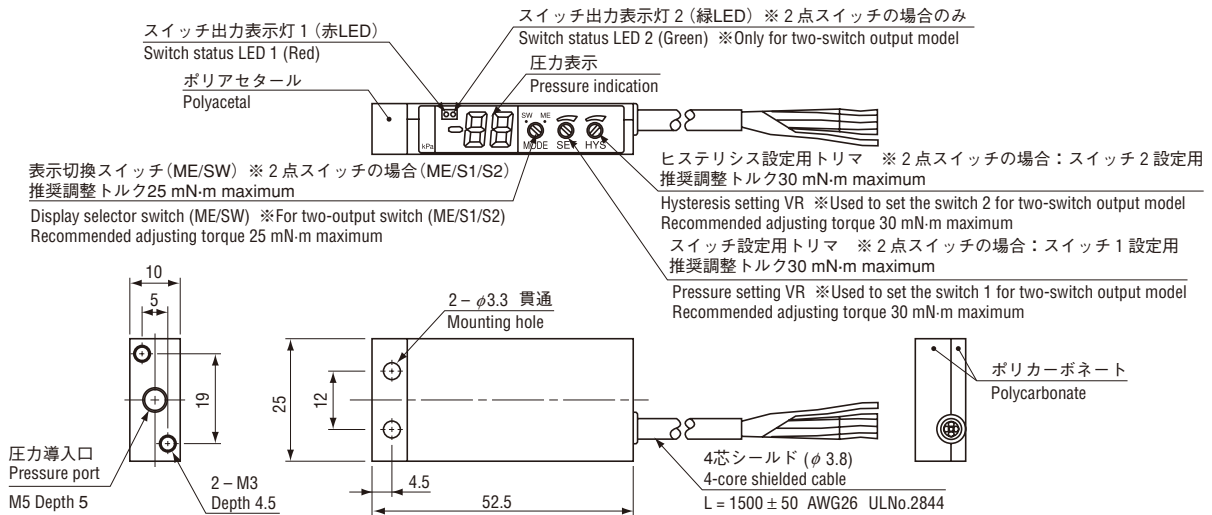
## OUTLINE DIMENSIONS

Unless otherwise specified, tolerance : ± 0.5 (Unit: mm)

### ● 圧力ポートRタイプ (NAR, PAR, NWR, PWR)



### ● 圧力ポートMタイプ (NAM, PAM, NWM, PWM)



#### PS6 (NAM, NAR, PAM, PAR)

| Wire color | Connection    |
|------------|---------------|
| Brown      | Power ⊕       |
| Black      | Switch output |
| White      | Analog output |
| Blue       | Common        |
| Shield     | N.C.          |

#### PS6 (NWM, NWR, PWM, PWR)

| Wire color | Connection      |
|------------|-----------------|
| Brown      | Power ⊕         |
| Black      | Switch output 1 |
| White      | Switch output 2 |
| Blue       | Common          |
| Shield     | N.C.            |