

3-Screen Display

New

Digital Flow Monitor



Can measure up to
12,000 L/min!

While checking the
measured value,

Main screen Measured value (Current flow value)

settings are possible.

Sub screen

Left side Label (Display item)





Right side Accumulated flow, Set value
(Threshold value)

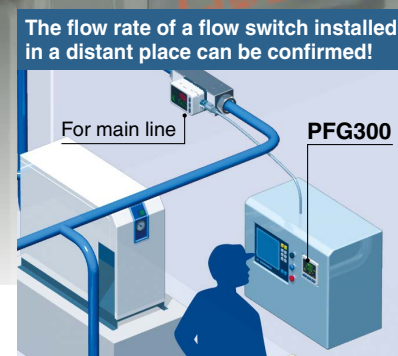
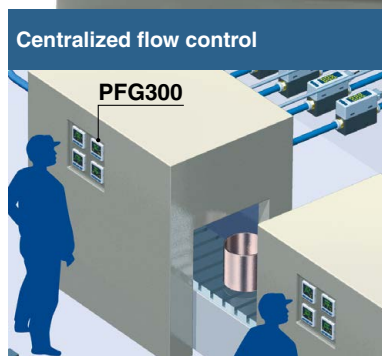
Visualization of Settings

| | | | |
|------------------|-----|-----------------------------|-----|
| Accumulated flow | AC | Set value (Threshold value) | P_1 |
| Hysteresis value | H_1 | Bottom value | Lo |
| Peak value | H_1 | | |

Current consumption
25 mA or less

Applicable Flow Switch Variations

| Series | Smallest settable increment | Rated flow range [L/min] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------------------------|--------------------------|------|------|-----|-----|-----|---|---|---|----|----|-----|-------|-----|-----|-----|-----|-----|-----|------|------|------|------|-------|--|--|--|--|--|--|--|
| | | 0.01 | 0.02 | 0.05 | 0.1 | 0.3 | 0.5 | 1 | 2 | 5 | 10 | 20 | 25 | 50 | 100 | 150 | 200 | 300 | 500 | 600 | 1000 | 2000 | 3000 | 6000 | 12000 | | | | | | | |
| PF3A7  | 2 L/min | | | | | | | | | | | | 30 | 3000 | | | | | | | | | | | | | | | | | | |
| | 5 L/min | | | | | | | | | | | | 60 | 6000 | | | | | | | | | | | | | | | | | | |
| | 10 L/min | | | | | | | | | | | | 120 | 12000 | | | | | | | | | | | | | | | | | | |
| PF2M7  | 0.001 L/min | 0.01 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.01 L/min | 0.02 | 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0.05 | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.1 L/min | 0.1 | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0.3 | 25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 0.5 | 50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PFMB  | 1 L/min | 1 | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 L/min | 2 | 200 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5 | 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PF2MC7(-L)  | 1 L/min | 10 | 1000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 L/min | 20 | 2000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5 | 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| PF2MC7(-L) | 1 L/min | 10 | 1000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 L/min | 20 | 2000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



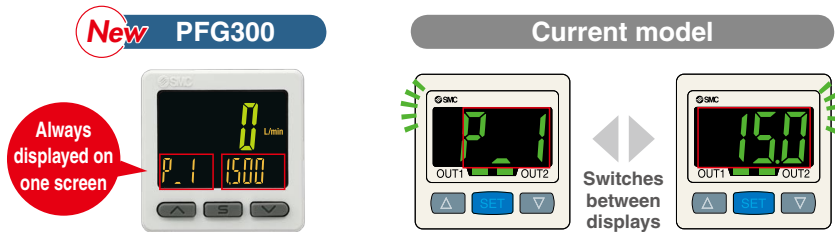
PFG300 Series



P-E17-3 ©

Visualization of Settings

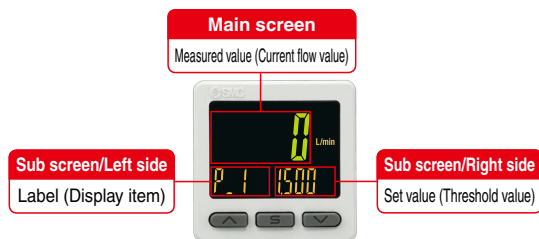
The sub screen (label) shows the item to be set.



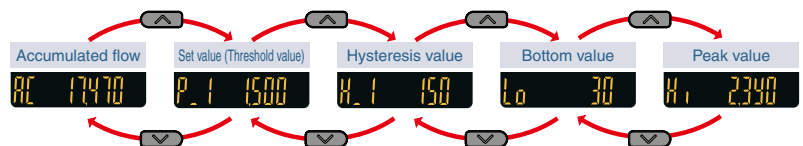
| | | | | | | | | | | | | | | |
|---------------|------------------------|--|-----------------------|--|-----------------------------|--|-----------------------|--|-----------------------------|--|------------------------|--|-----------------------------|--|
| Mode Examples | Hysteresis mode | | Normal output | | Set value (Threshold value) | | Reverse output | | Set value (Threshold value) | | Hysteresis | | Set hysteresis value | |
| | Window comparator mode | | Normal output/Lo side | | Set value (Threshold value) | | Normal output/Hi side | | Set value (Threshold value) | | Reverse output/Lo side | | Set value (Threshold value) | |
| | P.1 1500 | | P.1 1500 | | P.1 1500 | | P.1 1500 | | P.1 1500 | | P.1 1500 | | P.1 1500 | |
| | P.1L 900 | | P.1H 1800 | | P.1H 1800 | | P.1L 900 | | P.1H 1800 | | P.1L 900 | | P.1H 1800 | |

Easy Screen Switching

It is possible to change the settings while checking the measured value.



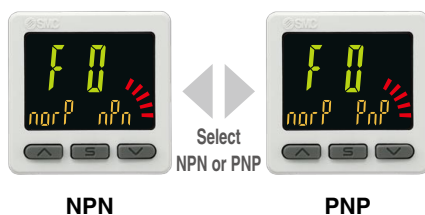
The sub screen can be switched by pressing the up/down buttons.



* Either "Input of line name" or "Display OFF" can be added via the function settings.

NPN/PNP Switch Function

The number of stock items can be reduced.



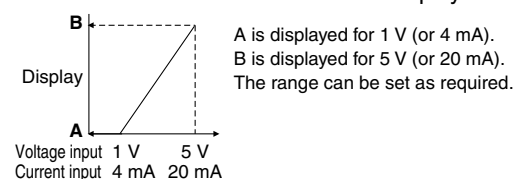
Analog output of 0 to 10 V is also available.

| | | |
|----------------|------------|------------|
| Voltage output | 1 to 5 V | Switchable |
| | 0 to 10 V | |
| Current output | 4 to 20 mA | Fixed |

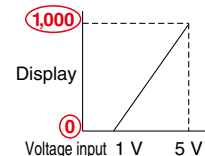
Input Range Selection (for Pressure/Flow rate)

The displayed value to the sensor input can be set as required.
(Voltage input: 1 to 5 V/Current input: 4 to 20 mA)

Pressure switch/Flow switch can be displayed.



Pressure Sensor for General Fluids/PSE570



| | A | B |
|--------|------|-------|
| PSE570 | 0 | 1,000 |
| PSE573 | -100 | 100 |
| PSE574 | 0 | 500 |

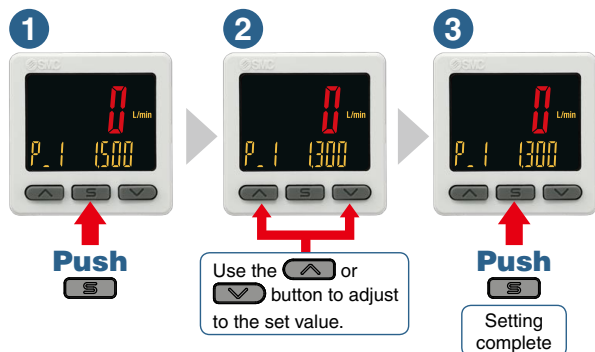
Set A and B to the values shown in the table above.

Functions

- Output operation
- Simple setting mode
- Display color
- Delay time setting
- Digital filter setting
- FUNC output switching function
- Selectable analog output function
- External input function
- Forced output function
- Accumulated value hold
- Peak/Bottom value display
- Setting of security code
- Keylock function
- Reset to the default settings
- Display with zero cut-off setting
- Selection of display on sub screen
- Analog output free range function
- Error display function
- Copy function
- Power-saving mode

Simple 3-Step Setting

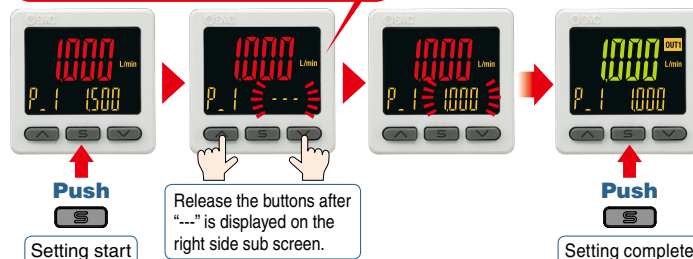
When the S button is pressed and the set value (P_1) is being displayed, the set value (threshold value) can be set. When the S button is pressed and the hysteresis (H_1) is being displayed, the hysteresis value can be set.



With a snap shot function for set value reading

Pressing the \uparrow and \downarrow buttons simultaneously for a minimum of 1 second will make the set value (threshold value) the same as the current flow value.

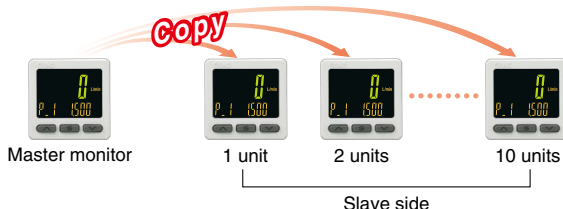
Snap shot function



Convenient Functions

● Copy function

The settings of the master monitor can be copied to the slave monitors.



● Secret code setting function

The key locking function keeps unauthorized persons from tampering with the settings.

● Power-saving function

Power consumption is reduced by turning off the monitor.

| Current consumption*1 | Reduction rate*2 |
|-----------------------|-----------------------|
| 25 mA or less | Approx. 50% reduction |

*1 During normal operation *2 In power-saving mode

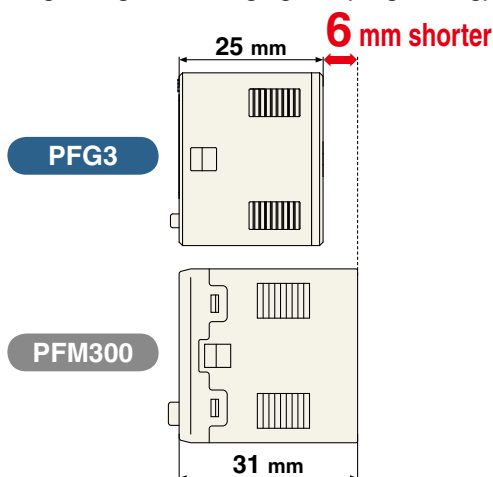
● External input function

The accumulated value, peak value, and bottom value can be reset remotely.

Compact & Lightweight

● Compact: Max. 6 mm shorter

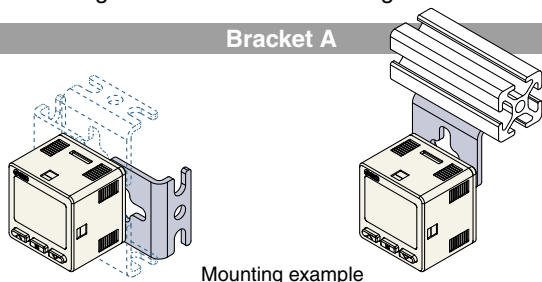
● Lightweight: Max. 5 g lighter (30 g → 25 g)



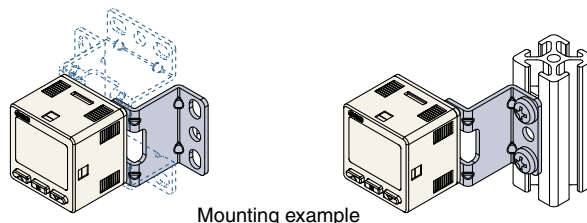
Mounting

Bracket configuration allows for mounting in four orientations.

Bracket A



Bracket B

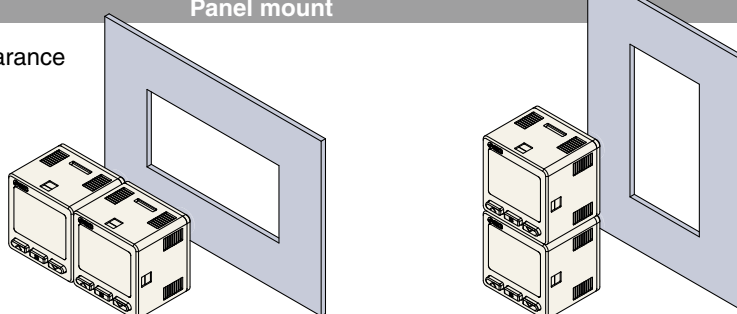


Panel mount

Mountable side by side without clearance

One opening!

- Reduced panel fitting labor
- Space saving



3-Screen Display

Digital Flow Monitor

PFG300 Series



How to Order

PFG 3 0 0 - RT - M - L

Type

3 Remote type monitor unit

Input specification

| Symbol | Description |
|----------|---------------|
| 0 | Voltage input |
| 1 | Current input |

* The PFG3 (monitor unit) cannot be used as an IO-Link communication device.

Output specification

| | |
|-----------|---|
| RT | 2 outputs (NPN/PNP switching type) + Analog voltage output*1, 2 |
| SV | 2 outputs (NPN/PNP switching type) + Analog current output*2 |
| XY | 2 outputs (NPN/PNP switching type) + Copy function |

*1 Can switch between 1 to 5 V and 0 to 10 V

*2 Can be switched to external input or copy function

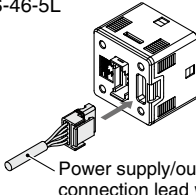
Unit specification

| | |
|------------|----------------------------|
| Nil | Units selection function*3 |
| M | SI units only*4 |

*3 This product is for overseas use only. (The SI unit type is provided for use in Japan in accordance with the New Measurement Act.)

*4 Fixed units: Instantaneous flow: L/min
Accumulated flow: L

Option 1

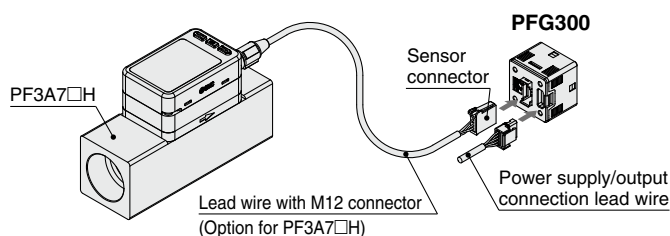
| Symbol | Description |
|------------|---|
| Nil | Without lead wire |
| L | Power supply/output connection lead wire (Lead wire length: 2 m)  |

Options/Part Nos.

When only optional parts are required, order with the part numbers listed below.

| Part no. | Option | Note |
|-------------------|--|--|
| ZS-28-CA-4 | Sensor connector | For PF3A□H For PF2MC |
| ZS-28-C-1 | Sensor connector | For PFMB |
| ZS-46-A1 | Bracket A | Tapping screw: Nominal size 3 x 8 L (2 pcs.) |
| ZS-46-A2 | Bracket B | Tapping screw: Nominal size 3 x 8 L (2 pcs.) |
| ZS-46-B | Panel mount adapter | |
| ZS-46-D | Panel mount adapter + Front protection cover | |
| ZS-46-5L | Power supply/output connection lead wire | 5-core, 2 m |
| ZS-27-01 | Front protection cover | |

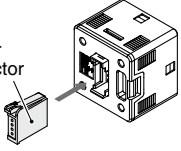
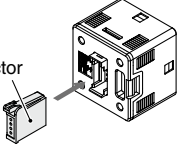
Connection Example/For PF3A7□H(-L)



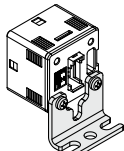
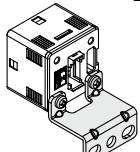
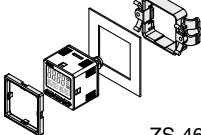
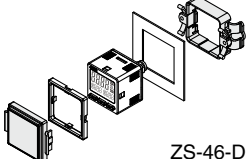
Option 4

| | Operation manual | Calibration certificate |
|------------|------------------|-------------------------|
| Nil | ○ | — |
| Y | — | — |
| K | ○ | ○ |
| T | — | ○ |

Option 3

| Nil | None |
|----------|--|
| C | ZS-28-CA-4/PF3A□H, PF2MC  |
| F | ZS-28-C-1/PFMB  |

Option 2

| Symbol | Description |
|------------|---|
| Nil | None |
| A1 | Bracket A (Vertical mounting)  |
| A2 | Bracket B (Horizontal mounting)  |
| B | Panel mount adapter  |
| D | Panel mount adapter + Front protection cover  |

Specifications/For PF3A□H(-L)

For flow switch precautions and specific product precautions, refer to the "Operation Manual" on the SMC website.

| Model | | PFG300 series | | | | | | |
|----------------------------|--|--|--|--------------------|------------------------|--------------------|------------------------|----------|
| Applicable SMC flow switch | Model | PF3A701H | PF3A702H | PF3A703H | PF3A706H | PF3A712H | | |
| | Rated flow range*1 | 10 to 1000 L/min | 20 to 2000 L/min | 30 to 3000 L/min | 60 to 6000 L/min | 120 to 12000 L/min | | |
| Flow | Set point range | Instantaneous flow | -50 to 1050 L/min | -100 to 2100 L/min | -150 to 3150 L/min | -300 to 6300 L/min | -600 to 12600 L/min | |
| | | Accumulated flow | 0 to 999,999,999,990 L | | 0 to 999,999,999,990 L | | 0 to 999,999,999,900 L | |
| | Smallest settable increment | Instantaneous flow | 1 L/min | | 2 L/min | | 5 L/min | 10 L/min |
| | | Accumulated flow | 10 L | | 10 L | | 100 L | |
| | Accumulated volume per pulse (Pulse width = 50 ms) | 10 L/pulse | | 10 L/pulse | | 100 L/pulse | | |
| | Accumulated value hold function*3 | Intervals of 2 or 5 minutes can be selected. The stored accumulated flow is held even when the power supply is OFF. | | | | | | |
| Electrical | Power supply voltage | 12 to 24 VDC ±10% (24 VDC when the PF3A7□H is connected) | | | | | | |
| | Current consumption | 25 mA or less | | | | | | |
| | Protection | Polarity protection | | | | | | |
| Accuracy | Display accuracy | ±0.5% F.S. ± Minimum display unit (Ambient temperature of 25°C) | | | | | | |
| | Analog output accuracy | ±0.5% F.S. (Ambient temperature of 25°C) | | | | | | |
| | Repeatability | ±0.1% F.S. ± Minimum display unit | | | | | | |
| | Temperature characteristics | ±0.5% F.S. (Ambient temperature: 0 to 50°C, 25°C standard) | | | | | | |
| Switch output | Output type | Select from NPN or PNP open collector output. | | | | | | |
| | Output mode | Select from Hysteresis, Window comparator, Accumulated output, Accumulated pulse output, Error output, or Switch output OFF modes. | | | | | | |
| | Switch operation | Select from Normal or Reversed output. | | | | | | |
| | Max. load current | 80 mA | | | | | | |
| | Max. applied voltage (NPN only) | 30 VDC | | | | | | |
| | Internal voltage drop (Residual voltage) | NPN output: 1 V or less (at load current of 80 mA), PNP output: 1.5 V or less (at load current of 80 mA) | | | | | | |
| | Response time*2 | 3 ms or less | | | | | | |
| | Delay time*2 | Select from 0.00, 0.05 to 0.1 s (increment of 0.01 s), 0.1 to 1.0 s (increment of 0.1 s), 1 to 10 s (increment of 1 s), 20 s, 30 s, 40 s, 50 s, or 60 s. | | | | | | |
| | Hysteresis*4 | Variable from 0 | | | | | | |
| Protection | Short circuit protection | | | | | | | |
| Analog output*5 | Output type | Voltage output: 1 to 5 V, 0 to 10 V (only when the power supply voltage is 24 VDC) Current output: 4 to 20 mA (0 L/min to maximum value of the rated flow) | | | | | | |
| | Impedance | Voltage output | Output impedance: 1 kΩ | | | | | |
| | | Current output | Maximum load impedance: 300 Ω (at power supply voltage of 12 V), 600 Ω (at power supply voltage of 24 VDC) | | | | | |
| | Response time*2 | 50 ms or less | | | | | | |
| External input*6 | External input | Input voltage: 0.4 V or less (Reed or Solid state) for 30 ms or longer | | | | | | |
| | Input mode | Select from Accumulated value external reset or Peak/Bottom value reset. | | | | | | |
| Sensor input | Input type | Voltage input: 1 to 5 VDC (Input impedance: 1 MΩ), Current input: 4 to 20 mA DC (Input impedance: 51 Ω) (0 L/min to maximum value of the rated flow) | | | | | | |
| | Connection method | Connector (e-CON) | | | | | | |
| | Protection | Over voltage protection (Up to 26.4 VDC) | | | | | | |
| Display | Display mode | Select from Instantaneous flow or Accumulated flow. | | | | | | |
| | Unit*7 | Instantaneous flow | L/min, cfm (ft³/min) | | | | | |
| | | Accumulated flow | L, ft³, L x 10 ⁶ , ft³ x 10 ⁶ | | | | | |
| | Display range | Instantaneous flow | -50 to 1050 L/min | -100 to 2100 L/min | -150 to 3150 L/min | -300 to 6300 L/min | -600 to 12600 L/min | |
| | | Accumulated flow*9 | 0 to 999,999,999,990 L | | 0 to 999,999,999,990 L | | 0 to 999,999,999,900 L | |
| | Minimum display unit | Instantaneous flow | 1 L/min | | 2 L/min | | 5 L/min | 10 L/min |
| | | Accumulated flow | 10 L | | 10 L | | 100 L | |
| | Display type | LCD | | | | | | |
| | Number of displays | 3-screen display (Main screen, Sub screen) | | | | | | |
| | Display color | 1) Main screen: Red/Green, 2) Sub screen: Orange | | | | | | |
| | Number of display digits | 1) Main screen: 5 digits (7 segments), 2) Sub screen: 9 digits (7 segments) | | | | | | |
| Indicator LED | LED ON when switch output is ON. OUT1/2: Orange | | | | | | | |
| Digital filter*8 | | Select from 0.00, 0.05 to 0.1 s (increment of 0.01 s), 0.1 to 1.0 s (increment of 0.1 s), 1 to 10 s (increment of 1 s), 20 s, or 30 s. | | | | | | |
| Environment | Enclosure | IP40 | | | | | | |
| | Withstand voltage | 1000 VAC for 1 minute between terminals and housing | | | | | | |
| | Insulation resistance | 50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing | | | | | | |
| | Operating temperature range | Operating: 0 to 50°C, Stored: -10 to 60°C (No condensation or freezing) | | | | | | |
| | Operating humidity range | Operating/Stored: 35 to 85% RH (No condensation or freezing) | | | | | | |
| Standards | | CE/UKCA marking, UL (CSA) | | | | | | |
| Weight | Body | 25 g (Excluding the power supply/output connection lead wire) | | | | | | |
| | Lead wire with connector | +39 g | | | | | | |

*1 Rated flow range of the applicable flow switch

*2 Value without digital filter (at 0.00 s)

*3 When using the accumulated value hold function, use the operating conditions to calculate the product life, and do not exceed it. The maximum access limit of the memory device is 1.5 million times. If the product is operated 24 hours per day, the product life will be as follows:

• 5 min interval: life is calculated as 5 min x 1.5 million = 7.5 million min = 14.3 years

• 2 min interval: life is calculated as 2 min x 1.5 million = 3 million min = 5.7 years

If the accumulated value external reset is repeatedly used, the product life will be shorter than the calculated life.

*4 If the flow fluctuates around the set value, the width for setting more than the fluctuating width needs to be set. Otherwise, chattering will occur.

*5 Setting is only possible for models with analog output.

*6 Setting is only possible for models with external input.

*7 Setting is only possible for models with the units selection function.

*8 The response time indicates when the set value is 90% in relation to the step input.

*9 The accumulated flow display is the upper 6-digit and lower 6-digit (total of 12 digits) display. When the upper digits are displayed, x 10⁶ lights up.

* Products with tiny scratches, marks, or display color or brightness variations which do not affect the performance of the product are verified as conforming products.

PFG300 Series

Specifications/For PFMB

For flow switch precautions and specific product precautions, refer to the "Operation Manual" on the SMC website. Click [here](#) for details.

| Model | | | PFG300 series | | |
|----------------------------|--|---|--|-------------------|--------------------|
| Applicable SMC flow switch | Model | | PFMB7501 | PFMB7102 | PFMB7202 |
| | Rated flow range*1 | | 5 to 500 L/min | 10 to 1000 L/min | 20 to 2000 L/min |
| Flow | Set point range | Instantaneous flow | -25 to 525 L/min | -50 to 1050 L/min | -100 to 2100 L/min |
| | | Accumulated flow | 0 to 999,999,999,990 L | | |
| | Smallest settable increment | Instantaneous flow | 1 L/min | | |
| | | Accumulated flow | 10 L | | |
| | Accumulated volume per pulse (Pulse width = 50 ms) | | | 1 L/pulse | 10 L/pulse |
| | Accumulated value hold function*3 | | Intervals of 2 or 5 minutes can be selected. The stored accumulated flow is held even when the power supply is OFF. | | |
| Electrical | Power supply voltage | | 12 to 24 VDC ±10% | | |
| | Current consumption | | 25 mA or less | | |
| | Protection | | Polarity protection | | |
| Accuracy | Display accuracy | | ±0.5% F.S. ± Minimum display unit (Ambient temperature of 25°C) | | |
| | Analog output accuracy | | ±0.5% F.S. (Ambient temperature of 25°C) | | |
| | Repeatability | | ±0.1% F.S. ±1 digit | | |
| | Temperature characteristics | | ±0.5% F.S. (Ambient temperature: 0 to 50°C, 25°C standard) | | |
| Switch output | Output type | | Select from NPN or PNP open collector output. | | |
| | Output mode | | Select from Hysteresis, Window comparator, Accumulated output, Accumulated pulse output, Error output, or Switch output OFF modes. | | |
| | Switch operation | | Select from Normal or Reversed output. | | |
| | Max. load current | | 80 mA | | |
| | Max. applied voltage (NPN only) | | 30 VDC | | |
| | Internal voltage drop (Residual voltage) | | NPN output: 1 V or less (at load current of 80 mA), PNP output: 1.5 V or less (at load current of 80 mA) | | |
| | Response time*2 | | 3 ms or less | | |
| | Delay time*2 | | Select from 0.00, 0.05 to 0.1 s (increment of 0.01 s), 0.1 to 1.0 s (increment of 0.1 s), 1 to 10 s (increment of 1 s), 20 s, 30 s, 40 s, 50 s, or 60 s | | |
| | Hysteresis*4 | | Variable from 0 | | |
| | Protection | | Short circuit protection | | |
| Analog output*5 | Output type | | Voltage output: 1 to 5 V, 0 to 10 V (only when the power supply voltage is 24 VDC) Current output: 4 to 20 mA (0 L/min to maximum value of the rated flow) | | |
| | Impedance | Voltage output | Output impedance: 1 kΩ | | |
| | | Current output | Maximum load impedance: 300 Ω (at power supply voltage of 12 V), 600 Ω (at power supply voltage of 24 VDC) | | |
| | Response time*2 | | 50 ms or less | | |
| External input*6 | External input | | Input voltage: 0.4 V or less (Reed or Solid state) for 30 ms or longer | | |
| | Input mode | | Select from Accumulated value external reset or Peak/Bottom value reset. | | |
| Sensor input | Input type | | Voltage input: 1 to 5 VDC (Input impedance: 1 MΩ), Current input: 4 to 20 mA DC (Input impedance: 51 Ω) (0 L/min to maximum value of the rated flow) | | |
| | Connection method | | Connector (e-CON) | | |
| | Protection | | Over voltage protection (Up to 26.4 VDC) | | |
| Display | Display mode | | Select from Instantaneous flow or Accumulated flow. | | |
| | Unit*7 | Instantaneous flow | L/min, cfm (ft³/min) | | |
| | | Accumulated flow | L, ft³, L x 10⁶, ft³ x 10⁶ | | |
| | Display range | Instantaneous flow | -25 to 525 L/min | -50 to 1050 L/min | -100 to 2100 L/min |
| | | Accumulated flow*9 | 0 to 999,999,999,990 L | | |
| | Minimum display unit | Instantaneous flow | 1 L/min | | |
| | | Accumulated flow | 10 L | | |
| | Display type | | LCD | | |
| | Number of displays | | 3-screen display (Main screen, Sub screen) | | |
| | Display color | | 1) Main screen: Red/Green, 2) Sub screen: Orange | | |
| Number of display digits | | 1) Main screen: 5 digits (7 segments), 2) Sub screen: 9 digits (7 segments) | | | |
| Indicator LED | | LED ON when switch output is ON OUT1/2: Orange | | | |
| Digital filter*8 | | | Select from 0.00, 0.05 to 0.1 s (increment of 0.01 s), 0.1 to 1.0 s (increment of 0.1 s), 1 to 10 s (increment of 1 s), 20 s, or 30 s | | |
| Environment | Enclosure | | IP40 | | |
| | Withstand voltage | | 1000 VAC for 1 minute between terminals and housing | | |
| | Insulation resistance | | 50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing | | |
| | Operating temperature range | | Operating: 0 to 50°C, Stored: -10 to 60°C (No condensation or freezing) | | |
| | Operating humidity range | | Operating/Stored: 35 to 85% RH (No condensation or freezing) | | |
| Standards | | | CE/UKCA marking, UL (CSA) | | |
| Weight | Body | | 25 g (Excluding the power supply/output connection lead wire) | | |
| | Lead wire with connector | | +39 g | | |

*1 Rated flow range of the applicable flow switch

*2 Value without digital filter (at 0.00 s)

*3 When using the accumulated value hold function, use the operating conditions to calculate the product life, and do not exceed it. The maximum access limit of the memory device is 1.5 million times. If the product is operated 24 hours per day, the product life will be as follows:
 • 5 min interval: life is calculated as 5 min x 1.5 million = 7.5 million min = 14.3 years
 • 2 min interval: life is calculated as 2 min x 1.5 million = 3 million min = 5.7 years
 If the accumulated value external reset is repeatedly used, the product life will be shorter than the calculated life.

*4 If the flow fluctuates around the set value, the width for setting more than the fluctuating width needs to be set. Otherwise, chattering will occur.

*5 Setting is only possible for models with analog output.

*6 Setting is only possible for models with external input.

*7 Setting is only possible for models with the units selection function.

*8 The response time indicates when the set value is 90% in relation to the step input.

*9 The accumulated flow display is the upper 6-digit and lower 6-digit (total of 12 digits) display. When the upper digits are displayed, x 10⁶ lights up.

* Products with tiny scratches, marks, or display color or brightness variations which do not affect the performance of the product are verified as conforming products.

For flow switch precautions and specific product precautions, refer to the "Operation Manual" on the SMC website.



Specifications/For PF2MC

| Model | | PFG300 series | | |
|----------------------------|---|---|----------------------------|-------------------|
| Applicable SMC flow switch | Model | PF2MC7501 | PF2MC7102 | PF2MC7202 |
| | Rated flow range*1 | 5 to 500 L/min | 10 to 1000 L/min | 20 to 2000 L/min |
| Flow | Set point range | Instantaneous flow | -25 to 525 L/min | -50 to 1050 L/min |
| | | Accumulated flow | 0 to 999,999,999,990 L | |
| | Smallest settable increment | Instantaneous flow | 1 L/min | |
| | | Accumulated flow | 10 L | |
| | Accumulated volume per pulse (Pulse width = 50 ms) | 1 L/pulse | 10 L/pulse | |
| | Accumulated value hold function*3 | Intervals of 2 or 5 minutes can be selected. The stored accumulated flow is held even when the power supply is OFF. | | |
| Electrical | Power supply voltage | 12 to 24 VDC ±10% | | |
| | Current consumption | 25 mA or less | | |
| | Protection | Polarity protection | | |
| Accuracy | Display accuracy | ±0.5% F.S. ± Min. display unit (Ambient temperature at 25°C) | | |
| | Analog output accuracy | ±0.5% F.S. (Ambient temperature at 25°C) | | |
| | Repeatability | ±0.1% F.S. ±1 digit | | |
| | Temperature characteristics | ±0.5% F.S. (Ambient temperature: 0 to 50°C, 25°C standard) | | |
| Switch output | Output type | Select from NPN or PNP open collector output. | | |
| | Output mode | Select from Hysteresis, Window comparator, Accumulated output, Accumulated pulse output, Error output, or Switch output OFF modes. | | |
| | Switch operation | Select from Normal or Reversed output. | | |
| | Max. load current | 80 mA | | |
| | Max. applied voltage (NPN only) | 30 VDC | | |
| | Internal voltage drop (Residual voltage) | NPN output: 1 V or less (at load current of 80 mA), PNP output: 1.5 V or less (at load current of 80 mA) | | |
| | Response time*2 | 3 ms or less | | |
| | Delay time*2 | Select from 0.00, 0.05 to 0.1 s (increments of 0.01 s), 0.1 to 1.0 s (increments of 0.1 s), 1 to 10 s (increments of 1 s), 20 s, 30 s, 40 s, 50 s, or 60 s. | | |
| | Hysteresis*4 | Variable from 0 | | |
| Analog output*5 | Protection | Short circuit protection | | |
| | Output type | Voltage output: 1 to 5 V, 0 to 10 V (only when the power supply voltage is 24 VDC) Current output: 4 to 20 mA (0 L/min to max. value of the rated flow) | | |
| | | Impedance | Output impedance: 1 kΩ | |
| | Current output | Max. load impedance: 300 Ω (at power supply voltage of 12 V), 600 Ω (at power supply voltage of 24 VDC) | | |
| | Response time*2 | 50 ms or less | | |
| External input*6 | External input | Input voltage: 0.4 V or less (Reed or Solid state) for 30 ms or longer | | |
| | Input mode | Select from Accumulated value external reset or Peak/Bottom value reset. | | |
| Sensor input | Input type | Voltage input: 1 to 5 VDC (Input impedance: 1 MΩ), Current input: 4 to 20 mA DC (Input impedance: 51 Ω) (0 L/min to max. value of the rated flow) | | |
| | Connection method | Connector (e-CON) | | |
| | Protection | Over voltage protection (Up to 26.4 VDC) | | |
| Display | Display mode | Select from Instantaneous flow or Accumulated flow. | | |
| | Unit*7 | Instantaneous flow | L/min, cfm (ft³/min) | |
| | | Accumulated flow | L, ft³, L x 10⁶, ft³ x 10⁶ | |
| | Display range | Instantaneous flow | -25 to 525 L/min | -50 to 1050 L/min |
| | | Accumulated flow*9 | 0 to 999,999,999,990 L | |
| | Min. display unit | Instantaneous flow | 1 L/min | |
| | | Accumulated flow | 10 L | |
| | Display type | LCD | | |
| | Number of displays | 3-screen display (Main screen, Sub screen) | | |
| | Display color | 1) Main screen: Red/Green, 2) Sub screen: Orange | | |
| Number of display digits | 1) Main screen: 5 digits (7 segments), 2) Sub screen: 9 digits (7 segments) | | | |
| Digital filter*8 | Indicator LED | LED ON when switch output is ON. OUT1/2: Orange | | |
| | | Select from 0.00, 0.05 to 0.1 s (increments of 0.01 s), 0.1 to 1.0 s (increments of 0.1 s), 1 to 10 s (increments of 1 s), 20 s, or 30 s. | | |
| Environmental resistance | Enclosure | IP40 | | |
| | Withstand voltage | 1000 VAC for 1 min between terminals and housing | | |
| | Insulation resistance | 50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing | | |
| | Operating temperature range | Operating: 0 to 50°C, Stored: -10 to 60°C (No condensation or freezing) | | |
| Standards | Operating humidity range | Operating/Stored: 35 to 85% RH (No condensation or freezing) | | |
| | | CE/UKCA marking, UL (CSA) | | |
| Weight | Body | 25 g (Excluding the power supply/output connection lead wire) | | |
| | Lead wire with connector | +39 g | | |

*1 Rated flow range of the applicable flow switch

*2 Value without digital filter (at 0.00 s)

*3 When using the accumulated value hold function, use the operating conditions to calculate the product life, and do not exceed it. The max. access limit of the memory device is 1.5 million times. If the product is operated 24 hours per day, the product life will be as follows:

• 5 min interval: life is calculated as 5 min x 1.5 million = 7.5 million min = 14.3 years

• 2 min interval: life is calculated as 2 min x 1.5 million = 3 million min = 5.7 years

If the accumulated value external reset is repeatedly used, the product life will be shorter than the calculated life.

*4 If the flow fluctuates around the set value, be sure to keep a sufficient margin. Otherwise, chattering will occur.

*5 Setting is only possible for models with analog output.

*6 Setting is only possible for models with external input.

*7 Setting is only possible for models with the unit selection function.

*8 The response time indicates when the set value is 90% in relation to the step input.

*9 The accumulated flow display is the upper 6-digit and lower 6-digit (total of 12 digits) display. When the upper digits are displayed, x 10⁶ lights up.

* Products with tiny scratches, marks, or display color or brightness variations which do not affect the performance of the product are verified as conforming products.

PFG300 Series

For flow switch precautions and specific product precautions, refer to the "Operation Manual" on the SMC website. Click [here](#) for details.

Specifications/For PF2M7

| Model | | | PFG300 series | | | | | | | | |
|----------------------------|--|--|--|--|---------------------|--------------------|--------------------|------------------------|-----------------|------------------|--|
| Applicable SMC flow switch | Model | | PF2M701 | PF2M702 | PF2M705 | PF2M710 | PF2M725 | PF2M750 | PF2M711 | PF2M721 | |
| | Rated flow range*1 | | 0.01 to 1 L/min | 0.02 to 2 L/min | 0.05 to 5 L/min | 0.1 to 10 L/min | 0.3 to 25 L/min | 0.5 to 50 L/min | 1 to 100 L/min | 2 to 200 L/min | |
| Flow | Set point range | Instantaneous flow | -0.05 to 1.05 L/min | -0.1 to 2.1 L/min | -0.25 to 5.25 L/min | -0.5 to 10.5 L/min | -1.3 to 26.3 L/min | -2.5 to 52.5 L/min | -5 to 105 L/min | -10 to 210 L/min | |
| | | Accumulated flow | 0 to 99,999,999,999.9 L | | | | | 0 to 999,999,999,999 L | | | |
| | Smallest settable increment | Instantaneous flow | 0.01 L/min | | | | | 0.1 L/min | | 1 L/min | |
| | | Accumulated flow | 0.1 L | | | | | 1 L | | | |
| | | Accumulated volume per pulse (Pulse width = 50 ms) | | 0.1 L/pulse | | | | | | 1 L/pulse | |
| | Accumulated value hold function*3 | | Intervals of 2 or 5 minutes can be selected. The stored accumulated flow is held even when the power supply is OFF. | | | | | | | | |
| Electrical | Power supply voltage | | 12 to 24 VDC ±10% | | | | | | | | |
| | Current consumption | | 25 mA or less | | | | | | | | |
| | Protection | | Polarity protection | | | | | | | | |
| Accuracy | Display accuracy | | ±0.5% F.S. ± Minimum display unit (Ambient temperature of 25°C) | | | | | | | | |
| | Analog output accuracy | | ±0.5% F.S. (Ambient temperature of 25°C) | | | | | | | | |
| | Repeatability | | ±0.1% F.S. ±1 digit | | | | | | | | |
| | Temperature characteristics | | ±0.5% F.S. (Ambient temperature: 0 to 50°C, 25°C standard) | | | | | | | | |
| Switch output | Output type | | Select from NPN or PNP open collector output. | | | | | | | | |
| | Output mode | | Select from Hysteresis, Window comparator, Accumulated output, Accumulated pulse output, Error output, or Switch output OFF modes. | | | | | | | | |
| | Switch operation | | Select from Normal or Reversed output. | | | | | | | | |
| | Max. load current | | 80 mA | | | | | | | | |
| | Max. applied voltage (NPN only) | | 30 VDC | | | | | | | | |
| | Internal voltage drop (Residual voltage) | | NPN output: 1 V or less (at load current of 80 mA), PNP output: 1.5 V or less (at load current of 80 mA) | | | | | | | | |
| | Response time*2 | | 3 ms or less | | | | | | | | |
| | Delay time*2 | | Select from 0.00, 0.05 to 0.1 s (increment of 0.01 s), 0.1 to 1.0 s (increment of 0.1 s), 1 to 10 s (increment of 1 s), 20 s, 30 s, 40 s, 50 s, or 60 s | | | | | | | | |
| | Hysteresis*4 | | Variable from 0 | | | | | | | | |
| | Protection | | Short circuit protection | | | | | | | | |
| Analog output*5 | Output type | | Voltage output: 1 to 5 V, 0 to 10 V (only when the power supply voltage is 24 VDC) Current output: 4 to 20 mA (0 L/min to maximum value of the rated flow) | | | | | | | | |
| | Impedance | Voltage output | Output impedance: 1 kΩ | | | | | | | | |
| | | Current output | Maximum load impedance: 300 Ω (at power supply voltage of 12 V), 600 Ω (at power supply voltage of 24 VDC) | | | | | | | | |
| | | Response time*2 | | 50 ms or less | | | | | | | |
| External input*6 | External input | | Input voltage: 0.4 V or less (Reed or Solid state) for 30 ms or longer | | | | | | | | |
| | Input mode | | Select from Accumulated value external reset or Peak/Bottom value reset. | | | | | | | | |
| Sensor input | Input type | | Voltage input: 1 to 5 VDC (Input impedance: 1 MΩ), Current input: 4 to 20 mA DC (Input impedance: 51 Ω) (0 L/min to maximum value of the rated flow) | | | | | | | | |
| | Connection method | | Connector (e-CON) | | | | | | | | |
| | Protection | | Over voltage protection (Up to 26.4 VDC) | | | | | | | | |
| Display | Display mode | | Select from Instantaneous flow or Accumulated flow. | | | | | | | | |
| | Unit*7 | Instantaneous flow | L/min, cfm (ft³/min) | | | | | | | | |
| | | Accumulated flow | L, ft³, L x 10⁶, ft³ x 10⁶ | | | | | | | | |
| | Display range | Instantaneous flow | -0.05 to 1.05 L/min | -0.1 to 2.1 L/min | -0.25 to 5.25 L/min | -0.5 to 10.5 L/min | -1.3 to 26.3 L/min | -2.5 to 52.5 L/min | -5 to 105 L/min | -10 to 210 L/min | |
| | | Accumulated flow*9 | 0 to 99,999,999,999.9 L | | | | | 0 to 999,999,999,999 L | | | |
| | Minimum display unit | Instantaneous flow | 0.01 L/min | | | | | 0.1 L/min | | 1 L/min | |
| | | Accumulated flow | 0.1 L | | | | | 1 L | | | |
| | | Display type | | LCD | | | | | | | |
| | | Number of displays | | 3-screen display (Main screen, Sub screen) | | | | | | | |
| | | Display color | | 1) Main screen: Red/Green, 2) Sub screen: Orange | | | | | | | |
| | Number of display digits | | 1) Main screen: 5 digits (7 segments), 2) Sub screen: 9 digits (7 segments) | | | | | | | | |
| | Indicator LED | | LED ON when switch output is ON OUT1/2: Orange | | | | | | | | |
| Digital filter*8 | | | Select from 0.00, 0.05 to 0.1 s (increment of 0.01 s), 0.1 to 1.0 s (increment of 0.1 s), 1 to 10 s (increment of 1 s), 20 s, or 30 s | | | | | | | | |
| Environment | Enclosure | | IP40 | | | | | | | | |
| | Withstand voltage | | 1000 VAC for 1 minute between terminals and housing | | | | | | | | |
| | Insulation resistance | | 50 MΩ or more (500 VDC measured via megohmmeter) between terminals and housing | | | | | | | | |
| | Operating temperature range | | Operating: 0 to 50°C, Stored: -10 to 60°C (No condensation or freezing) | | | | | | | | |
| | Operating humidity range | | Operating/Stored: 35 to 85% RH (No condensation or freezing) | | | | | | | | |
| Standards | | | CE/UKCA marking, UL (CSA) | | | | | | | | |
| Weight | Body | | 25 g (Excluding the power supply/output connection lead wire) | | | | | | | | |
| | Lead wire with connector | | +39 g | | | | | | | | |

*1 Rated flow range of the applicable flow switch

*2 Value without digital filter (at 0.00 s)

*3 When using the accumulated value hold function, use the operating conditions to calculate the product life, and do not exceed it. The maximum access limit of the memory device is 1.5 million times. If the product is operated 24 hours per day, the product life will be as follows:
 • 5 min interval: life is calculated as 5 min x 1.5 million = 7.5 million min = 14.3 years
 • 2 min interval: life is calculated as 2 min x 1.5 million = 3 million min = 5.7 years
 If the accumulated value external reset is repeatedly used, the product life will be shorter than the calculated life.

*4 If the flow fluctuates around the set value, the width for setting more than the fluctuating width needs to be set. Otherwise, chattering will occur.

*5 Setting is only possible for models with analog output.

*6 Setting is only possible for models with external input.

*7 Setting is only possible for models with the units selection function.

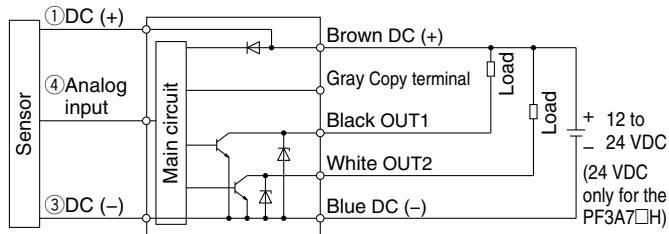
*8 The response time indicates when the set value is 90% in relation to the step input.

*9 The accumulated flow display is the upper 6-digit and lower 6-digit (total of 12 digits) display. When the upper digits are displayed, x 10⁶ lights up.

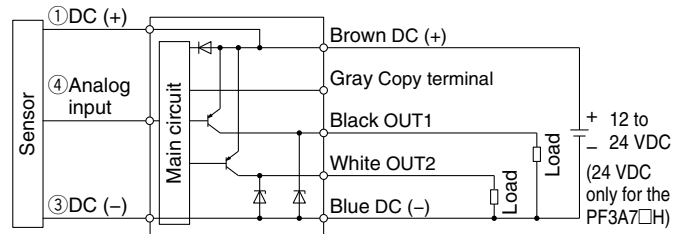
* Products with tiny scratches, marks, or display color or brightness variations which do not affect the performance of the product are verified as conforming products.

Internal Circuits and Wiring Examples

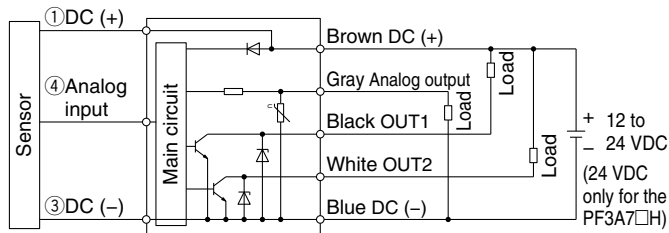
-XY
-RT
-SV
NPN (2 outputs) + Copy function



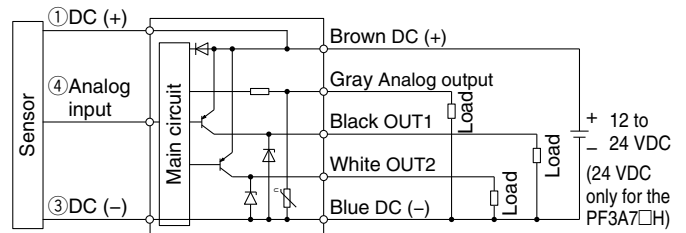
-XY
-RT
-SV
PNP (2 outputs) + Copy function



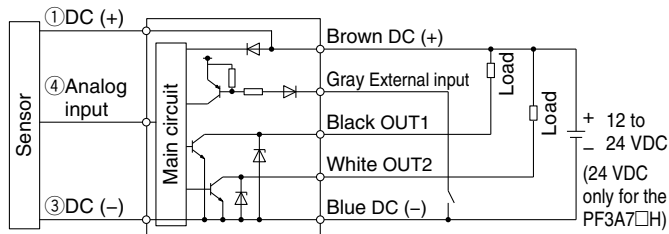
-RT: NPN (2 outputs) + Analog voltage output
-SV: NPN (2 outputs) + Analog current output



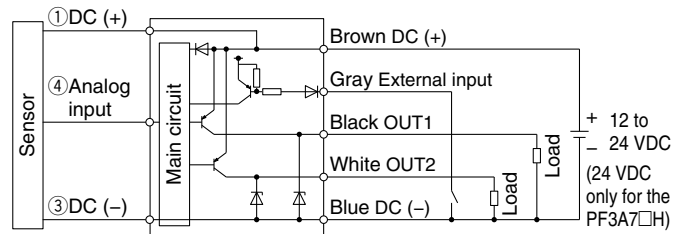
-RT: PNP (2 outputs) + Analog voltage output
-SV: PNP (2 outputs) + Analog current output



-RT: NPN (2 outputs) + External input
-SV: NPN (2 outputs) + External input

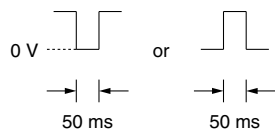
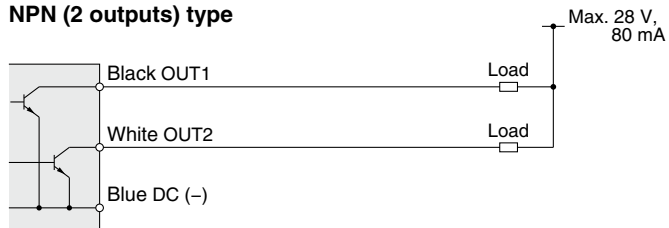


-RT: PNP (2 outputs) + External input
-SV: PNP (2 outputs) + External input

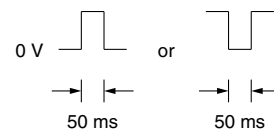
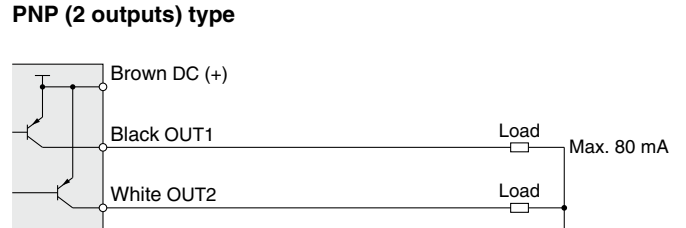


Accumulated pulse output wiring examples

NPN (2 outputs) type

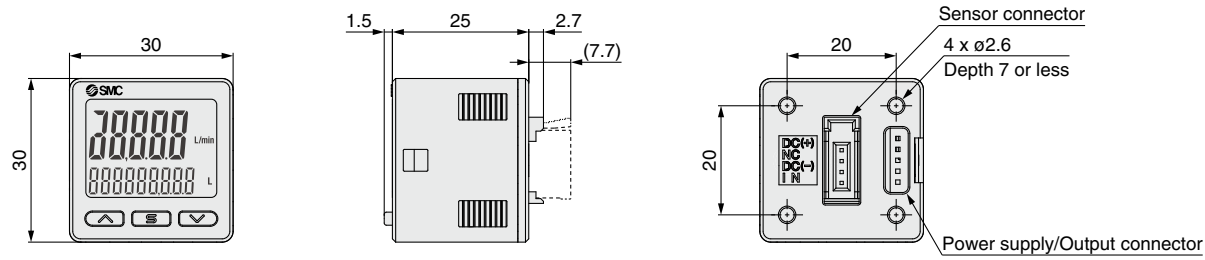


PNP (2 outputs) type

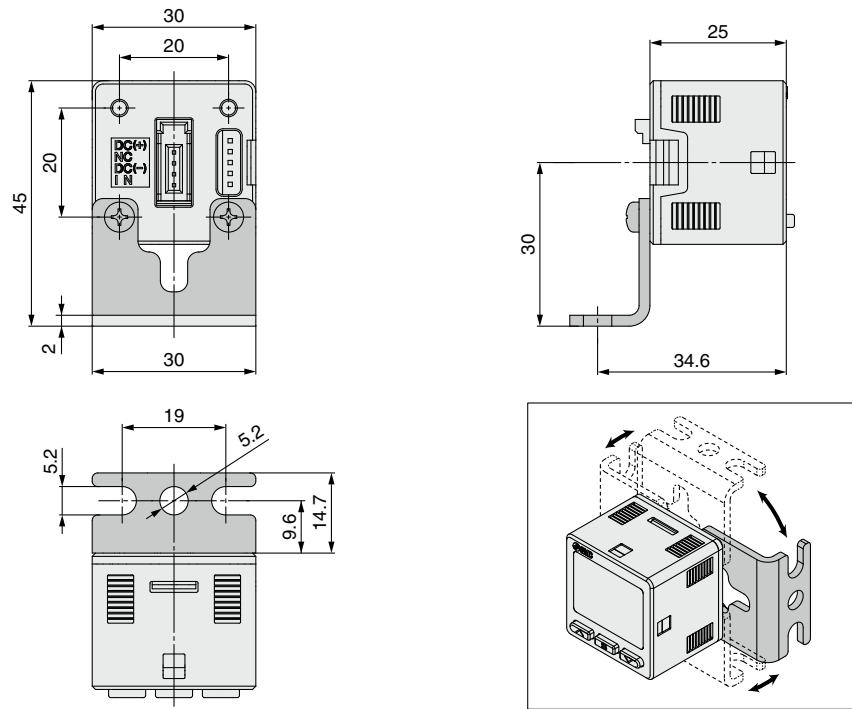


PFG300 Series

Dimensions

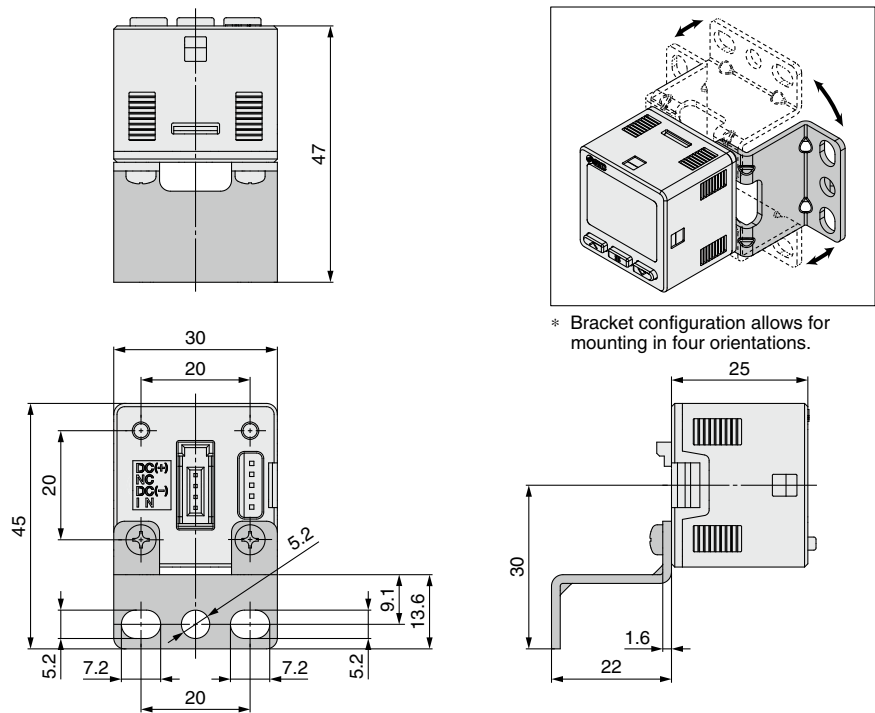


Bracket A
(Part no.: ZS-46-A1)



* Bracket configuration allows for mounting in four orientations.

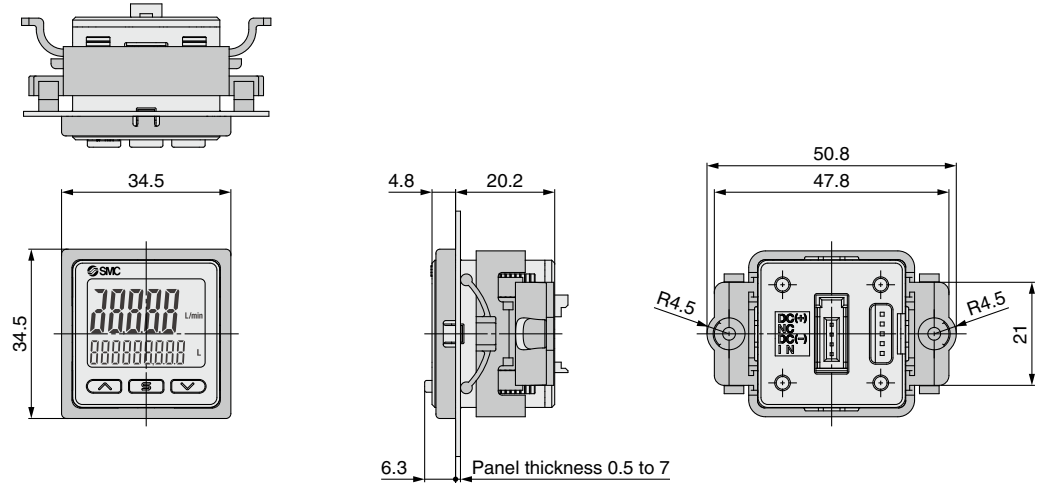
Bracket B
(Part no.: ZS-46-A2)



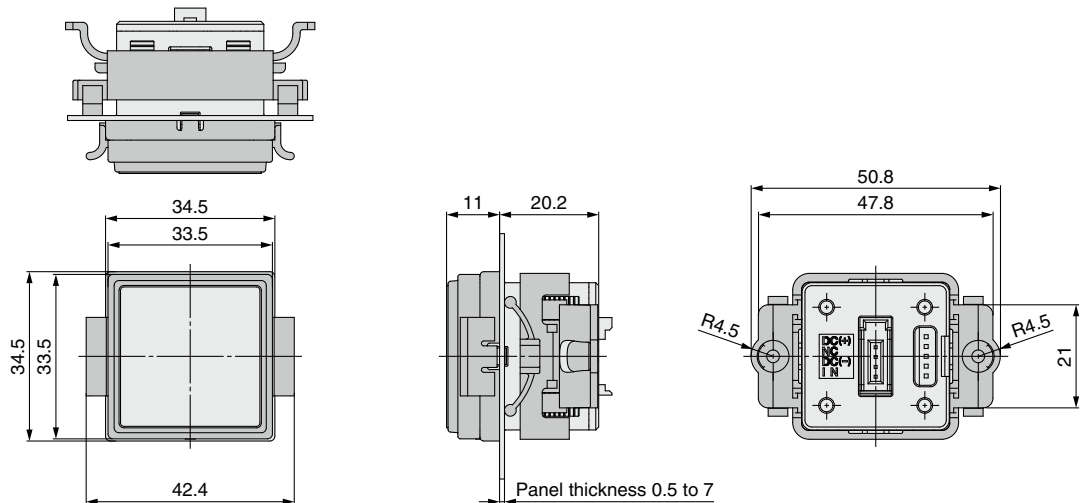
* Bracket configuration allows for mounting in four orientations.

Dimensions

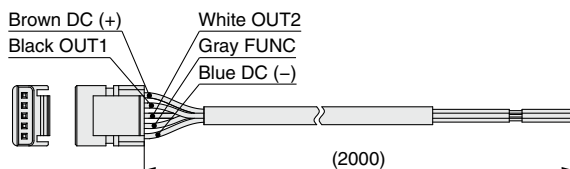
Panel mount adapter (Part no.: ZS-46-B)



Panel mount adapter + Front protection cover (Part no.: ZS-46-D)



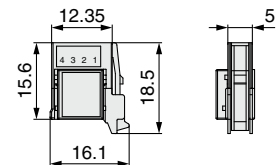
Power supply/output connection lead wire (Part no.: ZS-46-5L)



Sensor connector (Part no.: ZS-28-CA-4)

| Pin no. | Terminal |
|---------|----------|
| 1 | DC (+) |
| 2 | N.C. |
| 3 | DC (-) |
| 4 | IN*1 |

*1 1 to 5 V or 4 to 20 mA



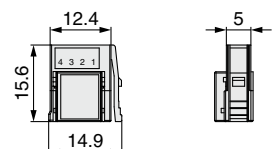
Cable Specifications

| | |
|----------------------------------|--|
| Conductor cross section | 0.15 mm ² (AWG26) |
| Insulator Outside diameter | 1.0 mm |
| Color | Brown, Blue, Black, White, Gray (5-core) |
| Sheath Finished outside diameter | ø3.5 |

(Part no.: ZS-28-C-1)

| Pin no. | Terminal |
|---------|----------|
| 1 | DC (+) |
| 2 | N.C. |
| 3 | DC (-) |
| 4 | IN*2 |

*2 1 to 5 V or 4 to 20 mA

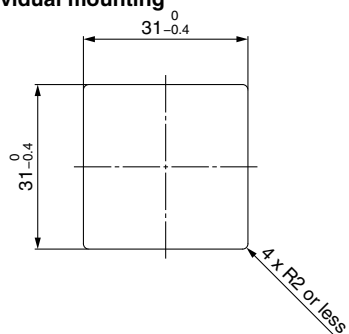


PFG300 Series

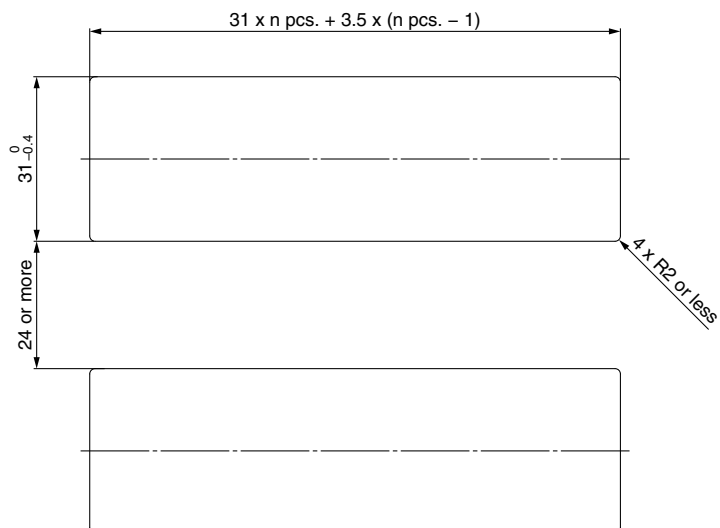
Dimensions

Panel fitting dimensions

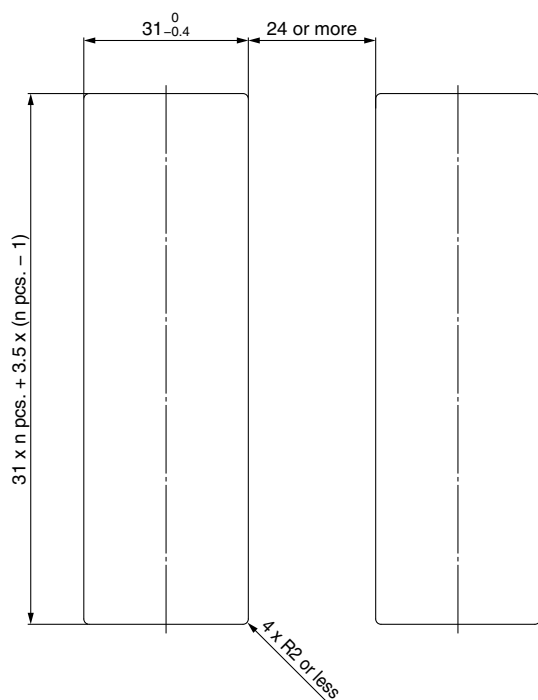
Individual mounting



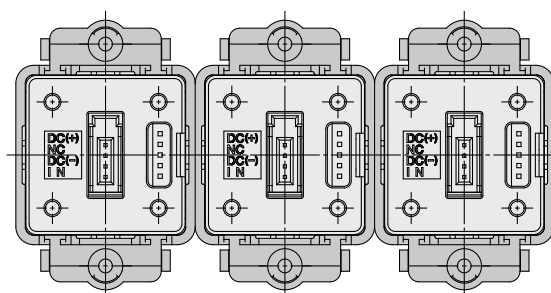
Multiple (2 pcs. or more) secure mounting <Horizontal>



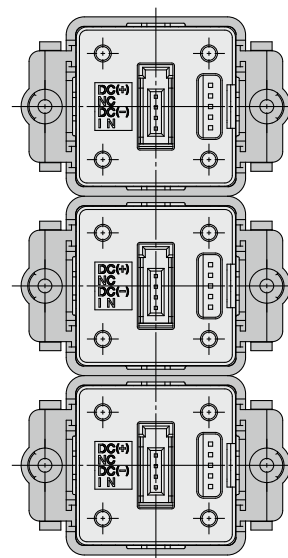
<Vertical>



Panel mount example <Horizontal>

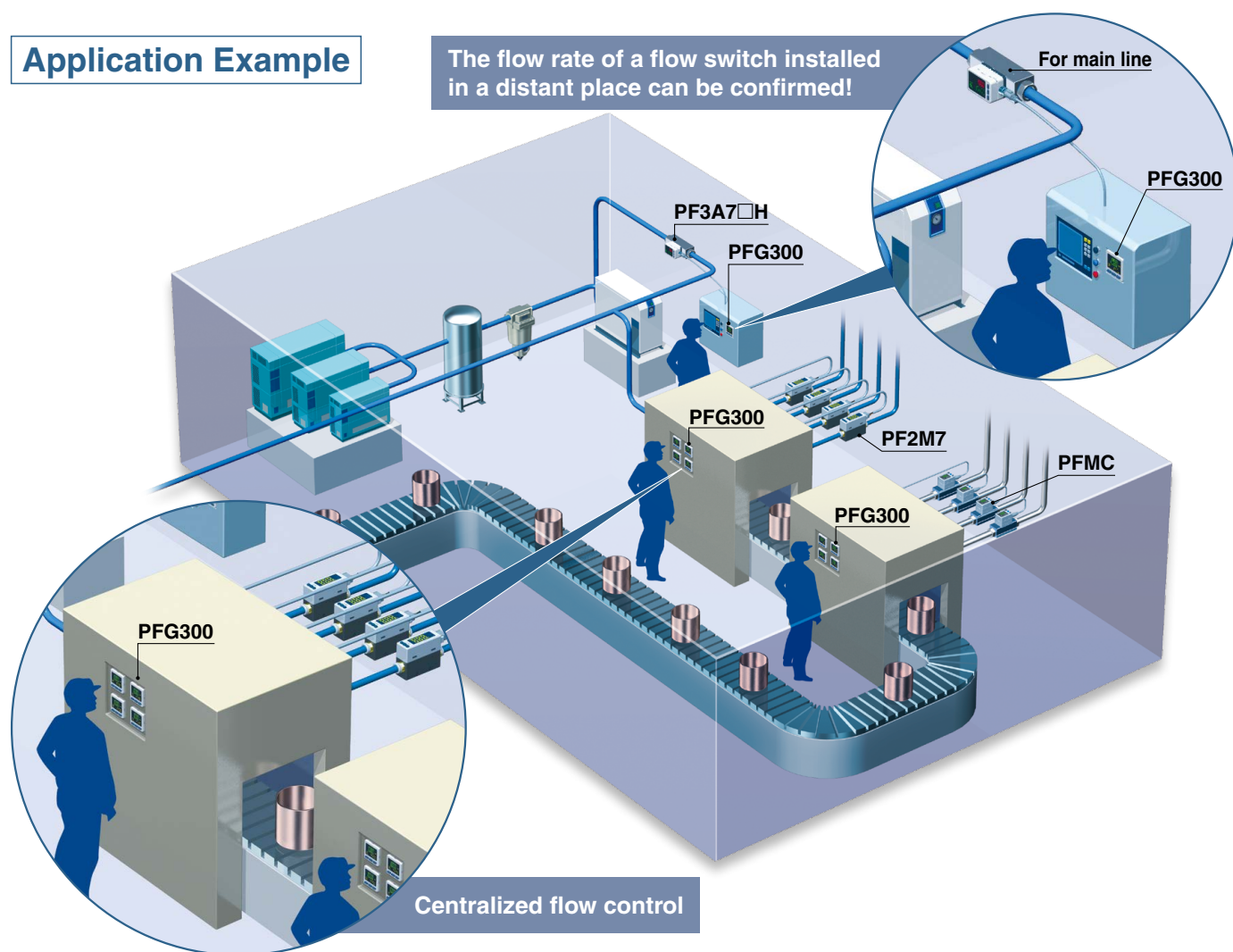


Panel mount example <Vertical>







Application Example

The flow rate of a flow switch installed in a distant place can be confirmed!



Applicable Flow Switch Variations

| Series | Enclosure | Applicable fluid | Rated flow range | Display |
|--|-----------|--|--|---------------------|
| PF2M7  Click here for the catalog (PDF). | IP40 | Dry air, N ₂ Ar, CO ₂ | 0.01 to 1 L/min 0.02 to 2 L/min 0.05 to 5 L/min 0.1 to 10 L/min 0.3 to 25 L/min 0.5 to 50 L/min 1 to 100 L/min 2 to 200 L/min | 2-color LCD display |
| PFMB  Click here for the catalog (PDF). | IP40 | Dry air, N ₂ | 5 to 500 L/min 10 to 1000 L/min 20 to 2000 L/min | 2-color LCD display |
| PF2MC7□(-L)  Click here for the catalog (PDF). | IP65 | Dry air, N ₂ | 5 to 500 L/min 10 to 1000 L/min 20 to 2000 L/min | 3-color LCD display |
| PF3A7□H  Click here for the catalog (PDF). | IP65 | Air, N ₂ | 10 to 1000 L/min 20 to 2000 L/min 30 to 3000 L/min 60 to 6000 L/min 120 to 12000 L/min | 3-color LCD display |