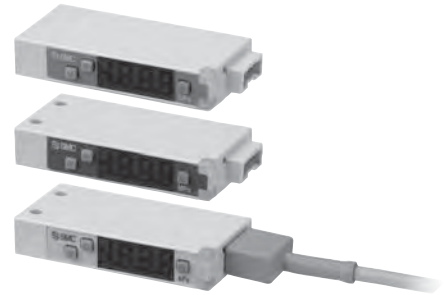


## Compact Digital Pressure Switch Series ZSE10(F)/ISE10



### Features

- Very compact width 9.8mm.
- Copy function.
- Easy operation: 3-step setting.
- Output options: 2 PNP/NPN or 1 PNP/NPN with analogue output 1-5V.
- Additional functions: password setting, power saving.



### How to Order

Rated pressure range

ISE10	-0.100 to 1.000 MPa
-------	---------------------

For positive pressure: ISE10 – M5 – A – M

For vacuum/compound pressure: ZSE10 – M5 – B – M

Rated pressure range

ZSE10	0.0 to -101.0 kPa
ZSE10F	-100.0 to 100 kPa

Piping specifications

M5	M5 female thread/Side ported Piping port
M5R	M5 female thread/Rear ported Piping port
01 <sup>Note)</sup>	R1/8/Side ported R1/8 Piping adapter

Note) Made to Order

Option 1

–	Without lead wire
G	Lead wire with connector (Lead wire length: 2 m) With connector cover

Unit specifications

–	With unit switching function
M	Fixed SI unit <sup>Note)</sup>
P	With unit switching function (Initial value psi)

Note) Fixed unit:  
For vacuum/compound pressure: kPa  
For positive pressure: MPa

Output specifications

A	NPN open collector 2 outputs
B	PNP open collector 2 outputs
C <sup>Note)</sup>	NPN open collector 1 output + Analogue voltage
E <sup>Note)</sup>	PNP open collector 1 output + Analogue voltage

Note) Made to Order

### Product Recommendation



Stocked items for fast delivery

ISE10-M5-B-G    ZSE10-M5-B-G    ZSE10F-M5-B-G



Related Products

- Series AR - Regulator - page 1084
- Series AF - Air Filter - page 1082
- Series AW - Filter Regulator - page 1088
- Series PF2A - Digital Flow Switch for Air- page 1309
- Series KQ2 - Fittings - page 1184
- Series TU - Tubing - page 1223



For more product options and details see our specific catalogues or on-line information.

## Specifications

Model		ZSE10 (vacuum pressure)	ZSE10F (compound pressure)	ISE10 (positive pressure)
Rated pressure range		0.0 to -101.0 kPa	-100.0 to 100.0 kPa	-0.100 to 1.000 MPa
Set pressure range/Pressure display range		10.0 to -105.0 kPa	-105.0 to 105.0 kPa	-0.105 to 1.050 MPa
Withstand pressure		500 kPa	500 kPa	1.5 MPa
Minimum unit setting		0.1 kPa	0.1 kPa	0.001 MPa
Fluid		Air, Non-corrosive gas, Non-flammable gas		
Power supply voltage		12 to 24 VDC $\pm 10\%$ , Ripple (p-p) 10% or less (With power supply polarity protection)		
Current consumption		40 mA or less		
Switch output		NPN or PNP open collector 2 outputs (Selectable)		
Maximum load current		80 mA		
Maximum applied voltage		28 V (With NPN output)		
Residual voltage		2 V or less (With load current of 80 mA)		
Response time		2.5 ms or less (Response time selections with anti-chattering function: 20, 100, 500, 1000, 2000 ms)		
Short circuit protection		Yes		
Repeat accuracy		$\pm 0.2\%$ F.S. $\pm 1$ digit		
Hysteresis	Hysteresis mode	Variable (0 or above) <sup>Note)</sup>		
	Window comparator mode			
Analog output	Voltage output	Output voltage (Rated pressure range)	1 to 5 V $\pm 2.5\%$ F.S.	0.6 to 5 V $\pm 2.5\%$ F.S.
		Linearity	$\pm 1\%$ F.S.	
		Output impedance	Approx. 1 k $\Omega$	
Display		3 1/2 digit, 7-segment indicator, 1-colour display (Red)		
Display accuracy		$\pm 2\%$ F.S. $\pm 1$ digit (at 25°C $\pm 3^\circ\text{C}$ ambient temperature)		
Indicator light		Lights up when output is turned ON. OUT1: Green OUT2: Red		
Environmental resistance	Enclosure	IP40		
	Operating temperature range	Operating: -5 to 50°C, Stored: -10 to 60°C (No freezing or condensation)		
	Operating humidity range	Operating and stored: 35 to 85% RH (No condensation)		
	Withstand voltage	1000 VAC for 1 min. between live parts and enclosure		
	Insulation resistance	50 M $\Omega$ or more between live parts and enclosure (at 500 VDC measured via megohmmeter)		
Temperature characteristics		$\pm 2\%$ F.S. (at 25°C in an operating range of -5 to 50°C)		
Lead wire		Oil-resistant vinyl cabtire cable 5 cores, Cross section: 0.15 mm <sup>2</sup> (AWG26) Insulator O.D.: 1.0 mm		
Standard		CE Marking, UL (CSA), RoHS compliant		

Note) If the applied voltage fluctuates around the set-value, the hysteresis must be set to a value more than the fluctuating width, otherwise chattering will occur.

## Piping Specifications

Model		M5	M5R	01
Port size		M5 x 0.8 (Side ported)	M5 x 0.8 (Rear ported)	R1/8 (Side ported)
Wetted part material	Sensor pressure receiving area	Sensor pressure receiving area: Silicon		
	Piping port	C3604 (Electroless nickel plated) O-ring: HNBR		
Mass	With lead wire with connector (5 cores, 2 m)	55 g		63 g
	Without lead wire with connector	15 g		23 g

## Options

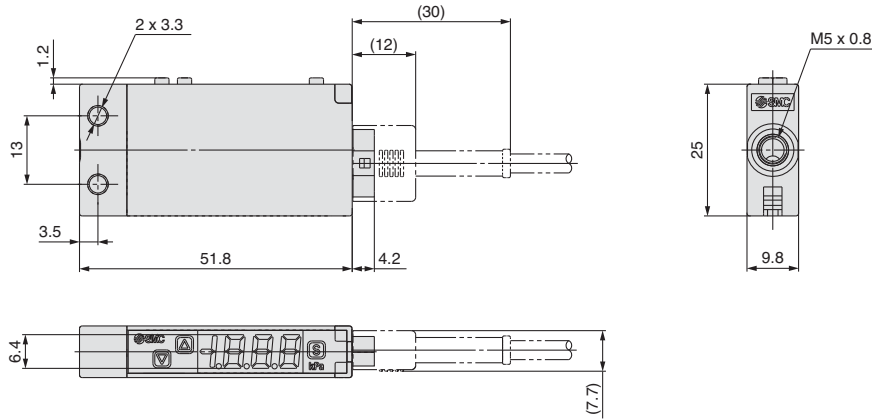
When optional parts are required separately, use the following part numbers to place an order.

Part no.	Option
ZS-39-5G	Lead wire with connector (with connector cover) (5 cores, 2 m)
ZS-39-B	Panel mount adapter
ZS-39-D	Panel mount adapter + Front protective cover
ZS-39-R	DIN rail adapter
ZS-39-01	Front protective cover
ZS-39-N1 <sup>Note)</sup>	R1/8 piping adapter

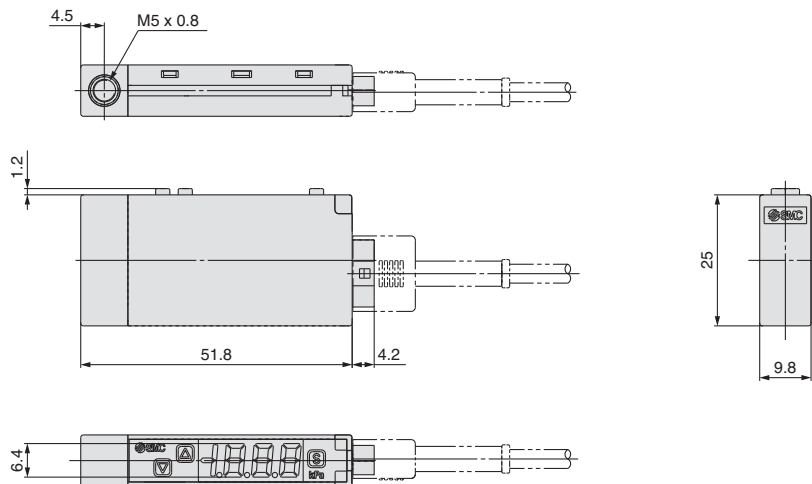
Note) Made to Order

## Dimensions

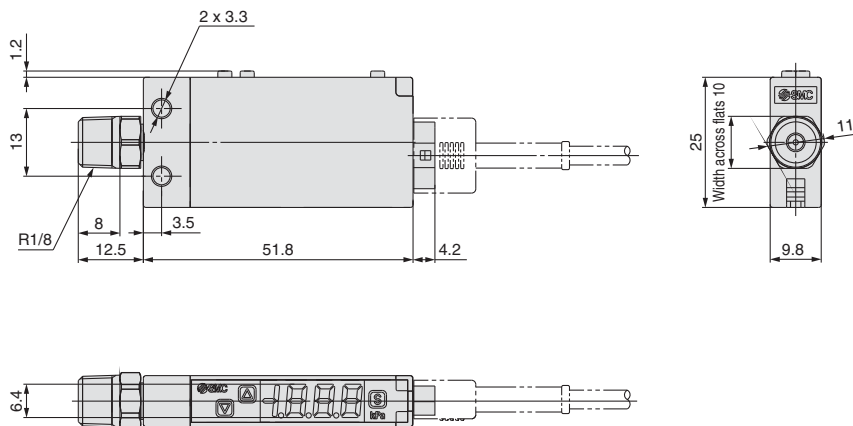
ZSE10(F)/ISE10-M5-□-□□□□



ZSE10(F)/ISE10-M5R-□-□□□□



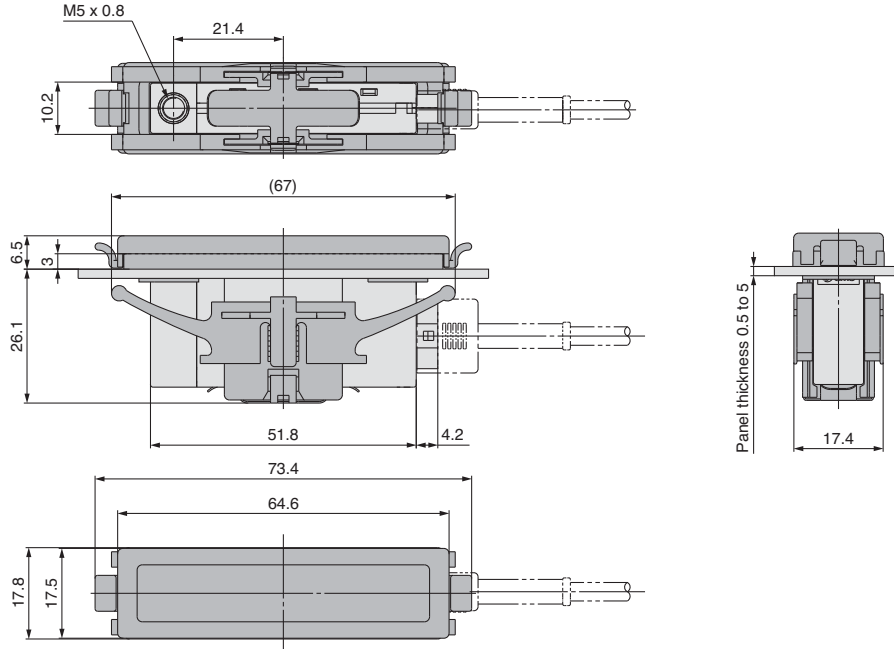
ZSE10(F)/ISE10-01-□-□□□□



Dimensions

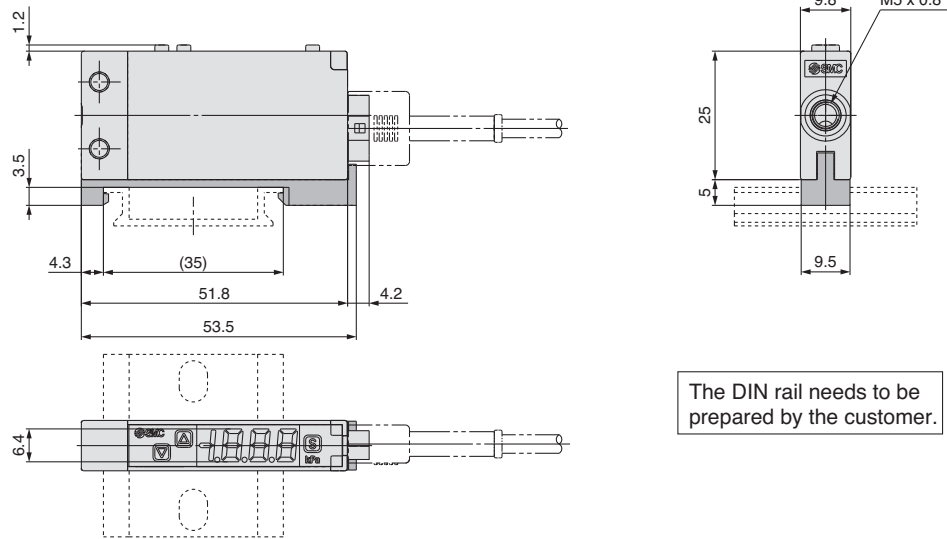
ZSE10(F)/ISE10-M5R-□-□□

Panel mount adapter + Front protective cover



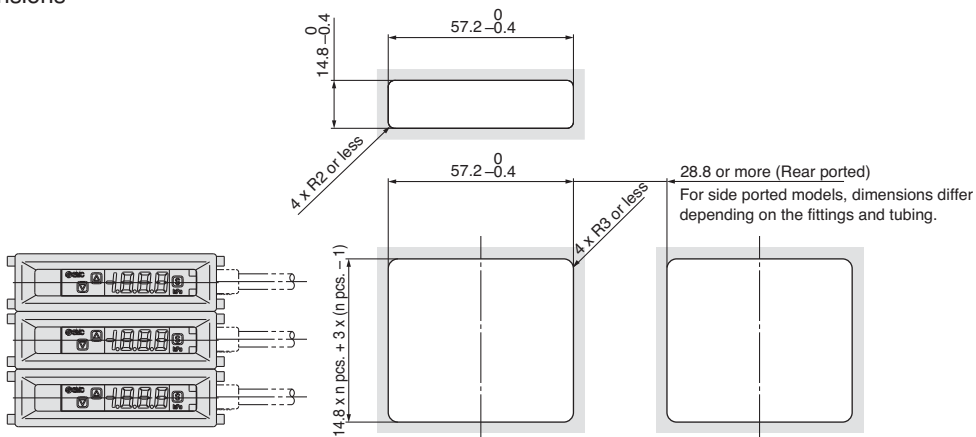
ZSE10(F)/ISE10-M5-□-□□

With DIN rail



The DIN rail needs to be prepared by the customer.

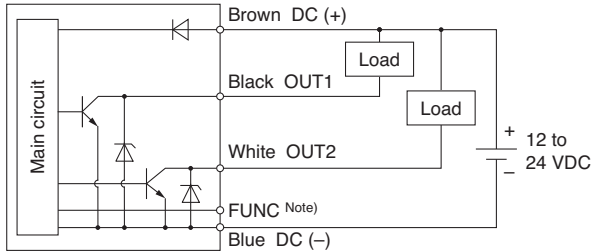
Panel fitting dimensions



## Wiring

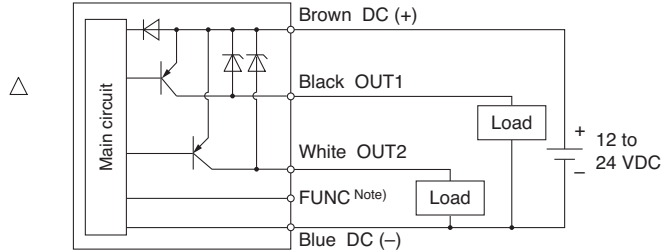
**A**

NPN (2 outputs)


 Max. 28 V, 80 mA  
 Residual voltage 2 V or less

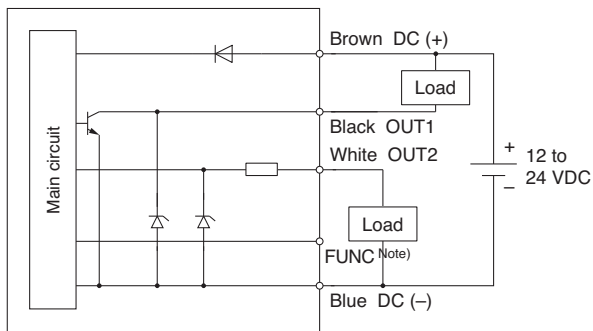
**B**

PNP (2 outputs)


 Max. 80 mA  
 Residual voltage 2 V or less

**C**

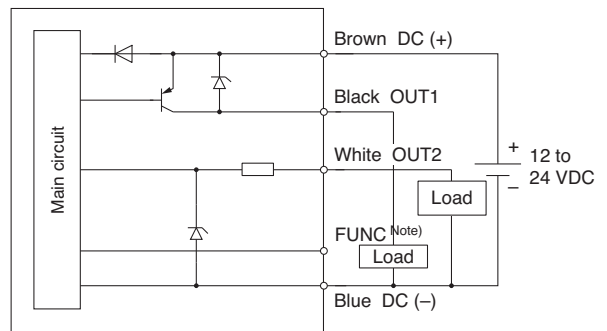
NPN (1 output) + Analogue voltage output


 Max. 28 V, 80 mA  
 Residual voltage 2 V or less

 Analogue voltage output  
 Output impedance approx. 1 kΩ

**E**

PNP (1 output) + Analogue voltage output


 Max. 80 mA  
 Residual voltage 2 V or less

 Analogue voltage output  
 Output impedance approx. 1 kΩ


## 2-colour Display High Precision Digital Pressure Switch Series ZSE30A(F)/ISE30A



### Features

- Adjustable vacuum, positive and compound pressure switch with display.
- Large, easy to read, 2 colour (green/red), 4 digit display.
- Easy operation: 3-step setting and copy display.
- Analogue output: 4-20mA or 1-5V.
- Switch output: 2 PNP/NPN or 1 pnp/npn.
- Replaceable one touch fittings.
- Additional functions: Secret code setting function, power-saving function, resolution-switch function.

### How to Order

N	NPN open collector 1 output
P	PNP open collector 1 output
A	NPN open collector 2 outputs
B	PNP open collector 2 outputs
C <small>Note)</small>	NPN open collector 1 output + Analogue voltage output
D <small>Note)</small>	NPN open collector 1 output + Analogue current output
E <small>Note)</small>	PNP open collector 1 output + Analogue voltage output
F <small>Note)</small>	PNP open collector 1 output + Analogue current output

Note) Made to Order

Rated pressure range

ISE30A	-0.1 to 1 MPa
--------	---------------

For positive pressure: ISE30A - 01 - N

For vacuum/compound pressure: ZSE30A - 01 - N

ZSE30A	0 to -101 kPa
ZSE30AF	-100 to 100 kPa

Piping

01	R1/8 (M5 female threaded)	
C4H	One-touch fitting ø4 mm, ø5/32 inch	Straight type
C6H	One-touch fitting ø6 mm	
C4L	One-touch fitting ø4 mm, ø5/32 inch	Elbow type
C6L	One-touch fitting ø6 mm	

Display unit

-	With unit display switching function
M	Fixed SI unit <small>Note 2)</small>
P <small>Note 1)</small>	With unit display switching function (Initial value PSI)

Note 1) Made to Order  
Note 2) Fixed unit kPa, MPa

Option 1

- Without lead wire
- Lead wire with connector (Lead wire length 2 m) Note)
- Lead wire with connector (lead wire length 2 m) Note) and with connector cover

### Accessories for mounting

-	None	
ZS-38-A1	Bracket A	
ZS-38-A2	Bracket B	
ZS-27-C	Panel mount adapter	
ZS-27-D	Panel mount adapter + front protection cover	

### Product Recommendation



Stocked items for fast delivery

ISE30A-01-A-G	ISE30A-C6H-E-G	ZSE30A-01-F-G	ZSE30A-C6L-P-G
ISE30A-01-B	ISE30A-C6H-F-G	ZSE30A-01-P	ZSE30AF-01-A-G
ISE30A-01-B-G	ISE30A-C6H-P-G	ZSE30A-01-P-G	ZSE30AF-01-B-G
ISE30A-01-E-G	ISE30A-C6L-B-G	ZSE30A-C4H-P-G	ZSE30AF-01-E-G
ISE30A-01-F	ZSE30A-01-B	ZSE30A-C6H-E-G	ZSE30AF-01-F-G
ISE30A-01-F-G	ZSE30A-01-B-G	ZSE30A-C6H-F-G	ZSE30AF-01-P-G
ISE30A-01-P	ZSE30A-01-E-G	ZSE30A-C6H-P-G	ZSE30AF-C6H-P-G
ISE30A-01-P-G	ZSE30A-01-F	ZSE30A-C6L-B-G	



Related Products

- Series AR - Air Regulator - page 1084
- Series AF - Main Line Filter - page 1082
- Series AW - Filter Regulator - page 1088
- Series PF2A - Digital Flow Switch for Air - page 1309
- Series KQ2 - Fittings - page 1184
- Series TU - Tubing - page 1223

## Specifications

Model	ZSE30A (Vacuum pressure)	ZSE30AF (Compound pressure)	ISE30A (Positive pressure)	
Rated pressure range	0.0 to -101.0 kPa	-100.0 to 100.0 kPa	-0.100 to 1.000 MPa	
Regulating pressure range	10.0 to -105.0 kPa	-105.0 to 105.0 kPa	-0.105 to 1.050 MPa	
Proof pressure	500 kPa	500 kPa	1.5 MPa	
Setting/display resolution	0.1 kPa	0.1 kPa	0.001 MPa	
Applicable fluid	Air, non-corrosive gas, non-flammable gas			
Power supply voltage	12 to 24 VDC $\pm 10\%$ , Ripple (p-p) 10% or less (with power supply polarity protection)			
Current consumption	40 mA or less			
Switch output	NPN or PNP open collector 1 output, NPN or PNP open collector 2 outputs (selectable)			
Switch output	Maximum load current	80 mA		
	Maximum applied voltage	28 V (with NPN output)		
	Residual voltage	1 V (with load current of 80 mA)		
	Response time	2.5 ms or less (with anti-chattering function: 20, 100, 500, 1000, 2000 ms)		
	Short circuit protection	With short circuit protection		
Repeatability	$\pm 0.2\%$ F.S. 1 digit			
Hysteresis	Hysteresis mode	Variable (0 or above) <sup>Note 1)</sup>		
	Window comparator mode			
Analogue output	<sup>Note 2)</sup> Voltage output	Output voltage	1 to 5V $\pm 2.5\%$ F.S. (with rated pressure range)	0.6 to 5V $\pm 2.5\%$ F.S. (with rated pressure range)
		Linearity	$\pm 1\%$ F.S.	
		Output impedance	Approx. 1 k	
	<sup>Note 3)</sup> Current output	Output current	4 to 20 mA $\pm 2.5\%$ F.S. or less (with rated pressure range)	2.4 to 20 mA $\pm 2.5\%$ F.S. or less (with rated pressure range)
		Linearity	$\pm 1\%$ F.S.	
		Load impedance	Maximum load impedance: 300 $\Omega$ with power supply voltage of 12 V; 600 $\Omega$ with power supply voltage of 24 V Minimum load impedance: 50 $\Omega$	
Display	4-digit, 7-segment, 2-colour LCD (Red and Green)			
Display accuracy	$\pm 2\%$ F.S. $\pm 1$ digit (ambient temperature of 25 $\pm 3^\circ\text{C}$ )			
Indicator light	Lights up when switch output is ON. OUT1: Green, OUT2: Red			
Environment resistance	Enclosure	IP40		
	Operating temperature range	Operating: 0 to 50°C, Stored: -10 to 60°C (no freezing or condensation)		
	Operating humidity range	Operating/Stored: 35 to 85% RH (no condensation)		
	Withstand voltage	1000 VAC for 1 minute between live parts and enclosure		
	Insulation resistance	50 M $\Omega$ or more between live parts and enclosure (at 500 VDC Mega)		
Temperature characteristics	$\pm 2\%$ F.S. (based on 25°C)			
Lead wire	Oilproof heavy-duty vinyl cable, 3 cores $\phi 3.5$ , 2 m 4 cores Conductor area: 0.15 mm <sup>2</sup> (AWG26), Insulator O.D.: 1.0 mm			
Standards	CE Marking, UL/CSA, RoHS compliance			

Note 1) If applied pressure fluctuates near the set value, set the hysteresis above the fluctuation range to prevent chattering.

Note 2) When analogue the voltage output is selected, a simultaneous selection of switch output and current output is not available.

Note 3) When analogue the current output is selected, a simultaneous selection of switch output and voltage output is not available.

## Piping Specifications

Model	01	C4H	C6H	C4L	C6L	
Port size	R1/8 M5 x 0.8	—	—	—	—	
	One-touch fitting, Straight type	—	$\phi 4$ mm $\phi 5/32$ inch	$\phi 6$ mm	—	—
	One-touch fitting, Elbow type	—	—	—	$\phi 4$ mm $\phi 5/32$ inch	$\phi 6$ mm
Wetted parts material	Sensor pressure receiving area	Sensor pressure receiving area: Silicon				
	Piping port	C3602 (electroless nickel plated) O-ring: HNBR	PBT, POM, Stainless steel 304, C3604 (electroless nickel plated) O-ring: NBR			
Weight	Including lead wire with connector (3 cores, 2 m)	81 g	70 g	71 g	75 g	73 g
	Including lead wire with connector (4 cores, 2 m)	85 g	74 g	75 g	79 g	77 g
	Excluding lead wire with connector	43 g	32 g	33 g	37 g	35 g



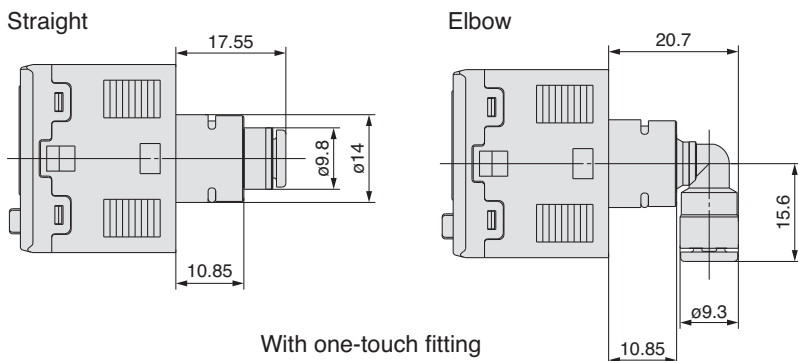
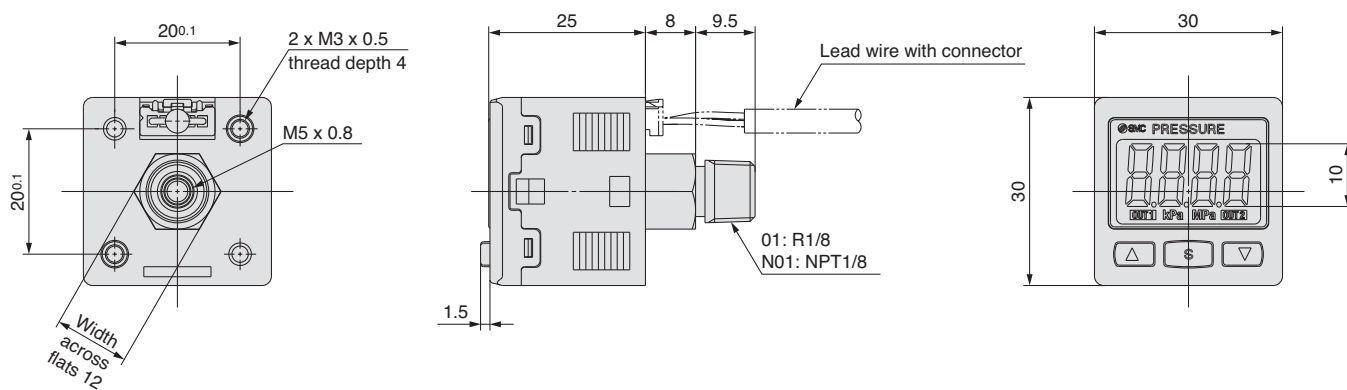
### Options

When optional parts are required separately, use the following part numbers to place an order.

Part no.	Option	Note
ZS-27-01	Front protection cover	
ZS-38-3L	Lead wire with connector	3 cores, for 1 output, 2 m
ZS-38-4L	Lead wire with connector	4 cores, for 2 outputs, 2 m
ZS-38-3G	Lead wire with connector (with connector cover)	3 cores, for 1 output, 2 m
ZS-38-4G	Lead wire with connector (with connector cover)	4 cores, for 2 outputs, 2 m

Part no.	Option	Note
ZS-38-5L	Lead wire with a connector for copying	3 cores, copy function, 1 m
ZS-38-U	Lead wire unit with a connector for copying	Copy function (up to 10 slaves)
ZS-38-C4H	One-touch fittings $\phi 4$ mm straight	O-ring, one-touch clip included
ZS-38-C6H	One-touch fittings $\phi 6$ mm straight	O-ring, one-touch clip included
ZS-38-N7H	One-touch fittings $\phi 1/4$ inch straight	O-ring, one-touch clip included
ZS-38-C4L	One-touch fittings $\phi 4$ mm elbow	O-ring, one-touch clip included
ZS-38-C6L	One-touch fittings $\phi 6$ mm elbow	O-ring, one-touch clip included
ZS-38-N7L	One-touch fittings $\phi 1/4$ inch elbow	O-ring, one-touch clip included

### Dimensions

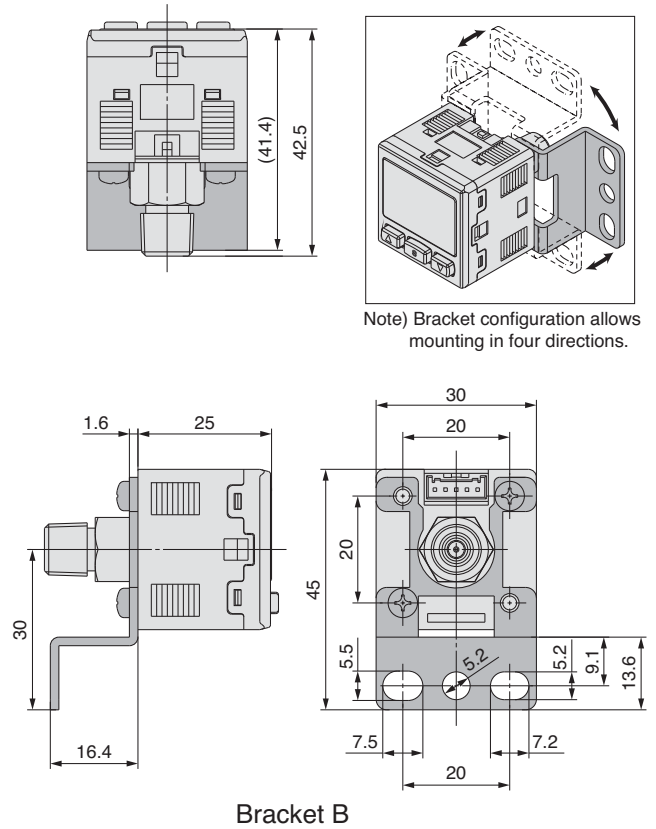
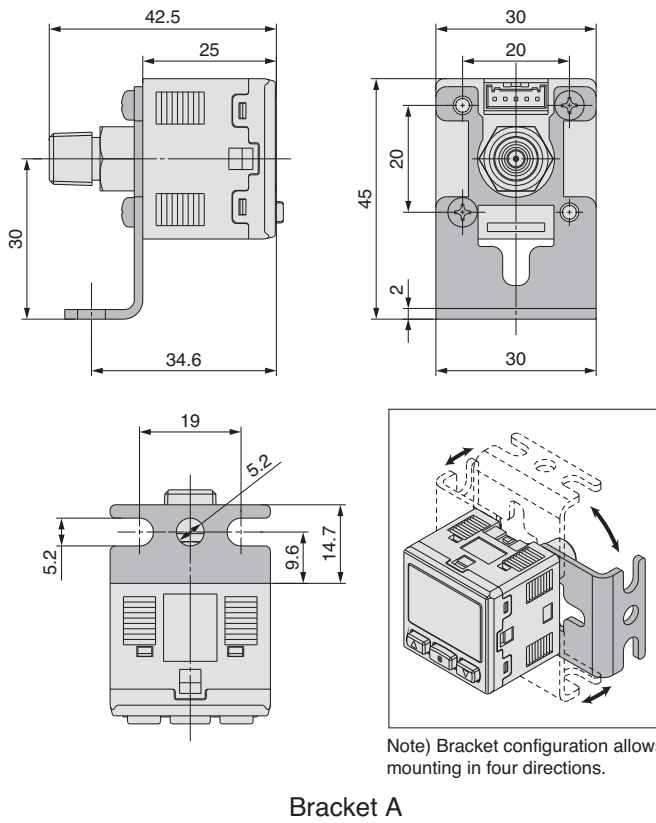


One-touch fitting type	Straight		Elbow		
	A	B	A	B	C
$\phi 4$	17.55	9.8	20.7	9.3	15.6
$\phi 6$	17.95	10	22.85	11.6	16.1

With one-touch fitting

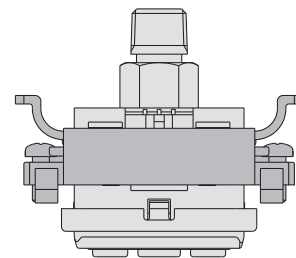
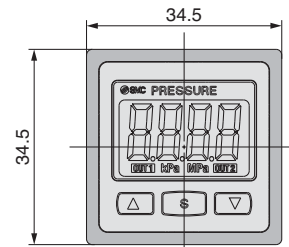
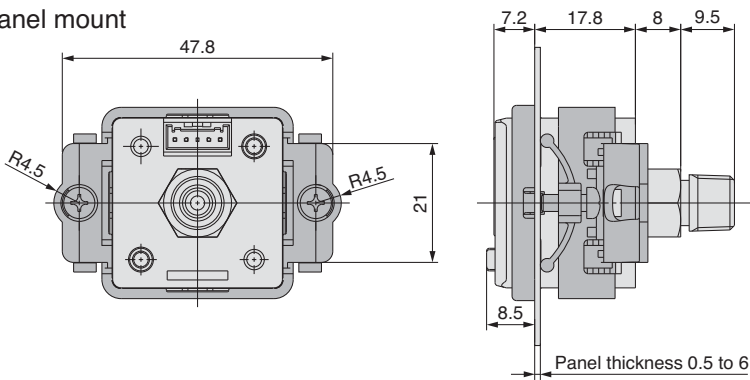


## With bracket

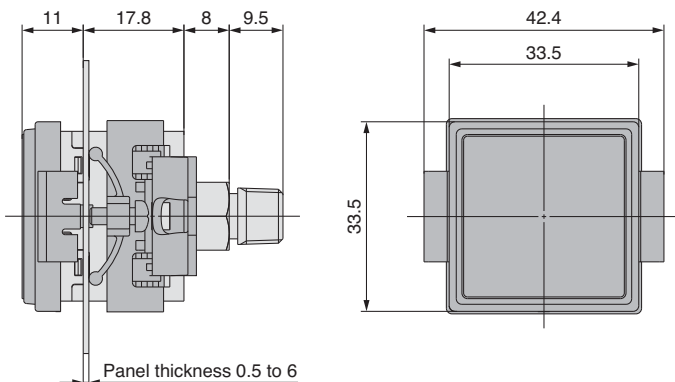


## Dimensions

## Panel mount



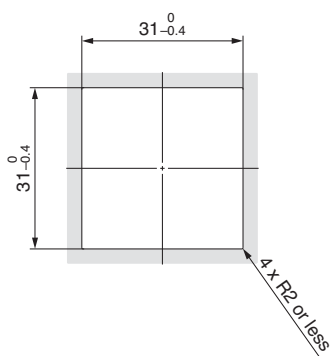
## Panel mount adapter + Front protection cover



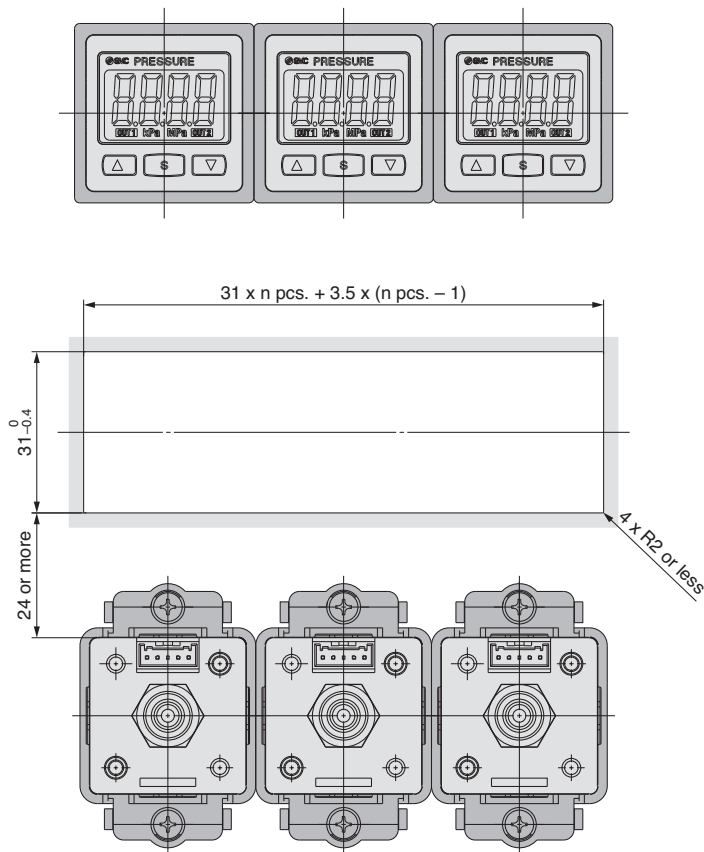
Dimensions

Panel fitting dimensions

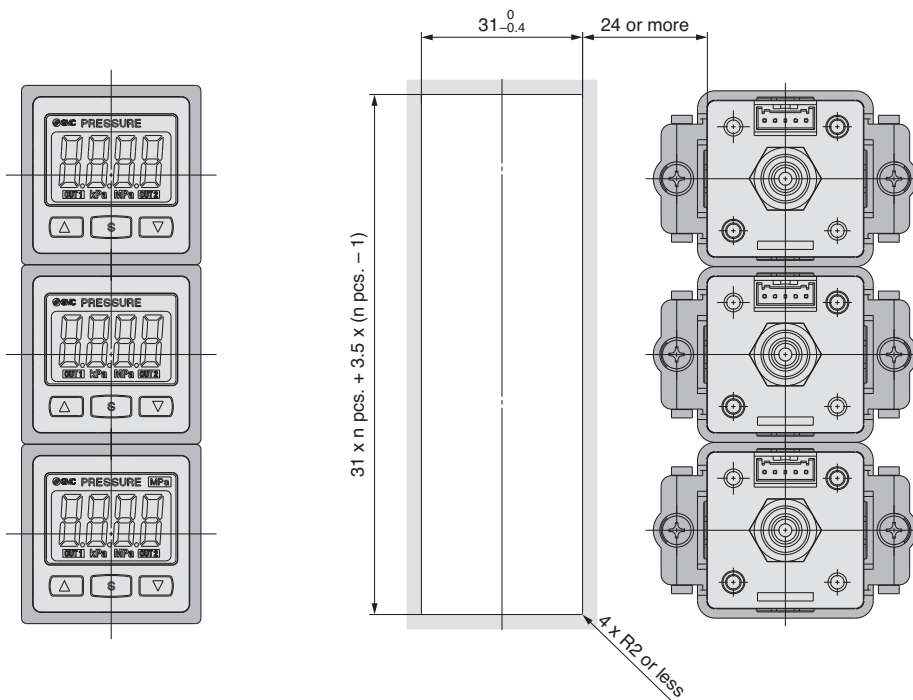
1 pc. mounting



Multiple (2 pcs. or more) horizontal mounting

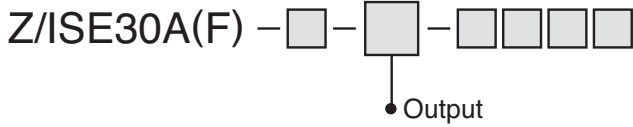


Multiple (2 pcs. or more) vertical mounting

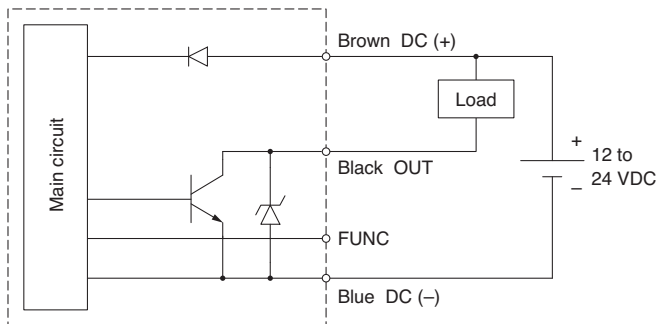


## Wiring

## Internal Circuits and Wiring Examples

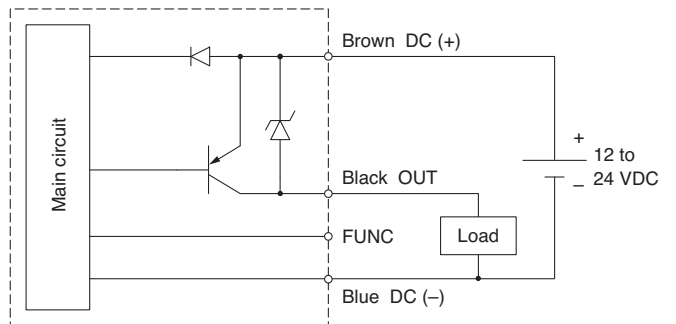

**N**

NPN (1 output)


 Max. 28 V, 80 mA  
 Residual voltage 1 V or less

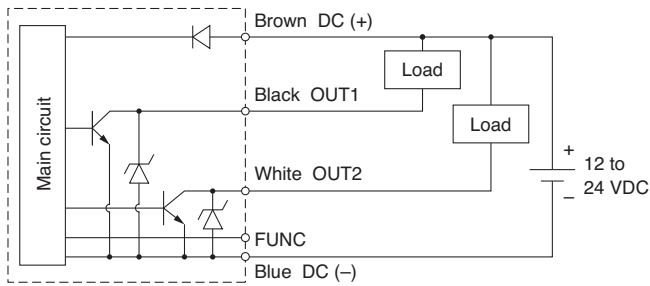
**P**

PNP (1 output)


 Max. 80 mA  
 Residual voltage 1 V or less

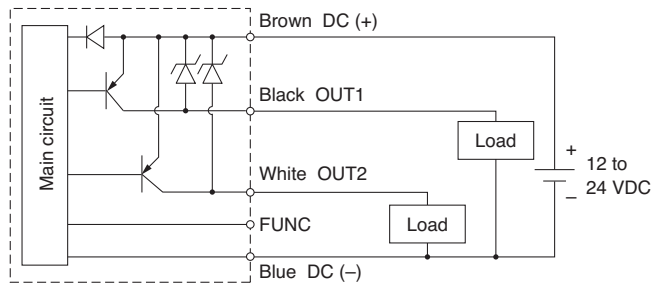
**A**

NPN (2 outputs)


 Max. 28 V, 80 mA  
 Residual voltage 1 V or less

**B**

PNP (2 outputs)


 Max. 80 mA  
 Residual voltage 1 V or less

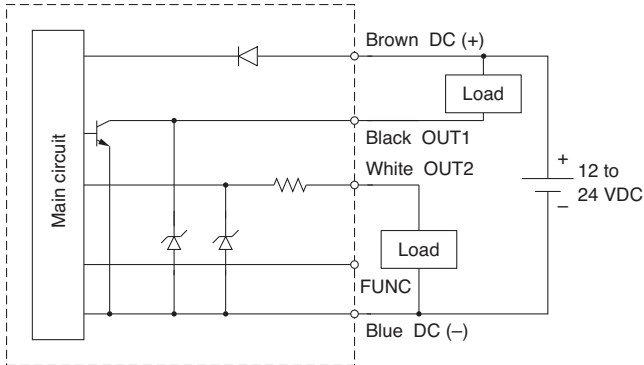
\* The FUNC terminal is connected using a dedicated lead wire (ZS-38-5L or ZS-38-U) when the copy function is used.



Wiring

**C**

NPN (1 output) + Analog voltage output

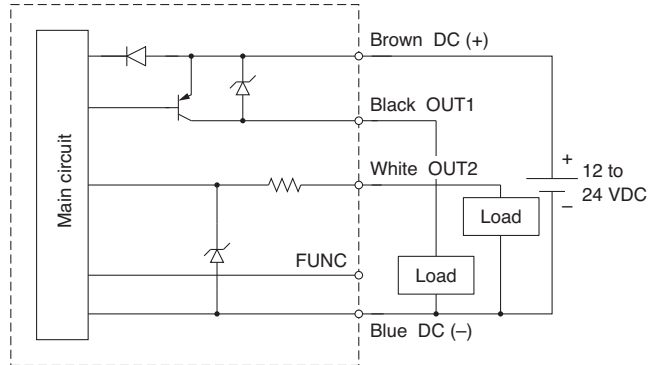


Max. 28 V, 80 mA  
Residual voltage 1 V or less

Analog voltage output  
Output impedance: Approx. 1 k

**E**

PNP (1 output) + Analog voltage output

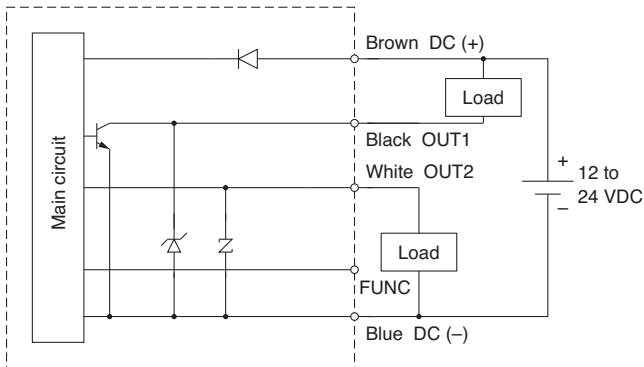


Max. 80 mA  
Residual voltage 1 V or less

Analog voltage output  
Output impedance: Approx. 1 k

**D**

NPN (1 output) + Analog current output

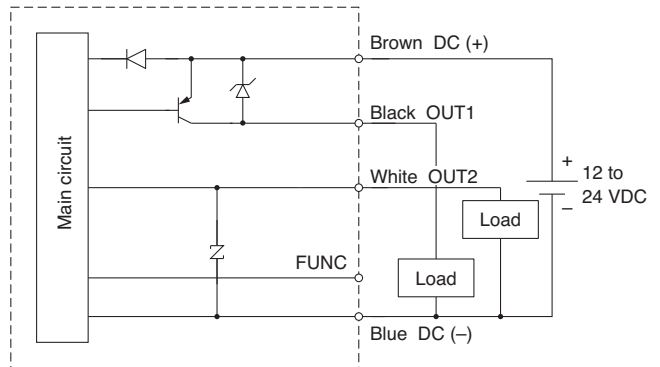


Max. 28 V, 80 mA  
Residual voltage 1 V or less

Analog current output  
Max. load impedance:  
Power supply voltage 12 V: 300  
Power supply voltage 24 V: 600  
Min. load impedance: 50

**F**

PNP (1 output) + Analog current output



Max. 80 mA  
Residual voltage 1 V or less

Analog current output  
Max. load impedance:  
Power supply voltage 12 V: 300  
Power supply voltage 24 V: 600  
Min. load impedance: 50

\* The FUNC terminal is connected using a dedicated lead wire (ZS-38-5L or ZS-38-U) when the copy function is used.

## 2-colour Display High Precision Digital Pressure Switch Series ZSE40A(F)/ISE40A



### Features

- Easy to read, 2 colour (green/red) display.
- IP65 construction.
- Easy operation: 3-step setting.
- Output options: 2 PNP/NPN with analogue output 4-20mA or 1-5V or with copy function.
- Additional functions: password setting, power saving.



### How to Order

Rated pressure range

ISE40A	-0.1 to 1.000 MPa
--------	-------------------

For positive pressure: ISE40A-01-V-□

For vacuum/compound pressure: ZSE40A-01-V-□

Rated pressure range

ZSE40A	0.0 to -101.0 kPa
ZSE40AF	-100.0 to 100 kPa

Unit specifications

—	With unit switching function
M	Fixed SI unit <sup>Note)</sup>
P	With unit switching function (Initial value psi)

Note) Fixed unit:  
For vacuum/compound pressure: kPa  
For positive pressure: MPa

Output specifications

R	NPN open collector 2 outputs + Analogue voltage/Auto-shift switching
T	PNP open collector 2 outputs + Analogue voltage/Auto-shift switching
S	NPN open collector 2 outputs + Analogue current/Auto-shift switching
V	PNP open collector 2 outputs + Analogue current/Auto-shift switching
X	NPN open collector 2 outputs + Copy function
Y	PNP open collector 2 outputs + Copy function

Piping specifications

Option	Description	Diagram
01	R1/8 (With M5 female thread)	
WF1 <sup>Note)</sup>	G1/8	
M5 <sup>Note)</sup>	M5 x 0.8 (Female thread)	
C4	ø4 one-touch fitting	
C6	ø6 one-touch fitting	

Note) Made to Order

Combination of piping specifications with option 1 and part numbers of options

Description	Option 1		Piping						
	Symbol	Part no.	01	N01	W1	WF1	M5	C4	C6
Bracket A	A	ZS-24-A	●	●	●	●	—	—	—
Bracket B	B	ZS-24-B	—	—	●	●	—	—	—
Bracket D	D	ZS-24-D	—	●	●	●	—	—	—
Panel mount adapter	E	ZS-35-C	●	●	—	—	—	—	—
		ZS-35-D	—	—	●	●	●	●	●
Panel mount adapter + Front protective cover	F	ZS-35-F	●	●	—	—	—	—	—
		ZS-35-G	—	—	●	●	●	●	●

### Product Recommendation



Stocked items for fast delivery

ISE40A-01-T	ZSE40A-01-T	ZSE40AF-01-T
ISE40A-01-V	ZSE40A-01-V	ZSE40AF-01-V
ISE40A-01-Y	ZSE40A-01-Y	ZSE40AF-01-Y
ISE40A-C4-T	ZSE40A-C4-T	ZSE40AF-C4-T
ISE40A-C4-V	ZSE40A-C4-V	ZSE40AF-C4-V
ISE40A-C4-Y	ZSE40A-C4-Y	ZSE40AF-C4-Y
ISE40A-C6-T	ZSE40A-C6-T	ZSE40AF-C6-T
ISE40A-C6-V	ZSE40A-C6-V	ZSE40AF-C6-V
ISE40A-C6-Y	ZSE40A-C6-Y	ZSE40AF-C6-Y



Related Products

- Series AR - Regulator - page 1084
- Series AF - Air Filter - page 1082
- Series AW - Filter Regulator - page 1088
- Series PF2A - Digital Flow Switch for Air - page 1309
- Series KQ2 - Fittings - page 1184
- Series TU - Tubing - page 1223



For more product options and details see our specific catalogues or on-line information.

## Specifications

Model		ZSE40A (vacuum pressure)	ZSE40AF (compound pressure)	ISE40A (positive pressure)	
Rated pressure range		0.0 to -101.3 kPa	-100.0 to 100.0 kPa	-0.100 to 1.000 MPa	
Display/Set pressure range		10.0 to -105.0 kPa	-105.0 to 105.0 kPa	-0.105 to 1.050 MPa	
Withstand pressure		500 kPa	500 kPa	1.5 MPa	
Display/Minimum unit setting		0.1 kPa	0.1 kPa	0.001 MPa	
Applicable fluid		Air, Non-corrosive gas, Non-flammable gas			
Power supply voltage		12 to 24 VDC $\pm 10\%$ , Ripple (p-p) 10% or less (with power supply polarity protection)			
Current consumption		45 mA or less			
Switch output		NPN or PNP open collector 2 outputs (Selectable)			
Maximum load current		80 mA			
Maximum applied voltage		28 V (at NPN output)			
Residual voltage		1 V or less			
Response time		2.5 ms (with anti-chattering function: 20, 100, 500, 1000, 2000 ms)			
Short circuit protection		Yes			
Repeat accuracy		$\pm 0.2\%$ F.S. $\pm 1$ digit			
Hysteresis	Hysteresis mode	Variable (0 or above) Note 1)			
	Window comparator mode				
Analogue output	Note 2) Voltage output	Output voltage (Rated pressure range)	1 to 5 V $\pm 2.5\%$ F.S.	0.6 to 5 V $\pm 2.5\%$ F.S.	
		Linearity	$\pm 1\%$ F.S.		
		Output impedance	Approx. 1 k $\Omega$		
	Note 3) Current output	Output current (Rated pressure range)	4 to 20 mA $\pm 2.5\%$ F.S.	2.4 to 20 mA $\pm 2.5\%$ F.S.	
		Linearity	$\pm 1\%$ F.S.		
		Load impedance	Maximum load impedance: 300 (Power supply voltage 12 V) 600 (Power supply voltage 24 V) Minimum load impedance: 50 $\Omega$		
Auto-shift input		Non-voltage input (Reed or Solid state), Low level: 0.4 V or less, 5 ms or longer input			
Display		3 1/2-digit, 7-segment, 2-colour LCD (Red/Green)			
Display accuracy		$\pm 2\%$ F.S. 1 digit (Ambient temperature of 25 $\pm 3^\circ\text{C}$ )			
Indicator light		Lights up when output is turned ON. OUT1, OUT2: Orange			
Environment resistance	Enclosure	IP65			
	Operating temperature range	Operating: -5 to 50 $^\circ\text{C}$ , Stored: -10 to 60 $^\circ\text{C}$ (No freezing or condensation)			
	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)			
	Withstand voltage	1000 VAC for 1 minute between live parts and case			
	Insulation resistance	50 M $\Omega$ or more between live parts and case (at 500 VDC measured via megohmmeter)			
Temperature characteristics		$\pm 2\%$ F.S. (Based on 25 $^\circ\text{C}$ )			
Lead wire		Oilproof heavy-duty vinyl cable $\phi 3.5$ , 2 m Conductor area: 0.15 mm $^2$ (AWG26) Insulator O.D.: 0.95 mm			
Standards		CE marking, UL (CSA), RoHS compliance			

Note 1) If the applied voltage fluctuates around the set-value, the hysteresis must be set to a value more than the fluctuating width, otherwise chattering will occur.

Note 2) When the analogue voltage output is selected, the analogue current output cannot be selected.

Note 3) When the analogue current output is selected, the analogue voltage output cannot be selected.

## Piping Specifications

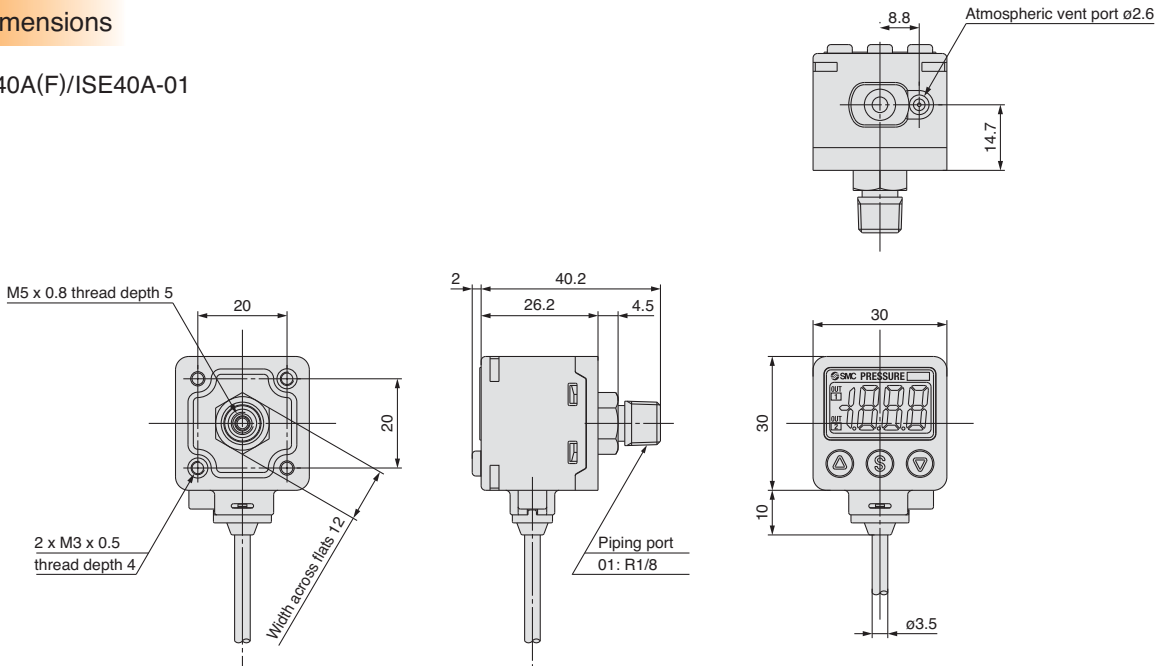
Part no.		01	WF1	M5	C4	C6
Port size		R1/8 (With M5 female thread)	G1/8	M5 x 0.8 female thread	$\phi 4$ one-touch fitting	$\phi 6$ one-touch fitting
Material of parts in contact with fluid	Sensor pressure receiving area	Silicon				
	Piping port	C3602 (Electroless nickel plated) O-ring: HNBR	ZDC2 O-ring: HNBR	ZDC2, POM, Stainless steel 304, C3604 (Electroless nickel plated) O-ring: HNBR		
Weight		78 g	97 g	104 g	101 g	

## Options

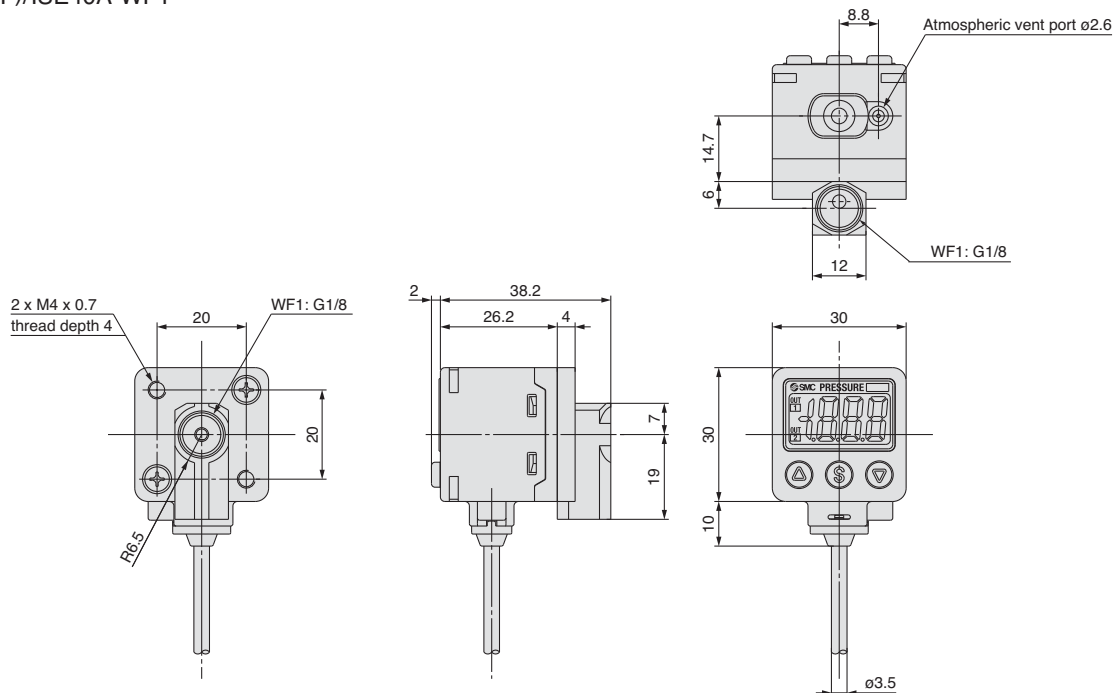
Options/Part No.	When optional parts are required separately, use the following part numbers to place an order.
Part no.	Option
ZS-24-A	Bracket A, With 2 mounting screws each of M3 x 5L and M4 x 5L
ZS-24-B	Bracket B, With 2 mounting screws M4 x 5L
ZS-24-D	Bracket D, With 2 mounting screws each of M3 x 5L and M4 x 5L
ZS-35-C	Panel mount adapter (Piping: For 01)
ZS-35-D	Panel mount adapter (Piping: For WF1/M5/C4/C6)
ZS-35-F	Panel mount adapter + Front protective cover (Piping: For 01)
ZS-35-G	Panel mount adapter + Front protective cover (Piping: For WF1/M5/C4/C6)

## Dimensions

### ZSE40A(F)/ISE40A-01

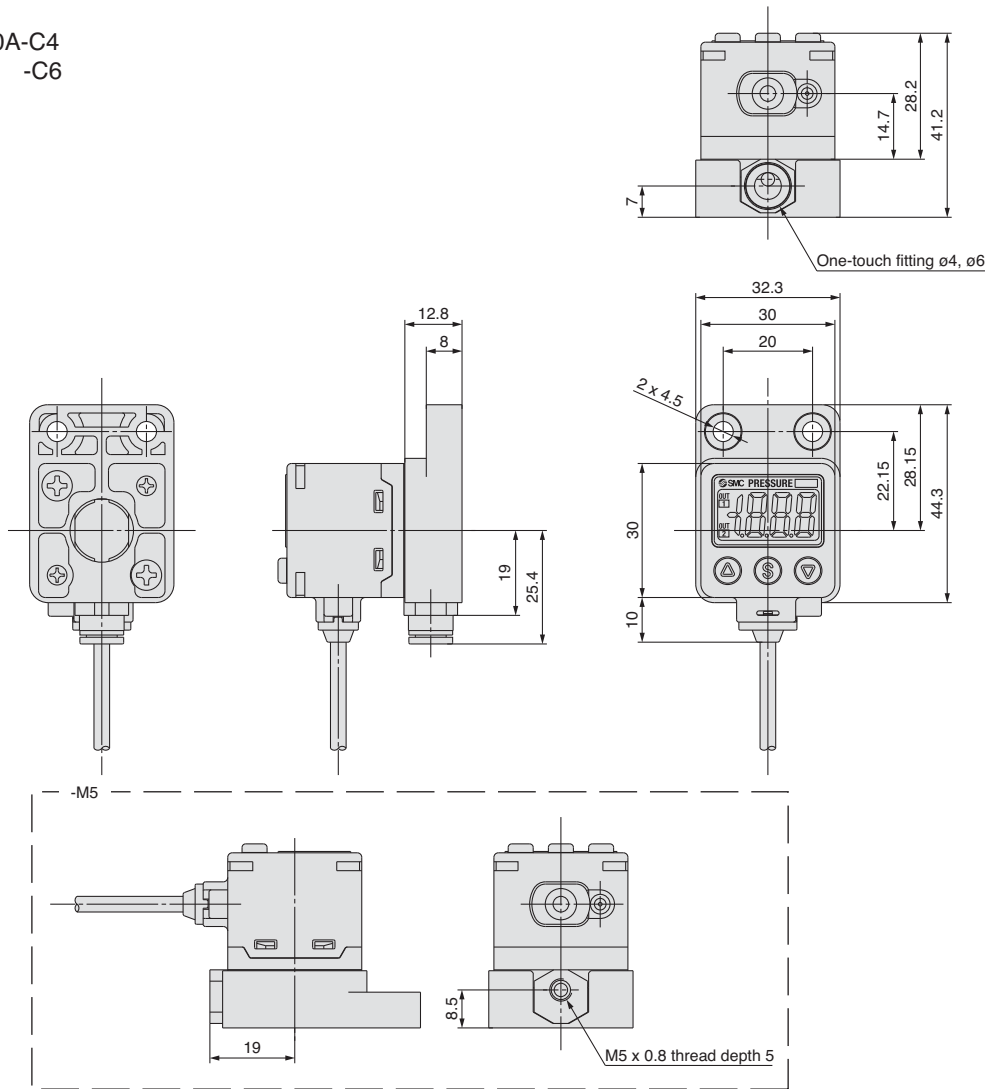


### ZSE40A(F)/ISE40A-WF1



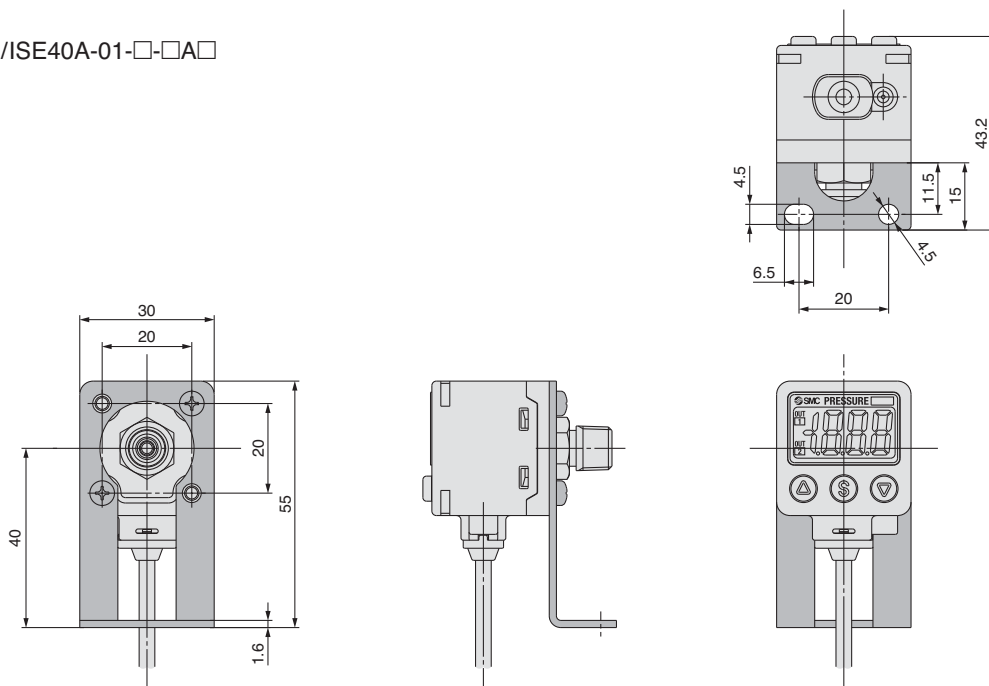
Dimensions

ZSE40A(F)/ISE40A-C4  
-C6



ZSE40A(F)/ISE40A-01-□-□A□

With bracket

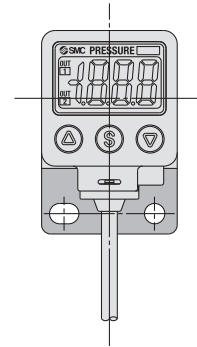
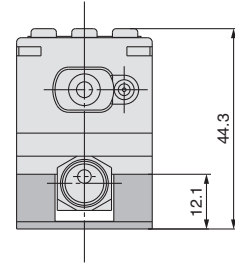
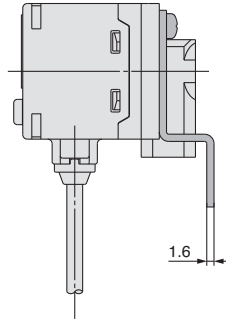
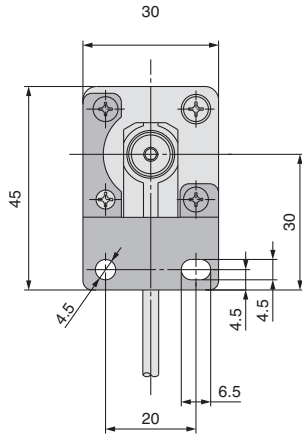




Dimensions

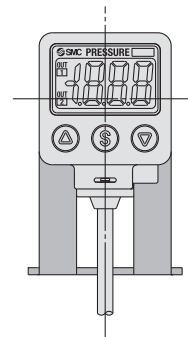
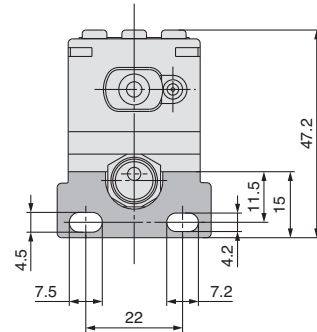
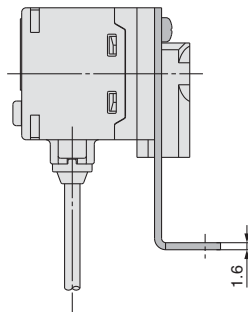
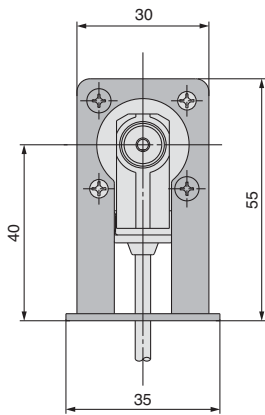
ZSE40A(F)/ISE40A-WF1-□-□B□

With bracket



ZSE40A(F)/ISE40A-01-□-□D□

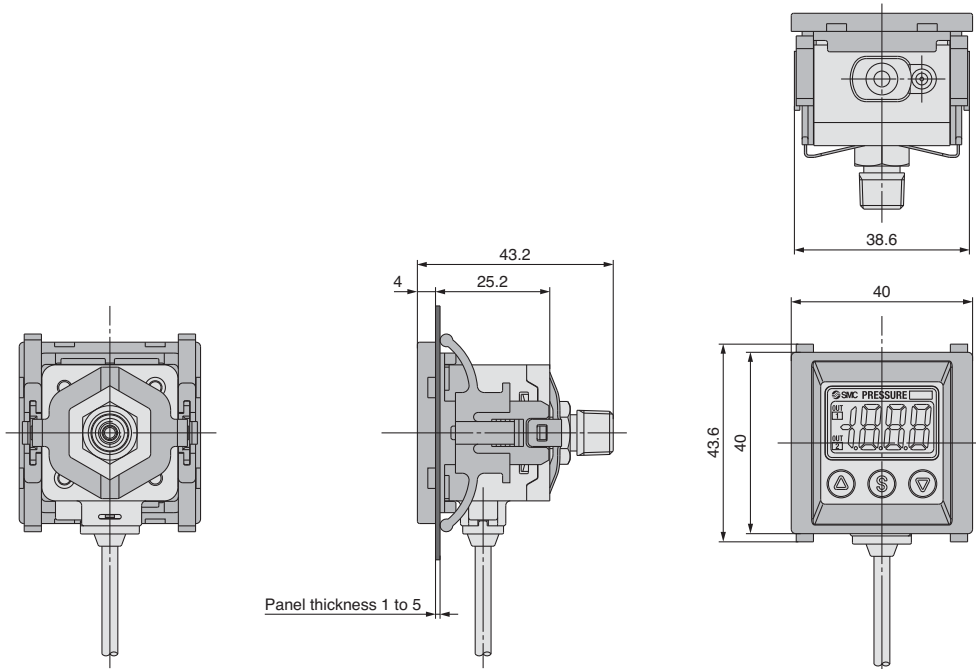
With bracket



Dimensions

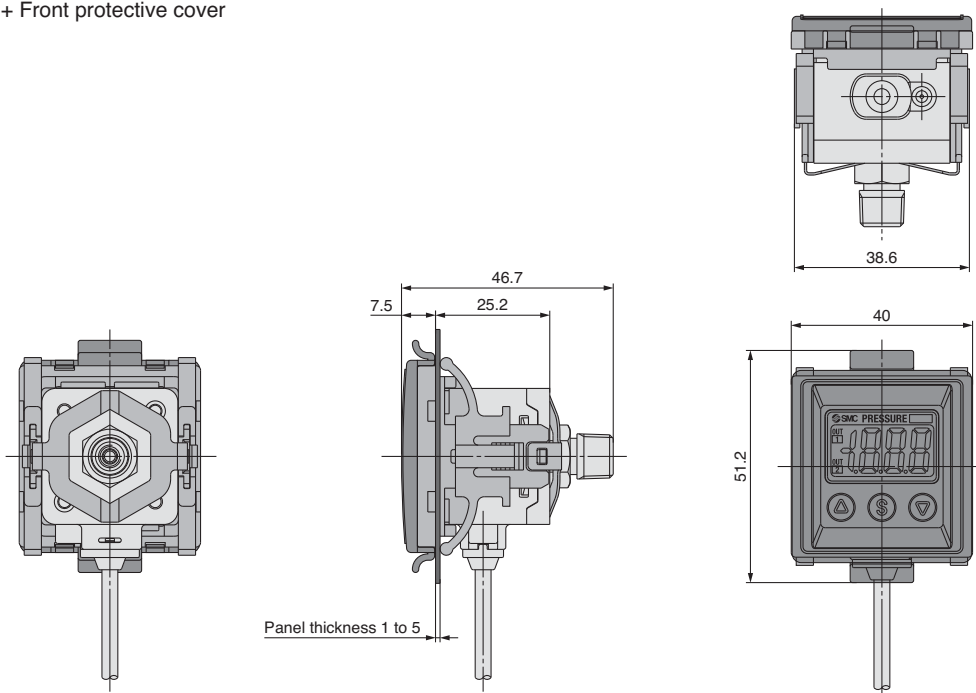
ZSE40A(F)/ISE40A-01-□-□E□

Panel mounting



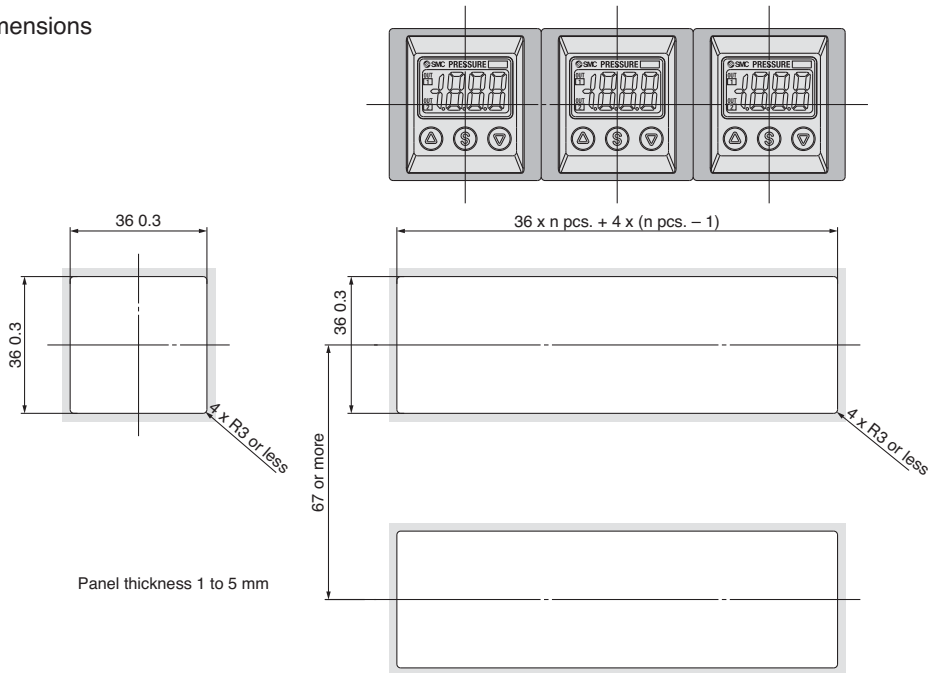
ZSE40A(F)/ISE40A-01-□-□F□

Panel mounting + Front protective cover



## Dimensions

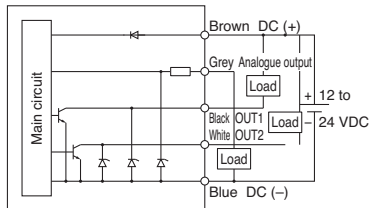
### Panel fitting dimensions



Note) This is the minimum value for the piping method O1 or N01.  
Take the piping material and tubing into account for design. When the corner is to have radius, it must be R3 or less.

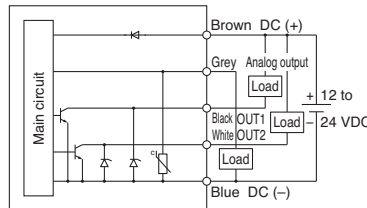
## Wiring

**-R**  
NPN (2 outputs) +  
Analogue voltage output



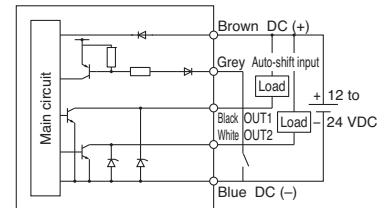
Max. 28 V, 80 mA  
Residual voltage 1 V or less

**-S**  
NPN (2 outputs) +  
Analogue current output



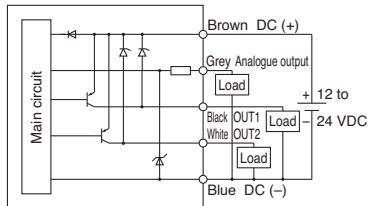
Max. 28 V, 80 mA  
Residual voltage 1 V or less

**-R/S**  
NPN (2 outputs) +  
Auto-shift input



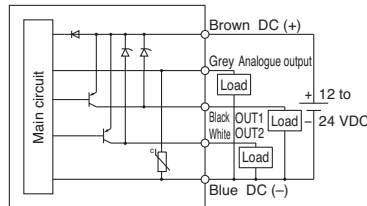
Max. 28 V, 80 mA  
Residual voltage 1 V or less

**-T**  
PNP (2 outputs) +  
Analogue voltage output



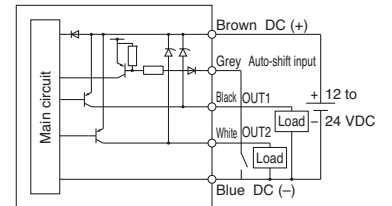
Max. 80 mA  
Residual voltage 1 V or less

**-V**  
PNP (2 outputs) +  
Analogue current output



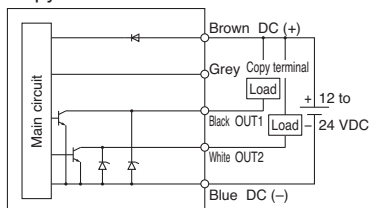
Max. 80 mA  
Residual voltage 1 V or less

**-T/-V**  
PNP (2 outputs) +  
Auto-shift input



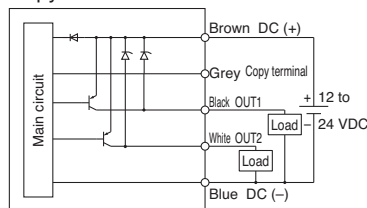
Max. 80 mA  
Residual voltage 1 V or less

**-X**  
NPN (2 outputs) +  
Copy function



Max. 28 V, 80 mA  
Residual voltage 1 V or less

**-Y**  
PNP (2 outputs) +  
Copy function



Max. 80 mA  
Residual voltage 1 V or less



For more product options and details see our specific catalogues or on-line information.

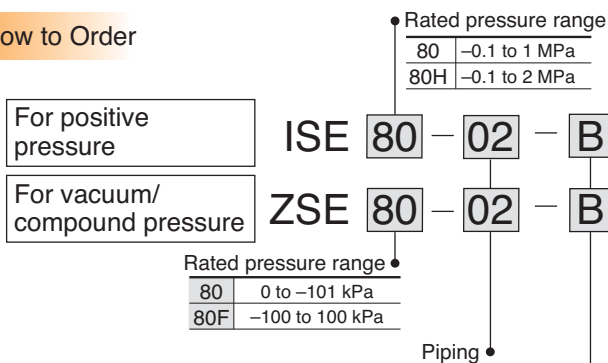
## 2-colour display, Digital Pressure Switch For Fluids Series ZSE80/ISE80



### Features

- Stainless steel construction. Make ZSE80/ISE80 suitable for working with a wide range of fluids, even aggressive.
- Four pressure ranges available working in the following regimes:
  - Vacuum: from -0.1 to 0MPa
  - Compound: from -0.1 to +0.1 MPa
  - Positive: from -0.1 to +1 MPa and from -0.1 to +2 MPa.
- 2 -colour display (LCD).
- Low leakage versions available.
- Simplified operation.
- Rear and bottom piping available as standard options.
- Output options: PNP/NPN/Analogue output.

### How to Order



Code	Porting	Diagram
02	R1/4 (M5 female threaded)	Rear ported
F02	G1/4 (M5 female threaded)	
C01	Rc1/8	
A2	URJ1/4	
B2	TSJ1/4	
02L	R1/4 (M5 female threaded)	Bottom ported
C01L	Rc1/8	
A2L	URJ1/4	
B2L	TSJ1/4	

### Input/Output

N	NPN open collector 1 output
P	PNP open collector 1 output
A	NPN open collector 2 outputs
B	PNP open collector 2 outputs
R	NPN open collector 2 outputs + Analogue voltage output/Auto-shift switching
T	PNP open collector 2 outputs + Analogue voltage output/Auto-shift switching
S	NPN open collector 2 outputs + Analogue current output/Auto-shift switching
V	PNP open collector 2 outputs + Analogue current output/Auto-shift switching

### Accessories for mounting

None

With bracket

ZS-24-A  
Rear ported

ZS-35-A  
Bottom ported

With bracket (Note)

ZS-24-D

Panel mount

ZS-35-C  
Rear ported

ZS-35-B  
Bottom ported

Panel mount + Front protection cover

ZS-35-F  
Rear ported

ZS-35-E  
Bottom ported

Note) Rear ported only

### Product Recommendation



Stocked items for fast delivery

ISE80-02-B	ISE80-F02-T	ZSE80F-A2-B	ISE80H-02L-V
ISE80-02L-B	ISE80-F02-V	ZSE80F-A2L-B	ISE80H-02-T
ISE80-02L-T	ZSE80-A2L-B	ZSE80F-A2L-B	ISE80H-02-V
ISE80-02L-V	ZSE80-F02-B	ZSE80F-F02-B	ISE80H-F02-B
ISE80-02-T	ZSE80F-02-B	ISE80H-02-B	ISE80H-F02-V
ISE80-02-V	ZSE80F-02-T	ISE80H-02L-B	
ISE80-F02-B	ZSE80F-02-V	ISE80H-02L-T	



Related Products

- Series VNB - 2 Port Air Operated Valves - page 1466
- Series VXZ - Pilot Operated 2 Port Solenoid Valves - page 1451
- Series PF3W - Digital Flow Switch for Water - page 1317

**Specifications**

Model		ZSE80 (Vacuum pressure)	ZSE80F (Compound pressure)	ISE80 (Positive pressure)	ISE80H (Positive pressure)
Rated pressure range		0.0 to -101.0 kPa	-100.0 to 100.0 kPa	-0.100 to 1.000 MPa	-0.100 to 2.00 MPa
Set pressure range		10.0 to -111.0 kPa	-110.0 to 110.0 kPa	-0.105 to 1.100 MPa	-0.105 to 2.20 MPa
Withstand pressure		500 kPa		2 MPa	4 MPa
Wetted parts material		Pressure sensor: Stainless steel 630, Fitting: Stainless steel 304			
Applicable fluid		Fluids do not corrode stainless steel 630 and 304			
Port size		R1/4, NPT1/4, G1/4*, URJ1/4, TSJ1/4, Rc1/8 Piping direction: Rear/Bottom			
Power supply voltage		12 to 24 VDC 10%, Ripple (p-p) $\pm 10\%$ or less (with power supply polarity protection)			
Current consumption		45 mA or less			
		NPN 1 output, NPN 2 outputs, PNP 1 output, PNP 2 outputs			
Switch output	Maximum load current	80 mA			
	Maximum load voltage	28 V (at NPN output)			
	Residual voltage	1 V or less (with load current of 80 mA)			
	Response time	2.5 ms (with anti-chattering function: 20, 100, 500, 1000, 2000 ms)			
	Short circuit protection	Yes			
Repeatability		$\pm 0.2\%$ F.S. $\pm 1$ digit			
Hysteresis	Hysteresis mode	Variable (0 or above)			
	Window comparator mode				
Analogue output	Voltage output	Output voltage (Rated pressure range)	1 to 5 V 2.5% F.S.	0.6 to 5 V 2.5% F.S.	0.8 to 5 V 2.5% F.S.
		Linearity	$\pm 1\%$ F.S.		
		Output impedance	Approx. 1 k $\Omega$		
	Current output	Output current (Rated pressure range)	4 to 20 mA $\pm 2.5\%$ F.S.	2.4 to 20 mA $\pm 2.5\%$ F.S.	3.2 to 20 mA $\pm 2.5\%$ F.S.
		Linearity	$\pm 1\%$ F.S.		
		Load impedance	Maximum load impedance: 300 $\Omega$ (Power supply voltage 12 V) 600 $\Omega$ (Power supply voltage 24 V) Minimum load impedance: 50 $\Omega$		
Auto-shift input		Non-voltage input (Reed or Solid state), Low level: 0.4 V or less, 5 ms or longer input			
Display		3 1/2-digit, 7-segment, 2-colour LCD (Red/Green)			
Display accuracy		$\pm 2\%$ F.S. 1 digit (Ambient temperature of 25 $\pm 3^\circ\text{C}$ )			
Indicator light		Lights up when output is turned ON. OUT1, OUT2: Orange			
Function		Anti-chattering, Zero-out, Key lock function, Auto-preset, Auto-shift, Unit display switching, Power-saving mode			
Environmental resistance	Enclosure	IP65			
	Operating temperature range	Operating: 0 to 50 $^\circ\text{C}$ , Stored: -10 to 60 $^\circ\text{C}$ (No freezing or condensation)			
	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)			
	Withstand voltage	250 VAC for 1 minute between live parts and case			
	Insulation resistance	2 M $\Omega$ or more between live parts and case (at 50 VDC measured via Megohmmeter)			
Temperature characteristics		$\pm 3\%$ F.S. (Based on 25 $^\circ\text{C}$ , within operating temperature range)			
Lead wire		Oilproof heavy-duty vinyl cable, 3 cores (N.P) $\varnothing 3.5$ , 2 m 4 cores (A.B) Conductor area: 0.15 mm $^2$ (AWG26) 5 cores (R.T.S.V) Insulator O.D.: 0.95 mm			
Standards		CE marking, UL/CSA, RoHS compliance			

\* G1/4 is available for rear ported only.

**Piping Specifications**

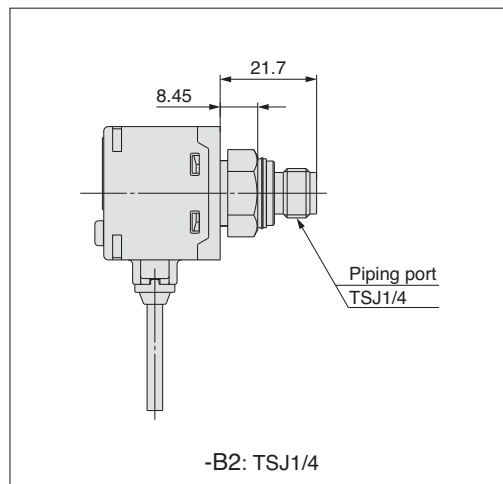
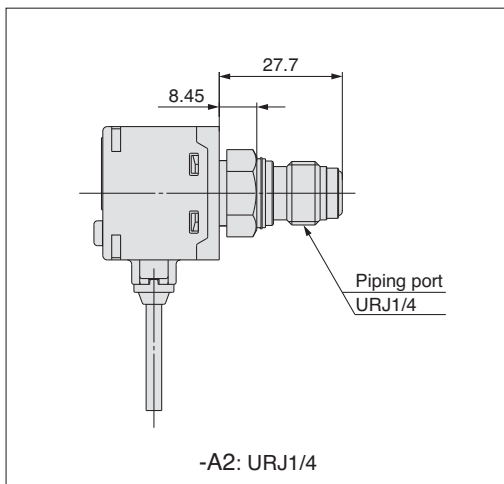
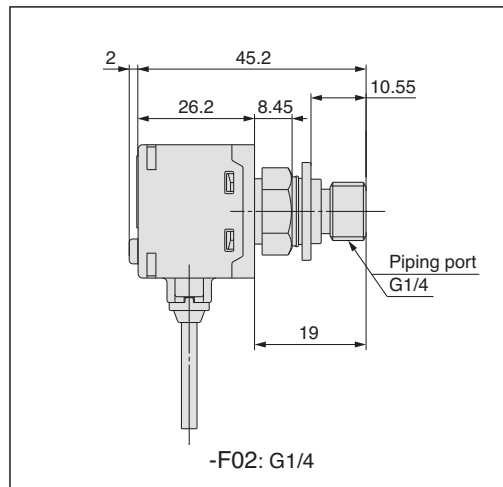
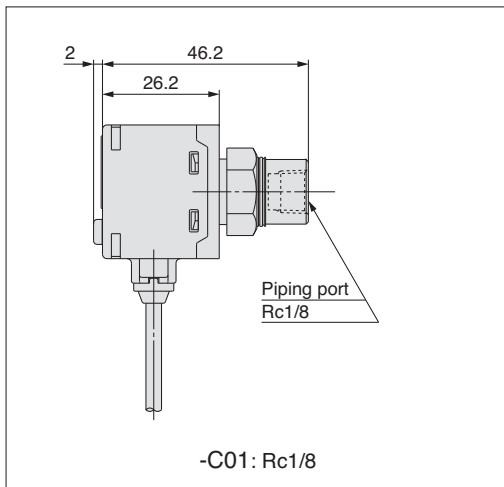
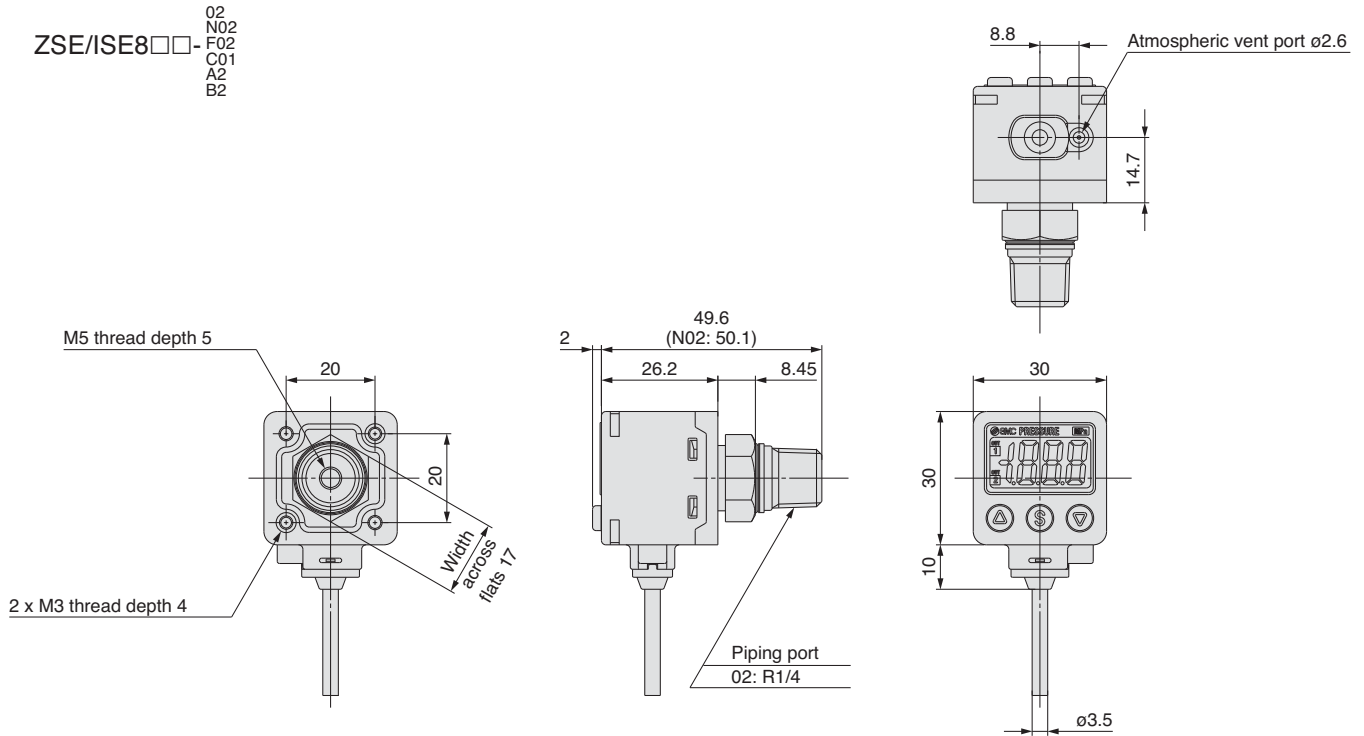
Model	O2	N02	F02	C01	A2	B2
Port size	R1/4	NPT1/4	G1/4	Rc1/8	URJ1/4	TSJ1/4
Weight (Bottom ported)	117 g	118 g	—	114 g	120 g	111 g
Weight (Rear ported)	89 g	90 g	86 g	86 g	92 g	83 g
Leakage	1 x 10 $^{-5}$ Pa·m $^3$ /s			1 x 10 $^{-10}$ Pa·m $^3$ /s		



For more product options and details see our specific catalogues or on-line information.

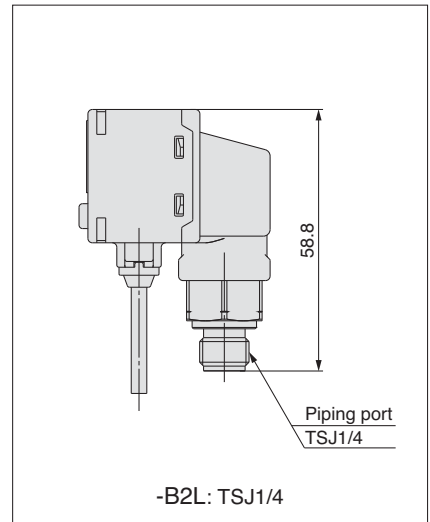
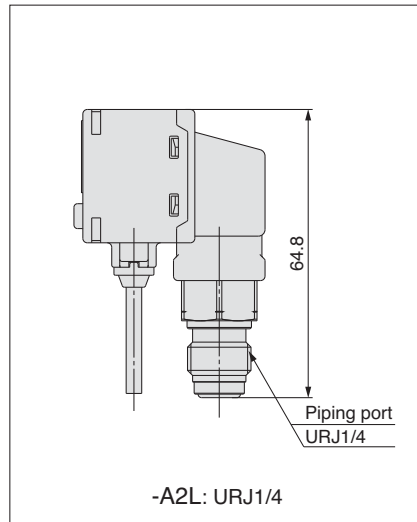
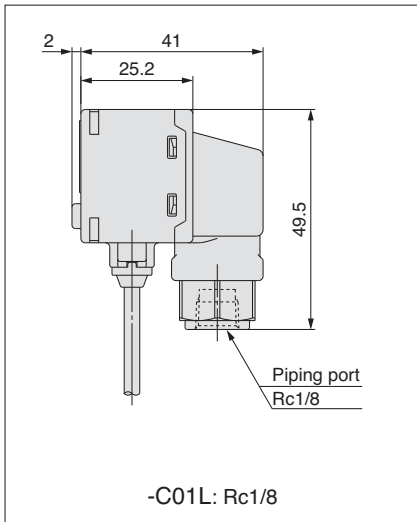
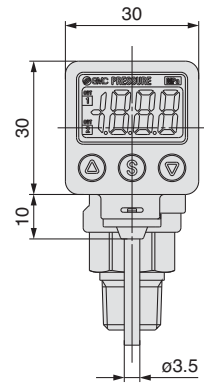
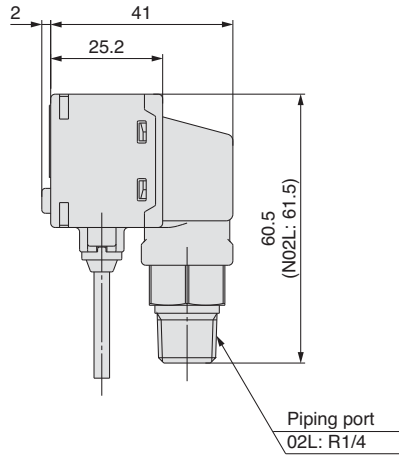
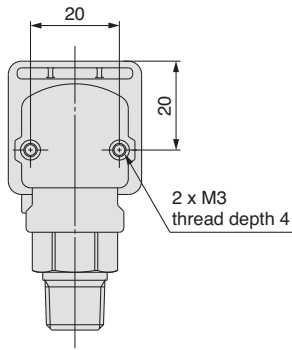
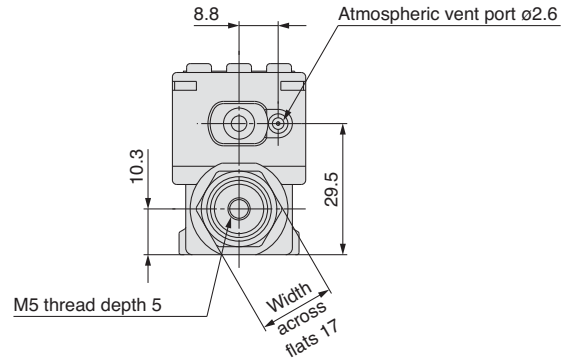
Dimensions

ZSE/ISE80□□-  
 02  
 N02  
 F02  
 C01  
 A2  
 B2



Dimensions

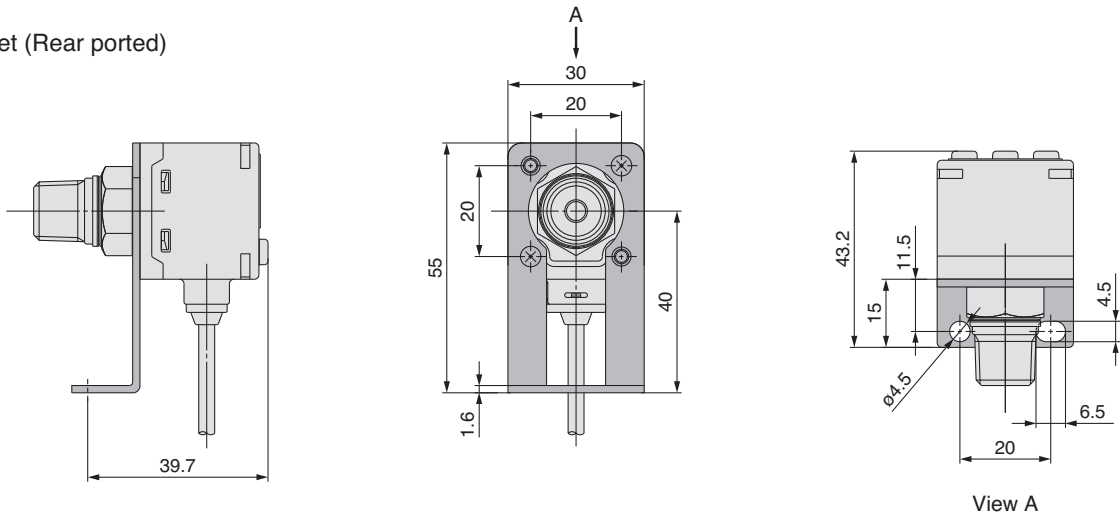
ZSE/ISE80□□-  
 02L  
 N02L  
 C01L  
 A2L  
 B2L



Dimensions

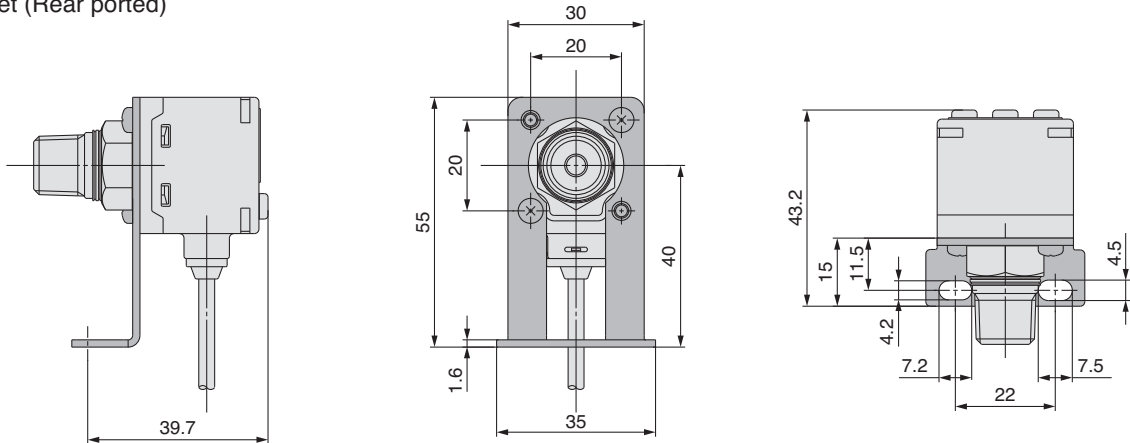
With bracket (Rear ported)

- ZS-24-A



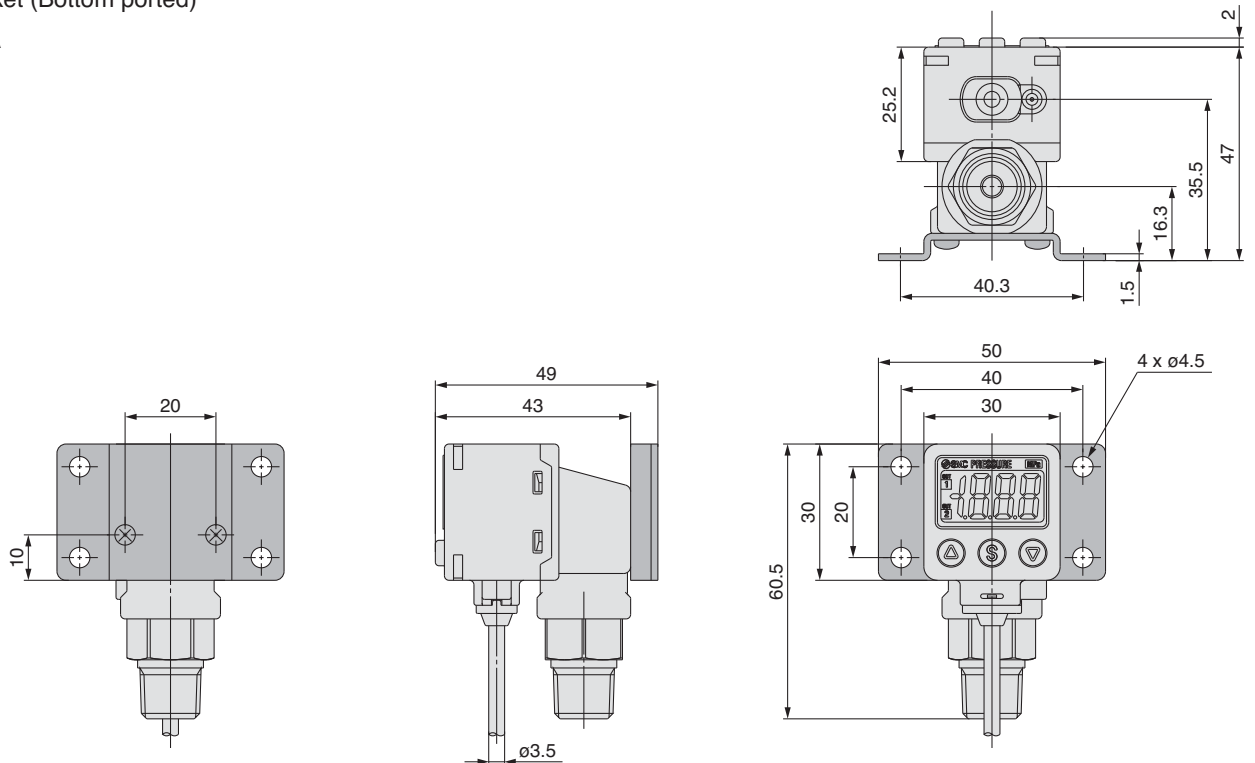
With bracket (Rear ported)

- ZS-24-D



With bracket (Bottom ported)

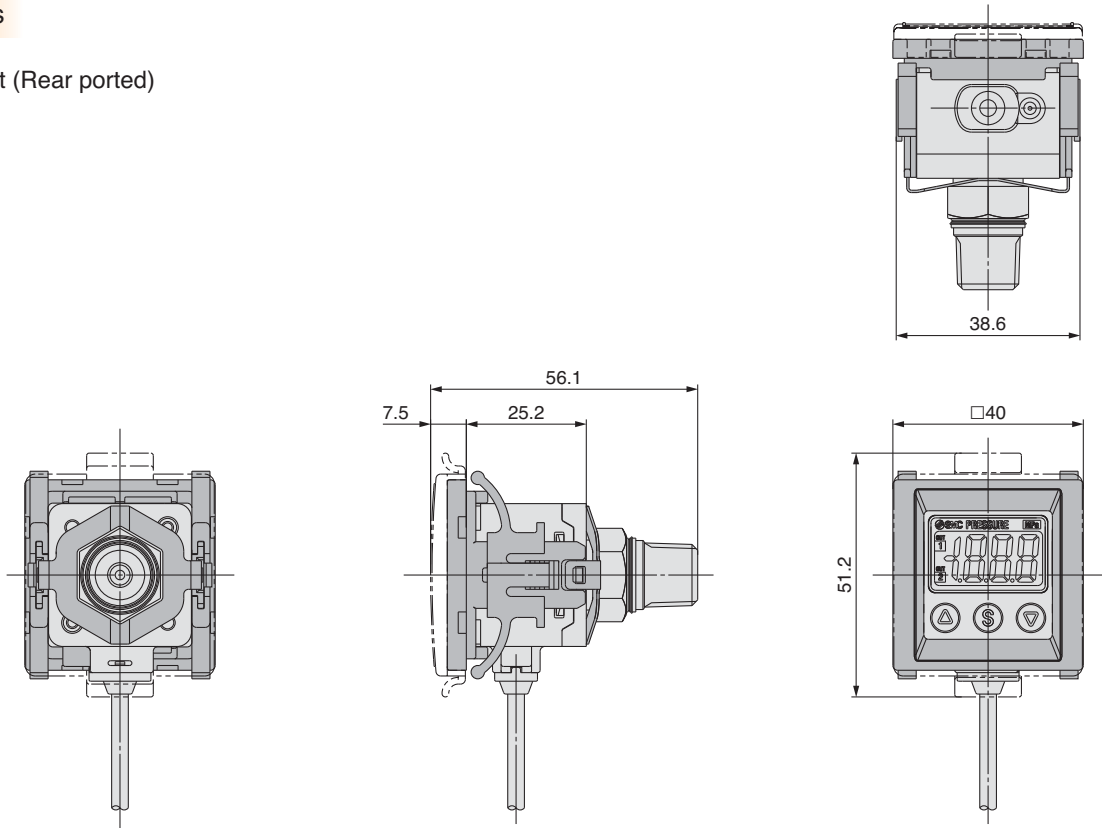
- ZS-35-A



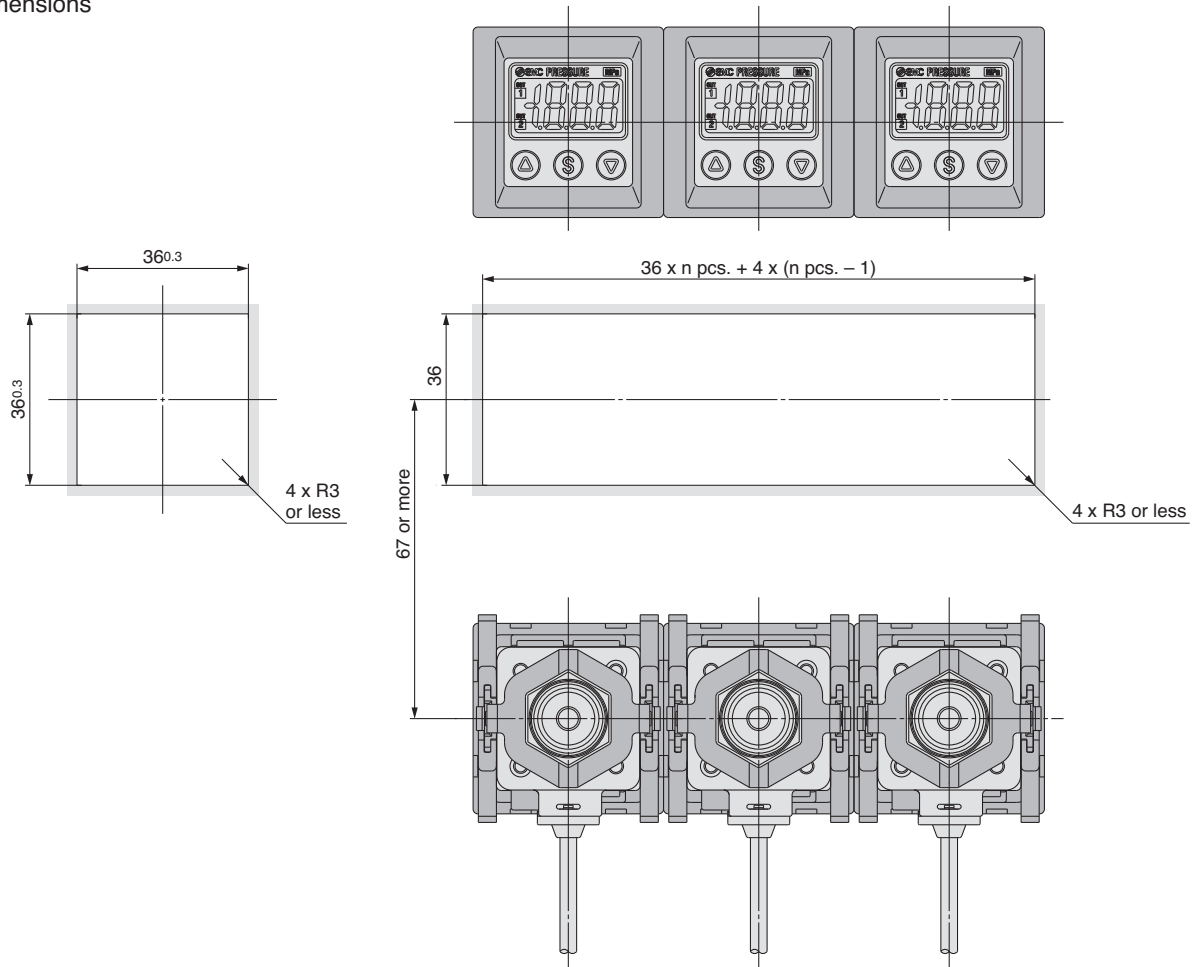


Dimensions

Panel mount (Rear ported)

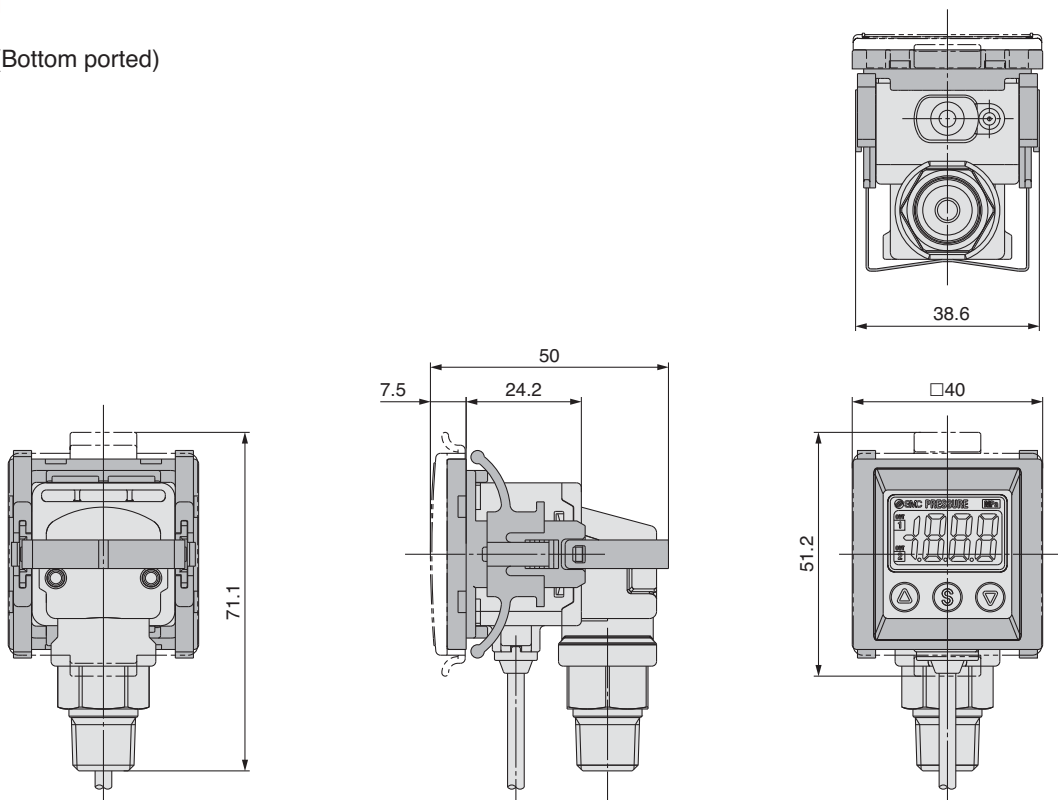


Panel-cut dimensions

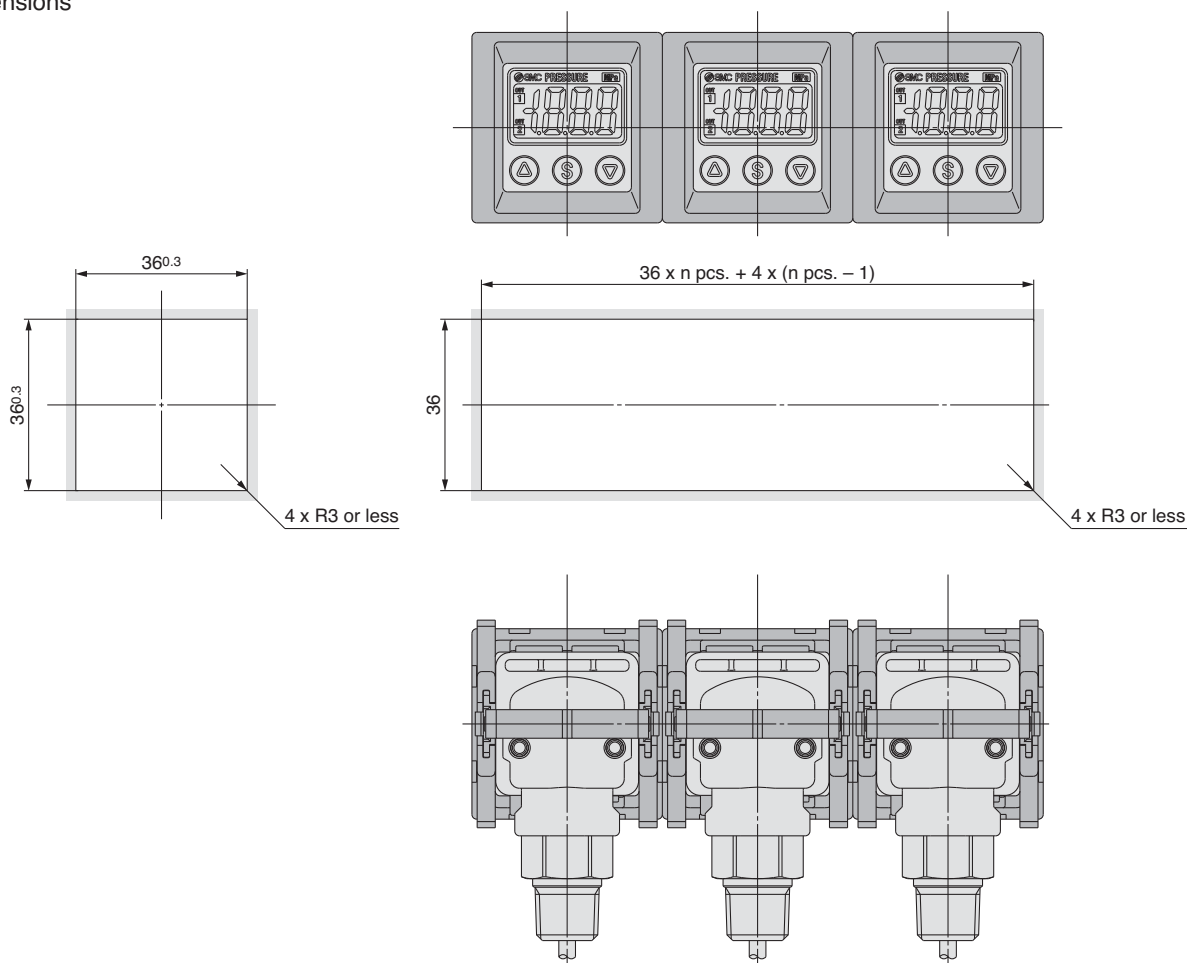


Dimensions

Panel mount (Bottom ported)



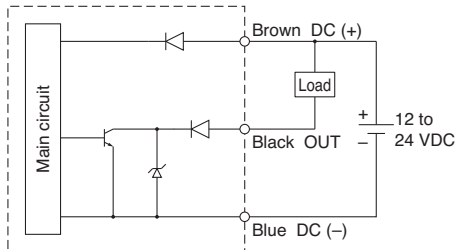
Panel-cut dimensions



**Wiring**

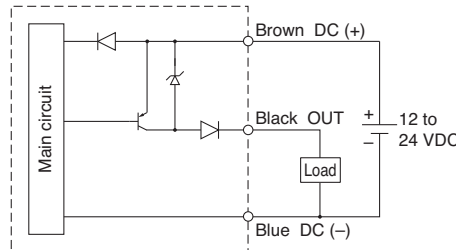
Internal Circuits and Wiring Examples

**-N**  
NPN (1 output)



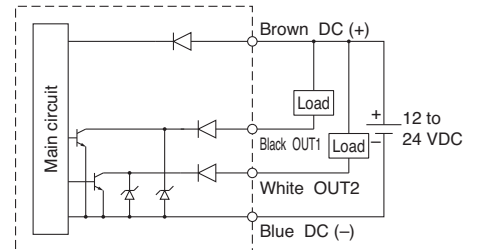
Max. 28V, 80 mA  
Residual voltage 1 V or less

**-P**  
PNP (1 output)



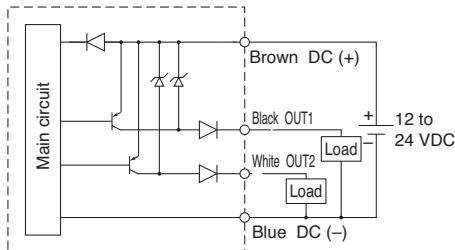
Max. 80 mA  
Residual voltage 1 V or less

**-A**  
NPN (2 outputs)



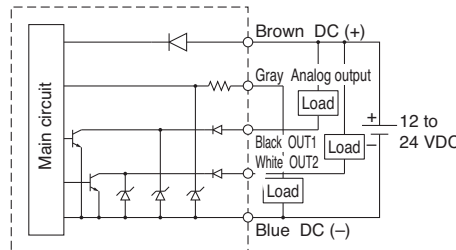
Max. 28V, 80 mA  
Residual voltage 1 V or less

**-B**  
PNP (2 outputs)



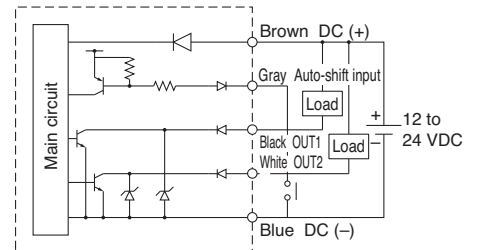
Max. 80 mA  
Residual voltage 1 V or less

**-R**  
NPN (2 outputs) +  
Analog voltage output



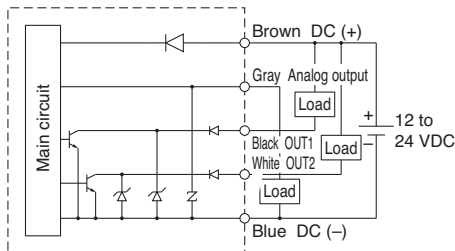
Max. 28V, 80 mA  
Residual voltage 1 V or less

**-R/-S**  
NPN (2 outputs) +  
Auto-shift input



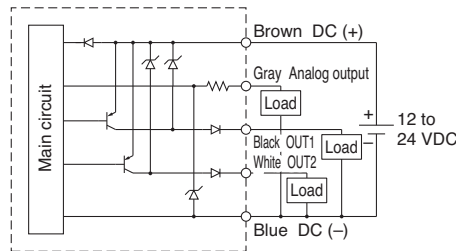
Max. 28V, 80 mA  
Residual voltage 1 V or less

**-S**  
NPN (2 outputs) +  
Analog current output



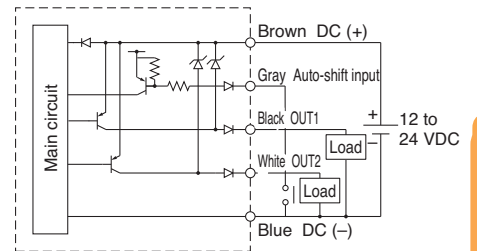
Max. 28V, 80 mA  
Residual voltage 1 V or less

**-T**  
PNP (2 outputs) +  
Analog voltage output



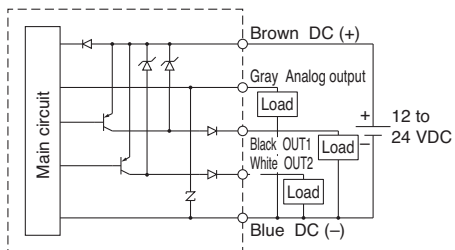
Max. 80 mA  
Residual voltage 1 V or less

**-T/-V**  
PNP (2 outputs) +  
Auto-shift input



Max. 80 mA  
Residual voltage 1 V or less

**-V**  
PNP (2 outputs) +  
Analog current output



Max. 80 mA  
Residual voltage 1 V or less

# Air Checker Electronic Pressure Switch Series PS1000 (for positive pressure) PS1100 (for vacuum)

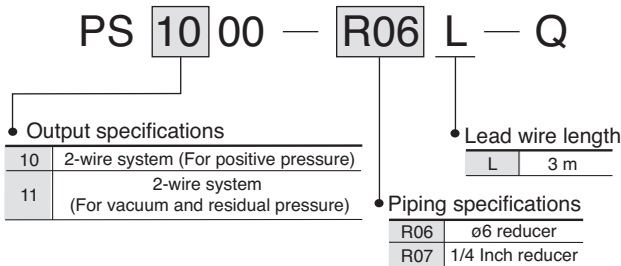
RoHS



## Features

- Extremely Compact : 13W X 10H X 30L [mm].
- 2 wire switch: Applicable to either NPN or PNP output.
- Easy mounting Plug-in port for One-touch fittings.
- High visibility: A large LED indicator for high visibility.
- Wide calibration range: -0.1 to 0.45MPa is possible with one pressure switch.

## How to Order



## Specifications

Model	PS1000-□L	PS1100-□L
Switch output	Present prss.Setting prss.: ON	Present prss.Setting prss.: ON
Max. pressure	1MPa	
Oper. Press. range	-0.1 to 0.45MPa	-0.1 to 0.4MPa
Fluid	Air, Non corrosive gas	
Operating display	ON: When red LED turns on	
Temp. specs.	±3% F.S.	
Repeatability	±1% F.S.	
Hysteresis	4% F.S. or less	
Load voltage	12 to 24V DC (Ripple 10% or less)	
Load current	5 to 40mA	
Leakage	1mA or less	
Int. voltage drop	5V or less	
Operating temp.range	0 to 60°C (No condensation)	
Insulation resistance	Between external terminals and case 2MΩ (500V DC measured via megohmmeter)	
Shock resistance	980m/s <sup>2</sup> X, Y, Z directions (3 times for each direction)	
Weight	5g (Excluding lead wire)	
Port size	ø6 reducer, 1/4 inch reducer	
Construction	IP40	
Lead wire	Grommet oil-proof cabtire cord 2 wires ø2.55, 0.18mm <sup>2</sup> , 3m	

## Product Recommendation



Stocked items for fast delivery

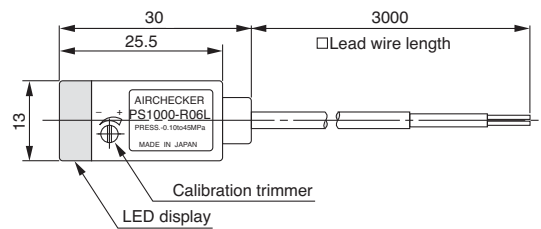
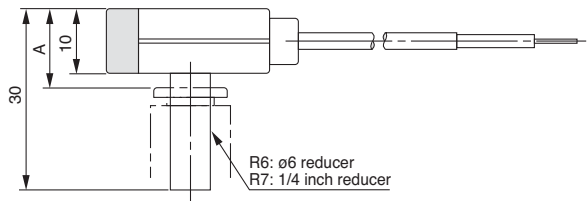
PS1000-R06L-Q PS1000-R07L-Q PS1100-R06L-Q



## Related Products

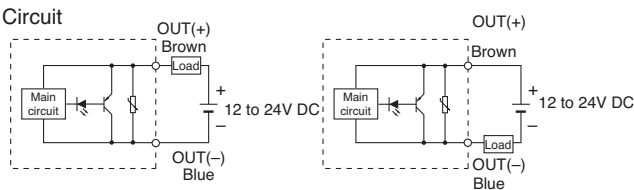
- Series AR - Regulator - page 1084
- Series AF - Air Filter - page 1082
- Series AW - Filter Regulator - page 1088
- Series PF2A - Digital Flow Swith for Air- page 1309
- Series KQ2 - Fittings - page 1184
- Series TU - Tubing - page 1223

## Dimensions

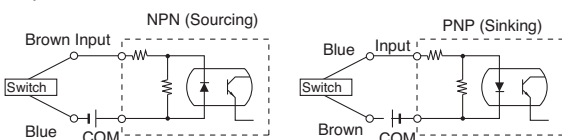


Applicable One-touch fittings	A
KQ <sup>HLT</sup> <sub>SY</sub> 06-M5	16
Other KQ,KS series	13
KJ Series	14.5
KJ Series (-X20)	16

## Wiring



### Example connection with a PLC



## 2-Colour Display Digital Flow Switch Series PFM



### Features

- For air, N<sub>2</sub>, Ar and CO<sub>2</sub>.
- Uses MEMS sensor for detecting the flow.
- Compact size, light weight.
- Improved visibility with 2-colour display indication.
- Two piping directions are possible.
- Integrated flow adjustment valve.
- Multiple mounting combinations.

### How to Order PFM7

Integrated display

**PFM 7 10** [ ] – **C4** [ ] – **B**

Type

7	Integrated display
---	--------------------

Rated flow range (Flow rate range)

10	0.2 to 10 (5) ℓ/min
25	0.5 to 25 (12.5) ℓ/min
50	1 to 50 (25) ℓ/min
11	2 to 100 (50) ℓ/min

Note) Fluid: CO<sub>2</sub>

Flow adjustment valve

-	None
S	Yes

Port size

Symbol	Description	Flow rate range			
		10	25	50	11
F01	G1/8	●	●	●	
F02	G1/4				●
C4	ø4 (5/32") one-touch fitting	●			
C6	ø6 one-touch fitting	●	●	●	●
C8	ø8 (5/16") one-touch fitting		●	●	●

Output specification

A	2 NPN outputs
B	2 PNP outputs
C	1 NPN output + Analogue (1 to 5 V)
D	1 NPN output + Analogue (4 to 20 mA)
E	1 PNP output + Analogue (1 to 5 V)
F	1 PNP output + Analogue (4 to 20 mA)
G	1 NPN output + External input <sup>Note 3)</sup>
H	1 PNP output + External input <sup>Note 3)</sup>

Note 3) User can select from accumulated value external reset, auto-shift and auto-shift zero.

Piping entry direction

-	Straight
L	Bottom

Note) Different combinations of piping entry directions for IN and OUT side are available as made-to-order.

### How to Order PFM5

Remote sensor unit

**PFM 5 10** [ ] – **C4** [ ] – **1**

Type

5	Remote sensor unit
---	--------------------

Rated flow range (Flow rate range)

10	0.2 to 10 (5) ℓ/min
25	0.5 to 25 (12.5) ℓ/min
50	1 to 50 (25) ℓ/min
11	2 to 100 (50) ℓ/min

Note) Fluid: CO<sub>2</sub>

Flow adjustment valve

-	None
S	Yes

Port size

Symbol	Description	Flow rate range			
		10	25	50	11
F01	G1/8	●	●	●	
F02	G1/4				●
C4	ø4 (5/32") one-touch fitting	●			
C6	ø6 one-touch fitting	●	●	●	●
C8	ø8 (5/16") one-touch fitting		●	●	●

Output specification

No.	Description	Applicable display unit
1	Analogue output (1 to 5 V)	PFM30□
2	Analogue output (4 to 20 mA)	PFM31□

Piping entry direction

-	Straight
L	Bottom

Note) Different combinations of piping entry directions for IN and OUT side are available as made-to-order.



Product Recommendation



Stocked items for fast delivery

PFM710-C4-B	PFM710S-F01-F	PFM711-F02-F	PFM725-F01-B	PFM750-C6-F
PFM710-C6-B	PFM711-C6-B	PFM711S-C6-B	PFM725-F01-E-A	PFM750-F01-B
PFM710-C6-E	PFM711-C6-E	PFM711S-C6-E	PFM725S-C6-B	PFM750-F01-E
PFM710-F01-F	PFM711-C6-F	PFM711S-C8-B	PFM725S-C8-B	PFM750-F01-F
PFM710S-C4-B	PFM711-C8-B	PFM711S-F02-B	PFM725S-F01-B	PFM750S-C6-E
PFM710S-C4-E	PFM711-C8-F	PFM711S-F02-F	PFM725S-F01-F	PFM750S-C6-F
PFM710S-C6L-F	PFM711-F02-B	PFM725-C6-B	PFM750-C6B	PFM750S-F01-B
PFM710S-F01-B-M	PFM711-F02-E	PFM725-C6-F	PFM750-C6E	PFM750S-F01-F



Related Products

- Series AR - Air Regulator - page 1084
- Series AF - Main Line Filter - page 1082
- Series AW - Filter Regulator - page 1088
- Series ZSE/ISE□0A - Digital pressure switch of air - page 1273
- Series VX2 - Direct Operated 2 Port Solenoid Valves - page 1457
- Series VXZ - Pilot Operated 2 Port Solenoid Valves - page 1451
- Series KQ2 - Fittings - page 1184
- Series TU - Tubing - page 1223

Flow range

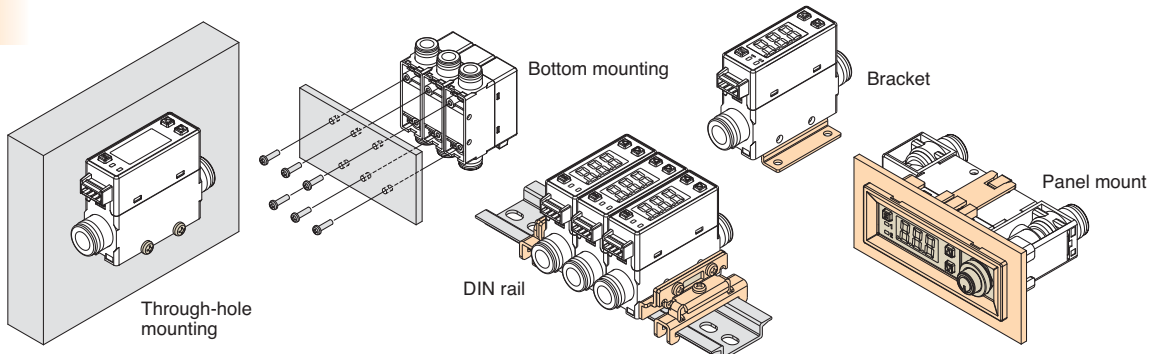
Flow range	Integrated type		Remote type	
Measurement flow range [l/min]	Model		Model	
0.2 to 10 (0.2 to 5)	PFM710		Sensor unit	Display unit
0.5 to 25 (0.5 to 12.5)	PFM725		PFM510	PFM3□□
1 to 50 (1 to 25)	PFM750		PFM525	
2 to 100 (2 to 50)	PFM711		PFM550	
			PFM511	

( ) : Fluid: CO<sub>2</sub>

Piping variations

	One-touch fitting: ø4, ø6, ø8		Female thread: G 1/8, 1/4	
	Straight	Bottom	Straight	Bottom
Without flow adjustment				
With flow adjustment				

Mounting



## Option / Part No.

**PFM3 0 3 - L**

Type

3 Remote display unit

Input specification

Symbol	Content	Applicable remote type sensor unit
0	Voltage input	PFM5□□(S)-□-1
1	Current input	PFM5□□(S)-□-2

Output specification

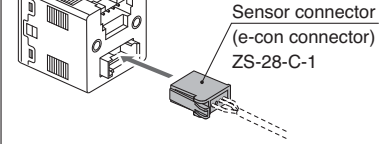
0	2 NPN outputs + 1 to 5 V output
1	2 NPN outputs + 4 to 20 mA output
2	2 NPN outputs + External input <small>Note</small>
3	2 PNP outputs + 1 to 5 V output
4	2 PNP outputs + 4 to 20 mA output
5	2 PNP outputs + External input <small>Note</small>

Note) User can select from accumulated value external reset, auto-shift and auto-shift zero.



## Option 2

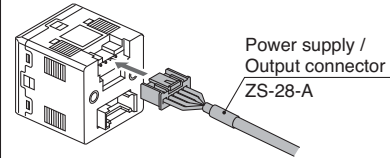
-	None
F	With sensor connector



Note) Connector is not connected, but shipped together.

## Option 1

-	None
L	Power supply / Output connector



Note) Cable is not connected, but shipped together.

## Optional part numbers for PFM7 and PFM5

Description	Part no.	Note
Power supply / Output connector (2 m)	ZS-28-A	
Bracket	ZS-28-B	With M3 x 5 ℓ (2 pcs.)
Sensor connector	ZS-28-C-1	1 pc.
Panel mount adapter	ZS-27-C	With M3 x 8 ℓ (2 pcs.)
Panel mount adapter + Front protective cover	ZS-27-D	With M3 x 8 ℓ (2 pcs.)

Part No.	Description	
ZS-33-D	Lead wire with connector (2m)	
ZS-33-F	Lead wire with connector (2m) + Rubber cover for connector Silicon rubber)	
ZS-33-M	Bracket (for without flow adjustment valve)	
ZS-33-MS	Bracket (for with flow adjustment valve)	<p>Piping direction: Cannot be mounted with bottom piping type.</p>

Part No.	Description	
ZS-33-J	Panel mount adapter (for without flow adjustment valve)	
ZS-33-JS	Panel mount adapter (for with flow adjustment valve)	
ZS-33-R□	DIN Rail Mounting Bracket	<p>Port size G1/4 cannot be mounted on the DIN rail.</p>

Stations	
1	1 station
2	2 stations
3	3 stations
4	4 stations
5	5 stations



## Specifications PFM7

Model		PFM710	PFM725	PFM750	PFM711
Applicable fluid		Dry air, N <sub>2</sub> , Ar, CO <sub>2</sub> (Air quality grade is JIS B8392.1-1, 1.2 to 1.6.2 and ISO8573.1-1, 1.2 to 1.6.2.)			
Rated flow range (Flow rate range)	Dry air, N <sub>2</sub> , Ar	0.2 to 10 ℓ/min	0.5 to 25 ℓ/min	1 to 50 ℓ/min	2 to 100 ℓ/min
	CO <sub>2</sub>	0.2 to 5 ℓ/min	0.5 to 12.5 ℓ/min	1 to 25 ℓ/min	2 to 50 ℓ/min
Displayable range <sup>Note 1)</sup>	Dry air, N <sub>2</sub> , Ar	0.2 to 10.5 ℓ/min	0.5 to 26.3 ℓ/min	1 to 52.5 ℓ/min	2 to 105 ℓ/min
	CO <sub>2</sub>	0.2 to 5.2 ℓ/min	0.5 to 13.1 ℓ/min	1 to 26.2 ℓ/min	2 to 52 ℓ/min
Settable range <sup>Note 1)</sup>	Dry air, N <sub>2</sub> , Ar	0 to 10.5 ℓ/min	0 to 26.3 ℓ/min	0 to 52.5 ℓ/min	0 to 105 ℓ/min
	CO <sub>2</sub>	0 to 5.2 ℓ/min	0 to 13.1 ℓ/min	0 to 26.2 ℓ/min	0 to 52 ℓ/min
Minimum unit setting <sup>Note 2)</sup>		0.01 ℓ/min	0.1 ℓ/min	0.1 ℓ/min	0.1 ℓ/min
Accumulated pulse flow rate exchange value		0.1 ℓ/pulse	0.1 ℓ/pulse	0.1 ℓ/pulse	1 ℓ/pulse
Indication unit <sup>Note 3)</sup>		Real-time flow rate ℓ/min, CFM x 10 <sup>-2</sup> Accumulated flow ℓ, ft <sup>3</sup> x 10 <sup>-1</sup>			
Linearity		Display accuracy: ±3%F.S. or less (Fluid: Dry air) Analog output accuracy: ±5%F.S. or less			
Repeatability		±1%F.S. or less (Fluid: Dry air) Analog output accuracy: ±3%F.S. or less			
Pressure characteristics		±5%F.S. or less (based on 0.35 MPa)			
Temperature characteristics		±2%F.S. (15 to 35C) ±5%F.S. (0 to 50C)			
Operating pressure range		-100 kPa to 750 kPa			
Rated pressure range		-70 kPa to 750 kPa			
Proof pressure		1 MPa			
Accumulated flow range		Max. 999999 ℓ <sup>Note 4)</sup>			
Switch output		NPN or PNP open collector output			
	Maximum load current	80 mA			
	Maximum applied voltage	28 VDC (at NPN output)			
	Internal voltage drop	NPN output: 1 V or less (at 80 mA) PNP output: 1.5 V or less (at 80 mA)			
	Response time	1 s (50 ms, 0.5 s, 2 s can be selected.)			
	Output protection	Short-circuit protection, Overcurrent protection			
Accumulated pulse output		NPN or PNP open collector output (Same as switch output)			
	Response time	1.5 s or less (90% response)			
Analog output <sup>Note 5)</sup>	Voltage output	Voltage output: 1 to 5 V Output impedance: 1 kΩ			
	Current output	Current output: 4 to 20 mA Max. load impedance: 600Ω, Min. load impedance: 50Ω			
Hysteresis <sup>Note 6)</sup>	Hysteresis mode	Variable			
	Window comparator mode	Variable			
External input		No-voltage input (Reed or Solid state) Input 30 ms or more			
Display method		3-digit, 7-segment LED 2-color display (Red/Green) Renewed cycle: ±10 times/sec			
Status LED's		OUT1: Illuminates when output is turned ON (Green). OUT2: Illuminates when output is turned ON (Red).			
Power supply voltage		24 VDC ±10%			
Current consumption		55 mA or less			
Environmental resistance	Enclosure	IP40			
	Operating fluid temperature	0 to 50°C (with no freezing and condensation)			
	Operating temperature range	Operating: 0 to 50° C Stored: -10 to 60°C (with no freezing and condensation)			
	Operating humidity range	Operating, Stored: 35 to 85%R.H. (with no condensation)			
	Withstand voltage	1000 VAC for 1 min. between external terminal and case			
	Insulation resistance	50 MΩ or more (500 VDC Mega) between external terminal and case			
	Vibration resistance	Without orifice: 10 to 500 Hz with a 1.5 mm amplitude or 98 m/s <sup>2</sup> acceleration, in each X, Y, Z direction for 2 hrs, whichever is smaller. With orifice: 10 to 150 Hz with a 1.5 mm amplitude or 19.6 m/s <sup>2</sup> acceleration, in each X, Y, Z direction for 2 hrs, whichever is smaller.			
Impact resistance	490 m/s <sup>2</sup> in X, Y, Z directions 3 times each				

Note 1) When the minimum unit setting 0.01 ℓ/min is selected for 10 ℓ/min type, the indication upper limit will be [9.99 ℓ/min].

When the minimum unit setting 0.1 ℓ/min is selected for 100 ℓ/min type, the indication upper limit will be [99.9 ℓ/min].

Note 2) User can select between 0.01 ℓ/min and 0.1 ℓ/min for the PFM710, and between 0.1 ℓ/min and 1 ℓ/min for the PFM711 respectively.

If the indication unit is selected to "CFM", the minimum unit setting cannot be changed.

At the time of shipment from the factory, the minimum unit setting is set to 0.1 ℓ/min for the PFM710 and 1 ℓ/min for the PFM711 respectively.

Note 3) Set to "ANR" at the time of shipment from the factory.

"ANR" is used for standard conditions: 20°C, 1 atm and 65%R.H.

"Nℓ/min" is used for normal conditions: 0°C and 1 atm.

When equipped with a unit switching function. (The SI unit (ℓ/min or ℓ) is fixed for types with no unit switching function.)

Note 4) Cleared when the power supply is turned off. Hold function can be selected. (Interval of 2 min or 5 min can be selected).

If the 5 min interval is selected, the life of the memory element (electronic part) is limited to 1 million cycles. (If energized for 24 hours, life is calculated as 5 min x 1 million = 5 million min = 9.5 years). Therefore, if using the hold function, calculate the memory life for your operating conditions, and use within this life.

Note 5) Set to 1.5 s (90%), can be changed to 100 ms.

Note 6) Set to hysteresis mode at the time of shipment from the factory. Can be changed to window comparator mode using push-buttons.



## Specifications PFM5

Model		PFM510	PFM525	PFM550	PFM511
Applicable fluid		Dry air, N <sub>2</sub> , Ar, CO <sub>2</sub> (Air quality grade is JIS B8392.1-1, 1.2 to 1.6.2 and ISO8573.1-1, 1.2 to 1.6.2.)			
Rated flow range <sup>Note)</sup> (Flow rate range)	Dry air, N <sub>2</sub> , Ar	0.2 to 10 ℓ/min	0.5 to 25 ℓ/min	1 to 50 ℓ/min	2 to 100 ℓ/min
	CO <sub>2</sub>	0.2 to 5 ℓ/min	0.5 to 12.5 ℓ/min	1 to 25 ℓ/min	2 to 50 ℓ/min
Accuracy		3%F.S. or less			
Repeatability		±1%F.S. or less (Fluid: Dry air)			
Pressure characteristics		±5%F.S. or less (based on 0.35 MPa)			
Temperature characteristics		±2%F.S. (15 to 35°C) ±5%F.S. (0 to 50°C)			
Operating pressure range		-100 kPa to 750 kPa			
Rated pressure range		-70 kPa to 750 kPa			
Proof pressure		1 MPa			
Analog output	Response time	50 msec or 1 s (with response time selection function: 1 s at no-voltage input) Æ Refer to the internal circuits and wiring examples on page 16.			
	Voltage output	Voltage output: 1 to 5 V Output impedance: 1 kΩ			
	Current output	Current output: 4 to 20 mA Max. load impedance: 600Ω, Min. load impedance: 50Ω			
Status LED's		Power ON indicator: Lights when power is turned on (Green). Flow rate indicator: Flashes when flow is applied (Green).			
Power supply voltage		24 VDC ±10%			
Current consumption		35 mA or less			
Environmental resistance	Enclosure	IP40			
	Operating fluid temperature	0 to 50°C (with no freezing and condensation)			
	Operating temperature range	Operating: 0 to 50°C Stored: -10 to 60°C (with no freezing and condensation)			
	Operating humidity range	Operating, Stored: 35 to 85%R.H. (with no condensation)			
	Withstand voltage	1000 VAC for 1 min. between external terminal and case			
	Insulation resistance	50 MΩ or more (500 VDC Mega) between external terminal and case			
	Vibration resistance	Without orifice: 10 to 500 Hz with a 1.5 mm amplitude or 98 m/s <sup>2</sup> acceleration, in each X, Y, Z direction for 2 hrs, whichever is smaller. With orifice: 10 to 150 Hz with a 1.5 mm amplitude or 19.6 m/s <sup>2</sup> acceleration, in each X, Y, Z direction for 2 hrs, whichever is smaller.			
	Impact resistance	490 m/s <sup>2</sup> in X, Y, Z directions 3 times each			

Note: Flow rate unit is based on standard conditions (20C, 1 atm, 65% RH).

## Specifications PFM3

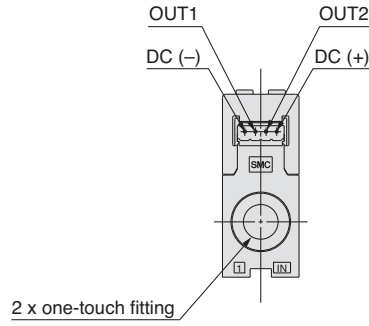
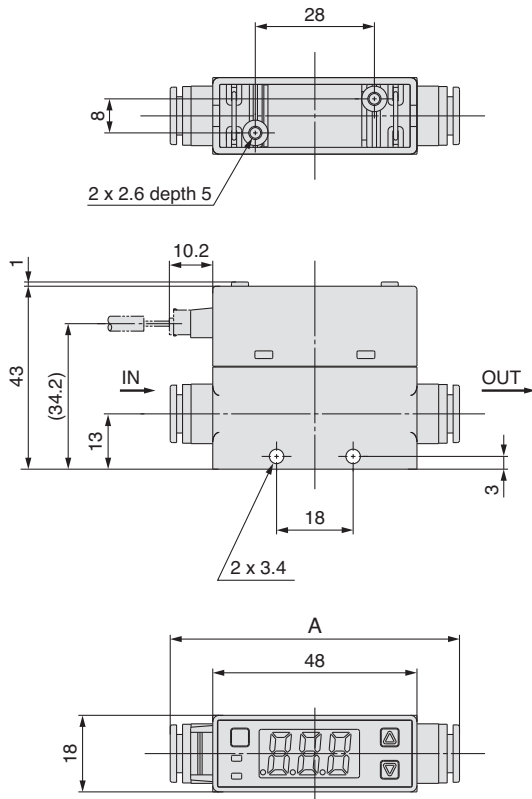
Model		PFM3□□			
Displayed flow range <sup>Note 1)</sup>	Dry air, N <sub>2</sub> , Ar	0.2 to 10.5 ℓ/min	0.5 to 26.3 ℓ/min	1 to 52.5 ℓ/min	2 to 105 ℓ/min
	CO <sub>2</sub>	0.2 to 5.2 ℓ/min	0.5 to 13.1 ℓ/min	1 to 26.2 ℓ/min	2 to 52 ℓ/min
Minimum unit setting		0.01 ℓ/min	0.1 ℓ/min	0.1 ℓ/min	0.1 ℓ/min
Accumulated pulse flow rate exchange value		0.1 ℓ/pulse	0.1 ℓ/pulse	0.1 ℓ/pulse	1 ℓ/pulse
Indication unit		Real-time flow rate ℓ/min, CFM x 10 <sup>-2</sup> Accumulated flow ℓ, ft <sup>3</sup> x 10 <sup>-1</sup>			
Accumulated flow range		1999999 ℓ			
Power supply voltage		24 VDC (ripple ±10% or less) (With polarity protection)			
Current consumption		50 mA or less			
Sensor input		PFM30□: Voltage input 1 to 5 VDC (input impedance: 1 MΩ) PFM31□: Current input 4 to 20 mADC (input impedance: 250 Ω)			
Number of inputs: 1					
Hysteresis		Hysteresis mode: Variable, Window comparator mode: Variable			
Switch output		NPN or PNP open collector output: 2 outputs Maximum load current: 80 mA, max. load voltage 30 VDC (at NPN output), Residual voltage 1 V or less (at load current 80 mA), With short-circuit protection			
Accumulated pulse output		NPN or PNP open collector output (Same as switch output)			
Response time		1 s (50 ms, 0.5 s, 2 s can be selected.)			
Repeatability		±0.1%F.S., Analogue output accuracy: ±0.3%F.S.			
Analogue output		Voltage output: 1 to 5 VDC (0 ℓ/min to max. rated flow rate value) Output impedance: Approx. 1 kΩ, Accuracy: ±1%F.S. or less (relative to display value) Current output: 4 to 20 mADC (0 ℓ/min to max. rated flow rate value) Max. load impedance: 600 Ω (at 24 VDC), Min. load impedance: 50 Ω Accuracy: ±1%F.S. (relative to display value)			
Display accuracy		±0.5%F.S. ±1 digit			
Display method		3+1/2-digit, 7-segment LED 2-color display (Red/Green) Sampling cycle: 10 times/sec			
Status LED's		OUT1: Illuminates when output is turned ON (Green). OUT2: Illuminates when output is turned ON (Red).			
External input		No-voltage input (Reed or Solid state), LOW level input 30 msec or more, LOW level 0.4 V or less			
Enclosure		IP40			
Operating temperature range		Operating: 0 to 50°C Stored: -10 to 60°C (with no freezing and condensation)			
Weight		30 g (Without cable) 85 g (With cable)			

 Note 1) Select the sensor to connect in the initial setting. If CO<sub>2</sub> is selected as the operating fluid, the value is 1/2 on the maximum side.


For more product options and details see our specific catalogues or on-line information.

Dimensions PFM7

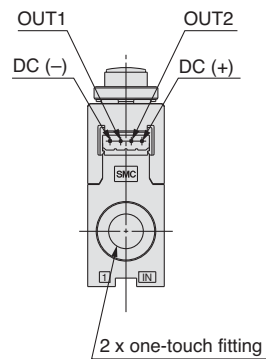
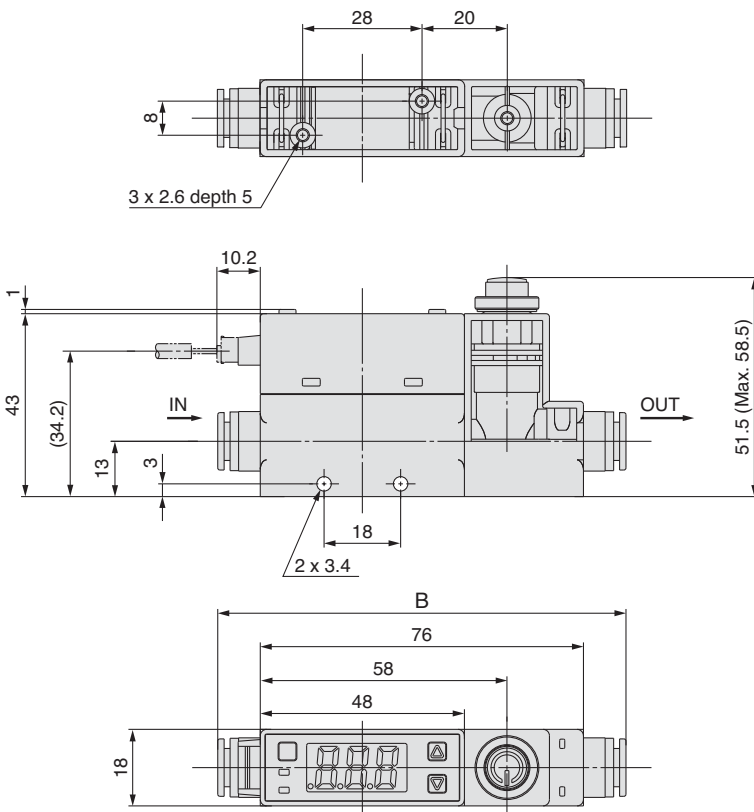
PFM7□□-C4/C6/C8



[mm]

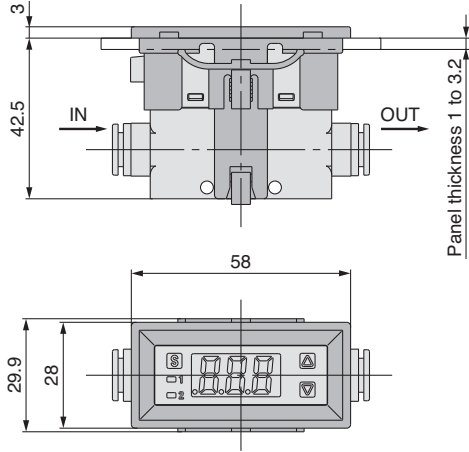
One-touch fitting Applicable tube O.D.	A	B
ø4 (5/32")	64.2	92.2
ø6	64.6	92.6
ø8 (5/16")	68	96

PFM7□S-C4/C6/C8

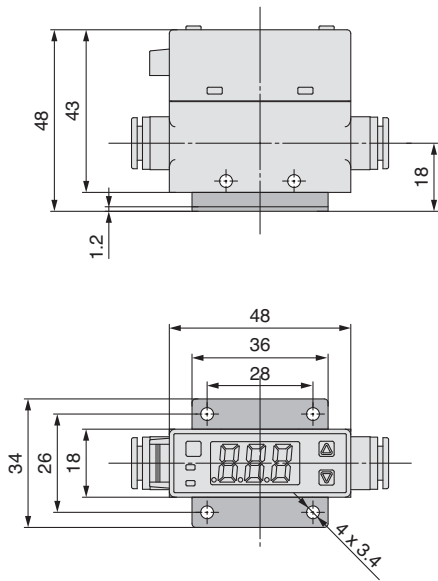


Dimensions

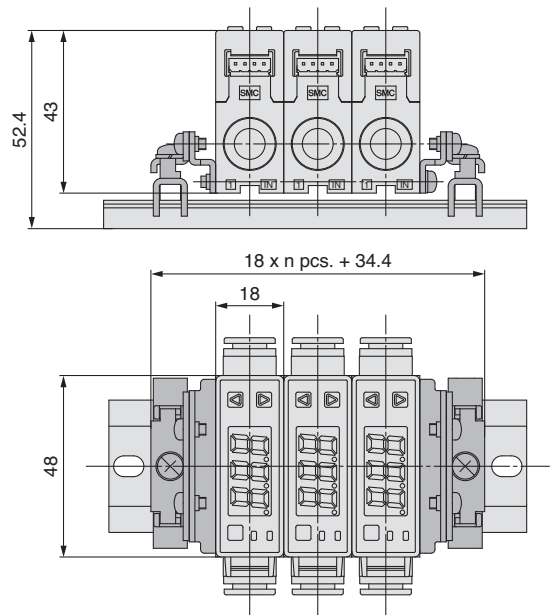
Panel mount / Without flow adjustment valve / Straight



With bracket / Without flow adjustment valve



DIN rail mounting

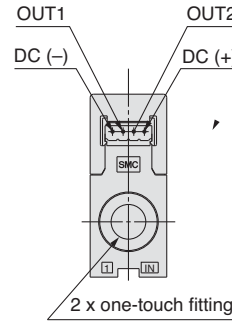
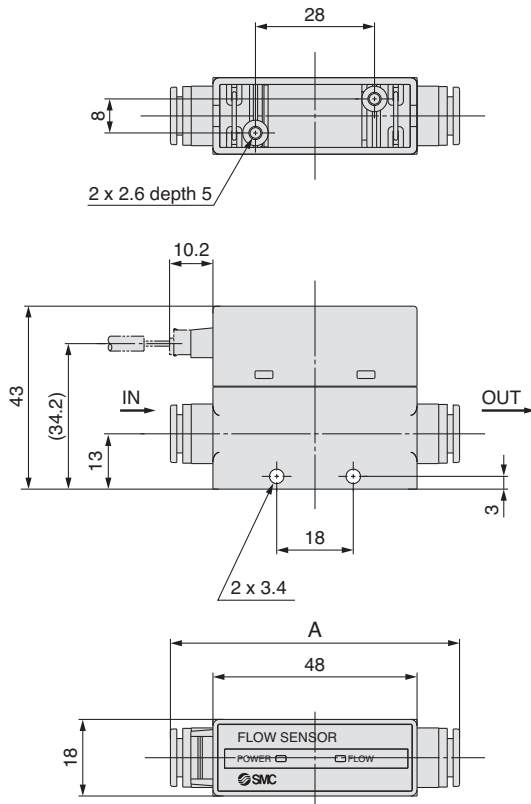


Dimensions PFM5

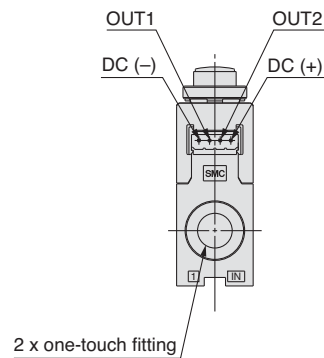
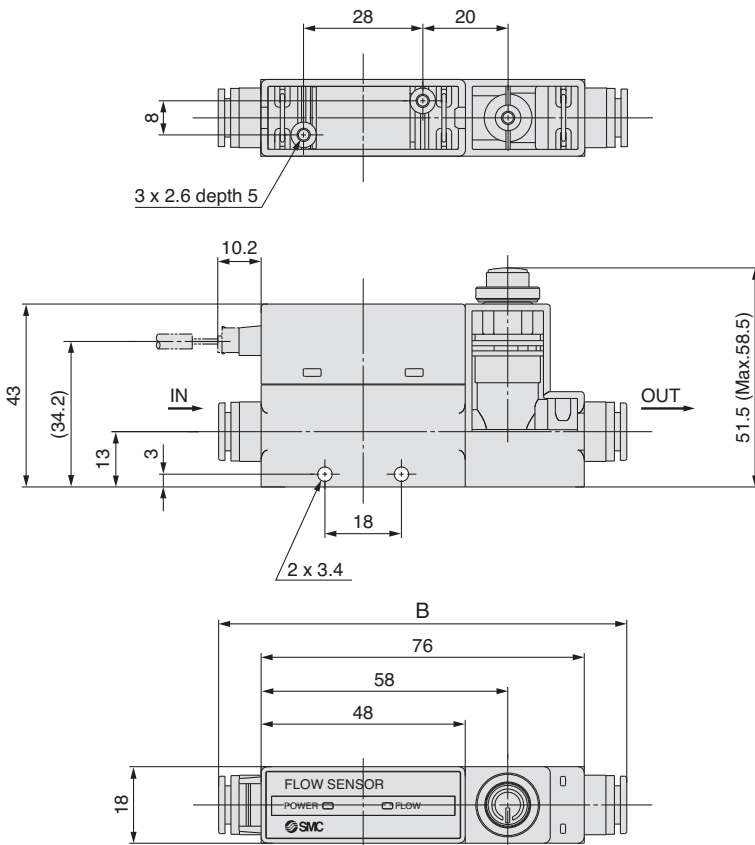
PFM5□□-C4/C6/C8

[mm]

One-touch fitting Applicable tube O.D.	A	B
ø4 (5/32")	64.2	92.2
ø6	64.6	92.6
ø8 (5/16")	68	96

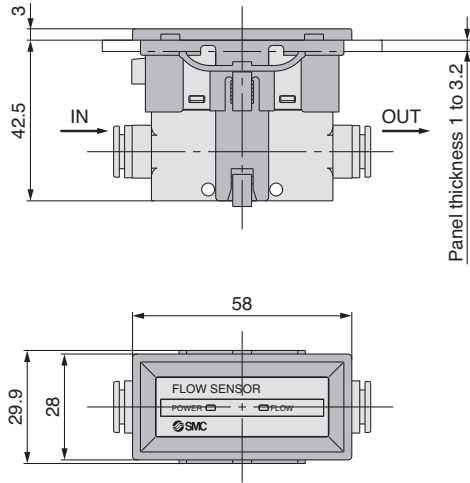


PFM5□S-C4/C6/C8

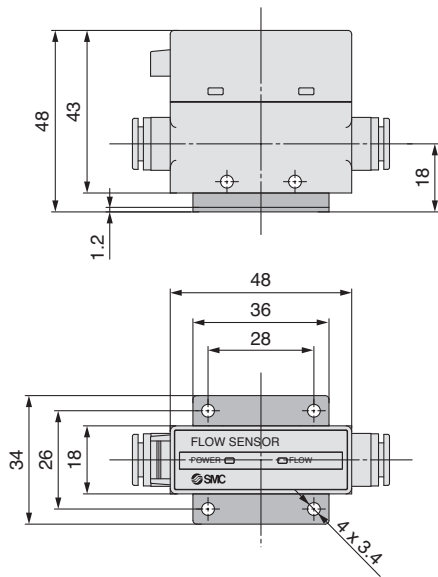


Dimensions

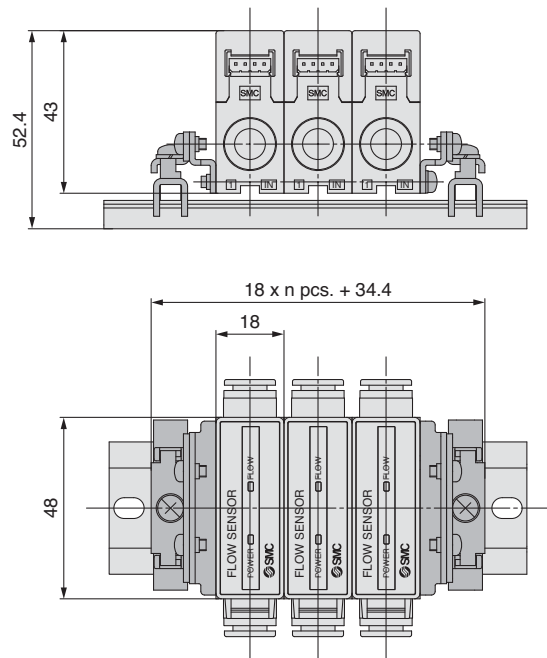
Panel mount / Without flow adjustment valve / Straight



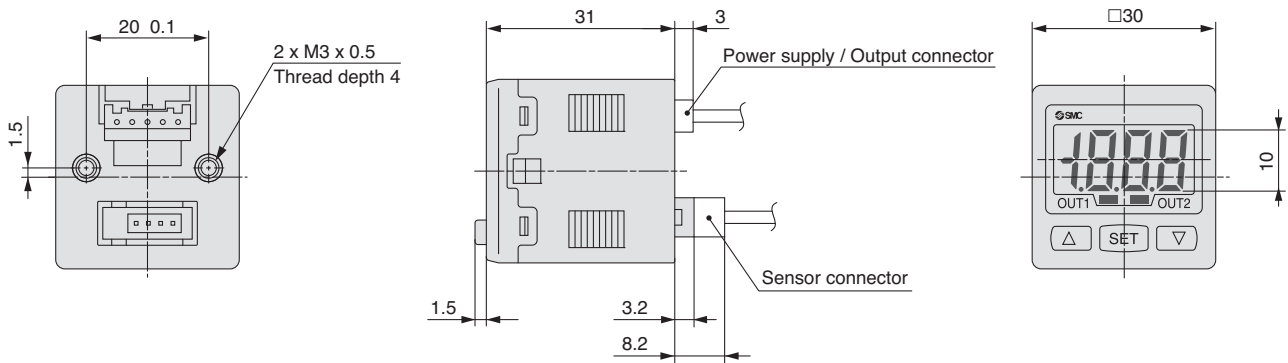
With bracket / Without flow adjustment valve



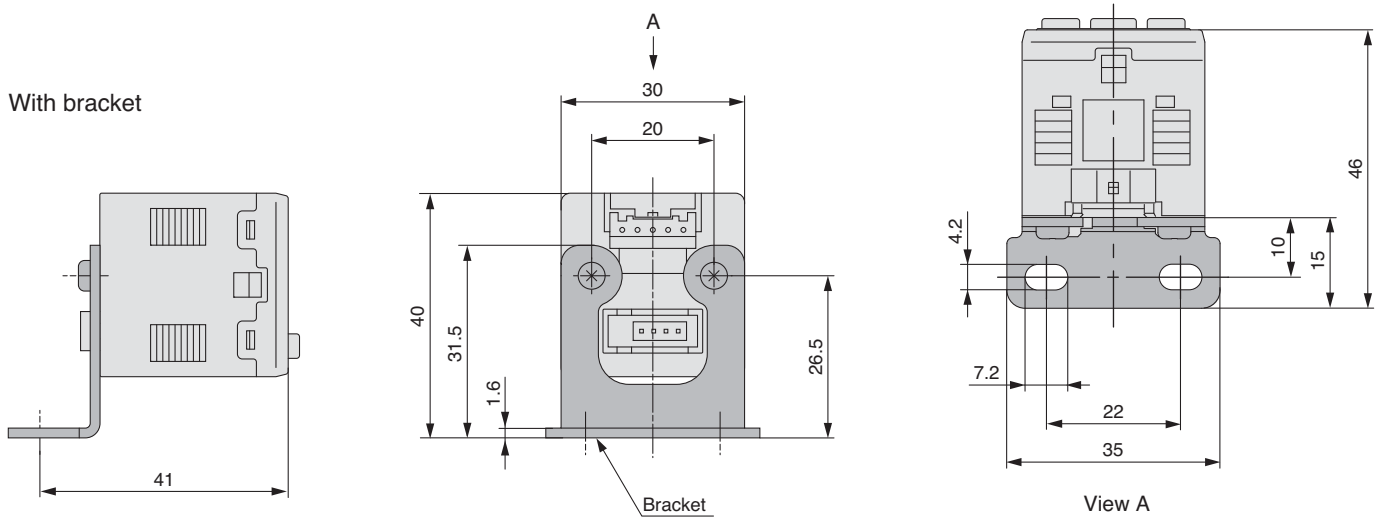
DIN rail mounting



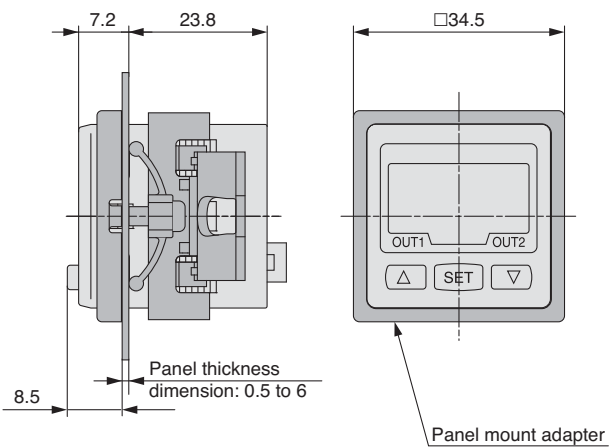
Dimensions PFM3



With bracket



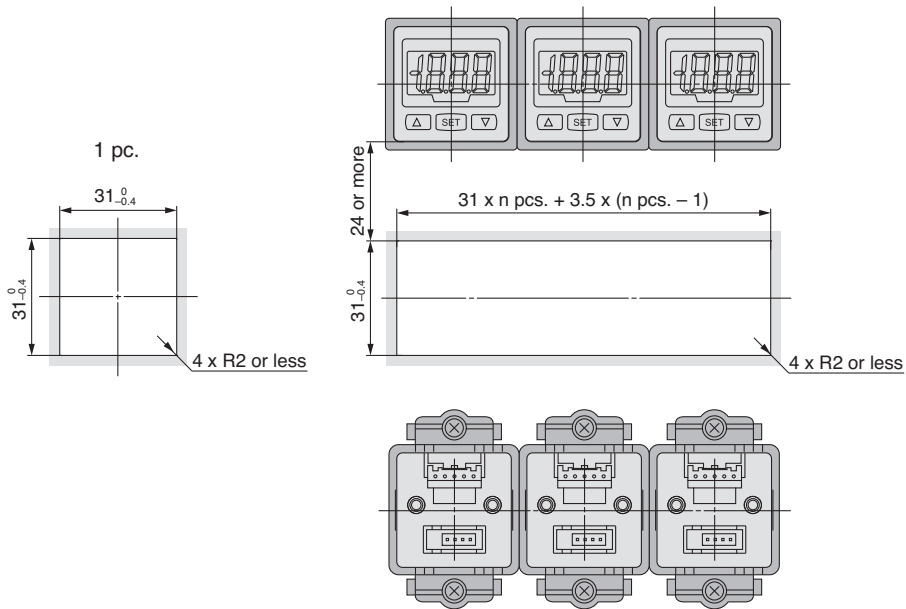
With panel mount adapter



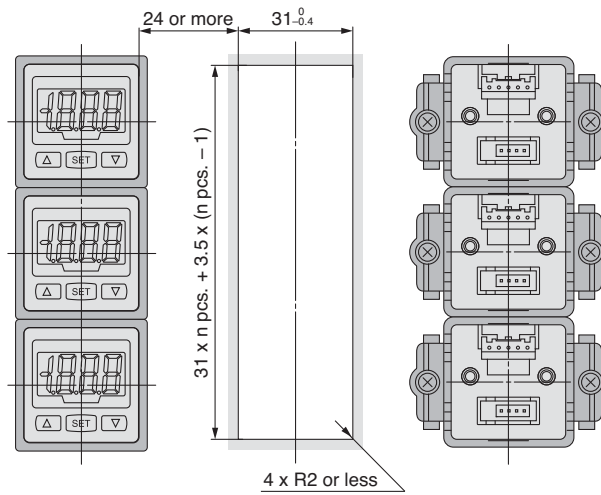
## Dimensions PFM3

## Panel fitting dimensions

## Secure mounting of n (2 or more) switches (horizontal)



## Secure mounting of n (2 or more) switches (vertical)



Note) If a bend (R) is used, limit it to R2 or less.

# Digital Flow Switch for Air Integrated Display Type Series PF2A



## Features

- Flow switch for air.
- Thermal detection has no moving parts and very little resistance to airflow.
- Flow ranges from 1 to 500  $\ell$ /min.
- Integrated LED display can show metric or imperial units.
- Two independent digital outputs.
- Output modes instantaneous flow, accumulated flow and counting pulse.
- IP65 splashproof construction.
- Display can be rotated for ease of viewing.

## How to Order

PF2A7 10 - F 01 - 67

Flow rate range

10	1 to 10 $\ell$ /min
50	5 to 50 $\ell$ /min
11	10 to 100 $\ell$ /min
21	20 to 200 $\ell$ /min
51	50 to 500 $\ell$ /min

Thread type

F	G
---	---

Output specifications

Symbol	Output specifications	Applicable model
27	NPN open collector 2 outputs	PF2A710, PF2A750 PF2A711, PF2A721, PF2A751
67	PNP open collector 2 outputs	PF2A710, PF2A750 PF2A711, PF2A721/PF2A751

Wiring specification

-	3m lead wire with connector
N	Without lead wire

## Port size

Symbol	Port size	Flow rate [ $\ell$ /min]					Applicable model
		10	50	100	200	500	
01	1/8	●	●				PF2A710, PF2A750
02	1/4	●	●				PF2A711, PF2A721
03	3/8			●	●		PF2A711, PF2A721
04	1/2					●	PF2A751

## Product Recommendation



Stocked items for fast delivery

PF2A710-F01-27	PF2A750-F02-27	PF2A711-F03-67	PF2A721-F03-67N
PF2A710-F01-67	PF2A750-F02-27N	PF2A711-F03-67N	PF2A751-F04-27N
PF2A710-F02-67	PF2A750-F02-67	PF2A721-F03-27N	PF2A751-F04-67
PF2A710-F02-67N	PF2A750-F02-67N	PF2A721-F03-67	PF2A751-F04-67N



## Accessories and Related Products

(Accessories)

Lead wire with connector (3m): ZS-37-A

(Related Products)

**Series AR** - Air Regulator - page 1084

**Series AF** - Main Line Filter - page 1082

**Series AW** - Filter Regulator - page 1088

**Series ZSE/ISE** □ 0A - Digital Pressure Switch of Air - page 1273

**Series VNB** - 2 Port Air Operated Valves - page 1466

**Series VXZ** - Pilot Operated 2 Port Solenoid Valves - page 1451

**Series KQ2** - Fittings - page 1184

**Series TU** - Tubing - page 1223

## Specifications

Model	PF2A710	PF2A750	PF2A711	PF2A721	PF2A751
Measured fluid	Air, Nitrogen				
Flow rate measurement range	0.5 to 10.5 $\ell$ /min	2.5 to 52.5 $\ell$ /min	5 to 105 $\ell$ /min	10 to 210 $\ell$ /min	25 to 525 $\ell$ /min
Set flow rate range	0.5 to 10.5 $\ell$ /min	2.5 to 52.5 $\ell$ /min	5 to 105 $\ell$ /min	10 to 210 $\ell$ /min	25 to 525 $\ell$ /min
Flow rate measuring range	1 to 10 $\ell$ /min	5 to 50 $\ell$ /min	10 to 100 $\ell$ /min	20 to 200 $\ell$ /min	50 to 500 $\ell$ /min
Minimum set unit	0.1 $\ell$ /min	0.5 $\ell$ /min	1 $\ell$ /min	2 $\ell$ /min	5 $\ell$ /min
Accumulated pulse flow rate exchange value (Pulse width: 50 ms)	0.1 $\ell$ /pulse	0.5 $\ell$ /pulse	1 $\ell$ /pulse	2 $\ell$ /pulse	5 $\ell$ /pulse
Display unit <sup>Note 1)</sup>	Real-time flow rate $\ell$ /min, CFM x 10 <sup>-2</sup>		Accumulated flow $\ell$ , ft <sup>3</sup> x 10 <sup>-1</sup>		
Operating fluid temperature	0 to 50°C				
Linearity			±5% F.S.		
Repeatability	±1% F.S.		±2% F.S.		
Temperature characteristics	±3% F.S. (15 to 35°C, based on 25°C), ±5% F.S. (0 to 50°C, based on 25°C)				
Current consumption (No load)	150 mA or less		160 mA or less		170 mA or less
Weight <sup>Note 2)</sup>	250 g		290 g		
Port size [NPT, G]	1/8, 1/4		3/8		1/2
Detection type	Heater type				
Display	3-digit, 7-segment LED				
Operating pressure range	-50 kPa to 0.5 MPa		-50 kPa to 0.75 MPa		
Proof pressure	1.0 MPa				
Accumulated flow range	0 to 999999 $\ell$				
Output <sup>Note 3)</sup> specifications	Switch output		NPN open collector Maximum load current: 80 mA; Internal voltage drop: 1 V or less (With load current of 80 mA) Maximum applied voltage: 30 V; Two outputs		
	Accumulated pulse output		PNP open collector Maximum load current: 80 mA Internal voltage drop: 1.5 V or less (With load current of 80 mA); Two outputs		
Indicator light	NPN or PNP open collector (same as switch output)				
Response time	Lights up when output is ON OUT1: Green; OUT2: Red				
Hysteresis	1 sec. or less				
Hysteresis	Hysteresis mode: Variable (can be set from 0); Window comparator mode: 3-digit fixed <sup>Note 4)</sup>				
Power supply voltage	12 to 24 VDC (Ripple 10% or less)				
Enclosure	IP65				
Resistance	Operating temperature range				
	Operating: 0 to 50°C, Stored: -25 to 85°C (No condensation or freezing)				
	Withstand voltage				
1000 VAC for 1 min. between external terminal and case					
Insulation resistance					
50 M $\Omega$ (500 VDC) between external terminal and case					

Note 1) Flow rate display can be switched between the basic condition of 0°C, 101.3 kPa and the standard condition (ANR) of 20°C, 101.3 kPa, and 65% RH.

Note 2) Without lead wire.

Note 3) Switch output and accumulated pulse output can be selected during initial setting.

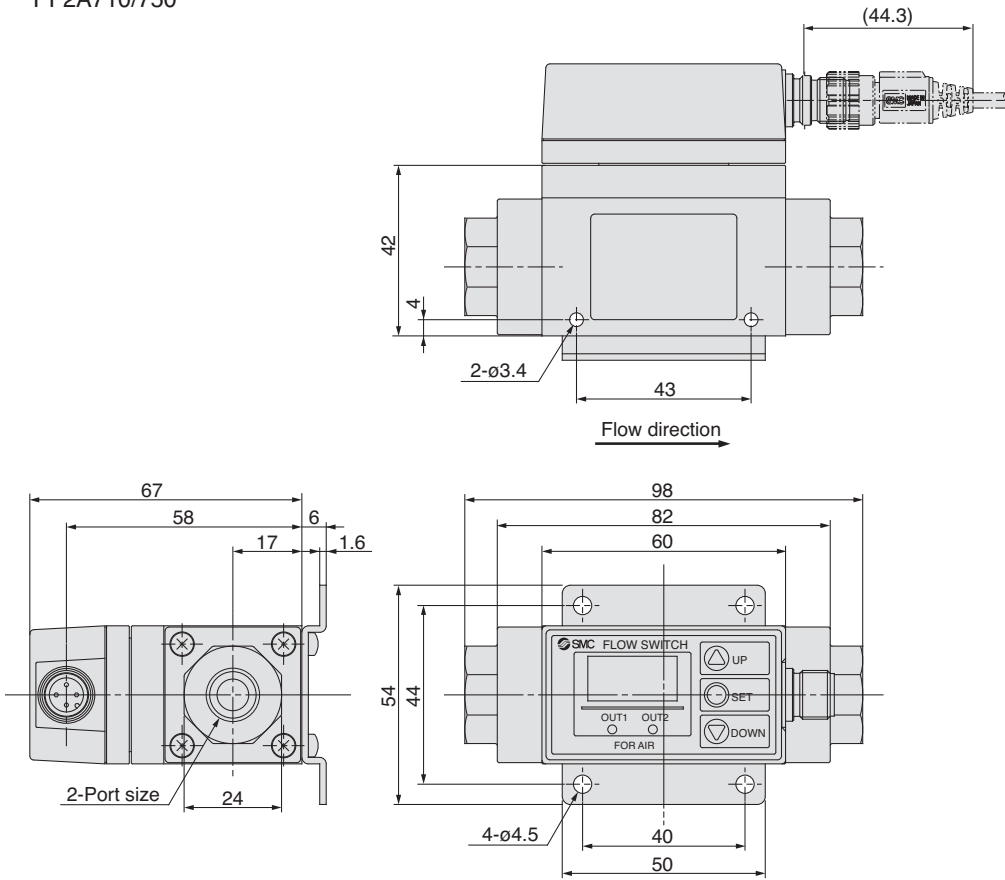
Note 4) Window comparator mode — Since hysteresis will reach 3 digits, keep P\_1 and P\_2 or n\_1 and n\_2 apart by 7 digits or more.

(In case of output OUT2, n\_1, 2 to be n\_3, 4 and P\_1, 2 to be P\_3, 4.)

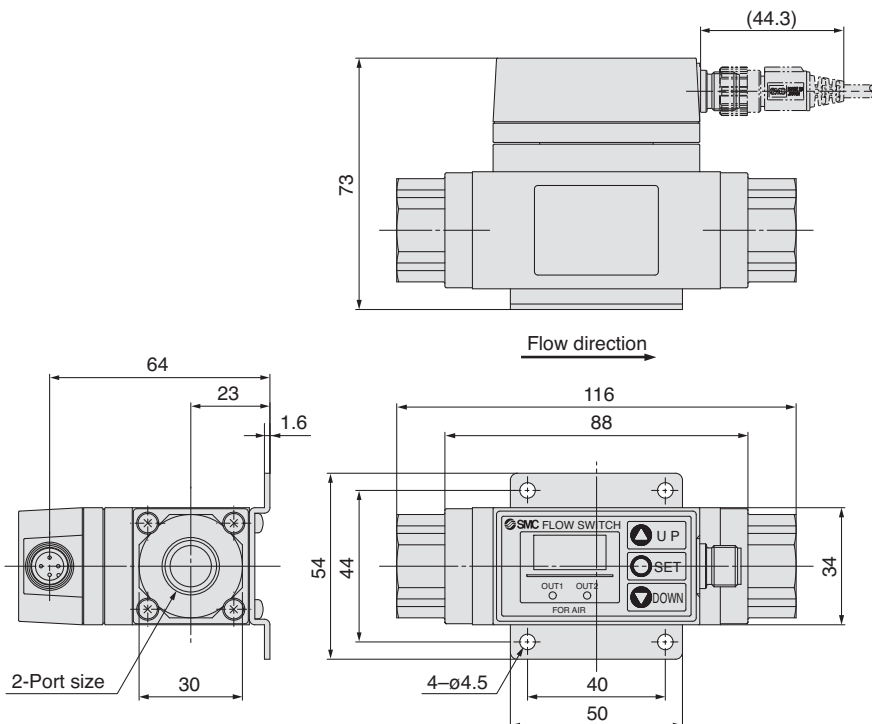


## Dimensions Integrated Display Type for Air

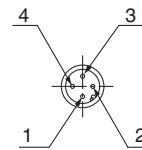
PF2A710/750



PF2A711/721/751



## Connector pin numbers



Pin no.	Pin description
1	DC (+)
2	OUT2
3	DC (-)
4	OUT1



# Digital Flow Switch for Air Remote Type Sensor Unit Series PF2A



## Features

- Flow switch for air.
- Thermal detection has no moving parts.
- Very little resistance to airflow.
- Flow ranges from 1 to 500 l/min.
- Output for remote display, optional analogue output.
- IP65 splashproof construction.

## How to Order

**PF2A5 10** — **F 01** — **□** — **□**

Flow rate range

10	1 to 10 l/min
50	5 to 50 l/min
11	10 to 100 l/min
21	20 to 200 l/min
51	50 to 500 l/min

Thread type

F	G
---	---

Output specifications

—	Output for display unit
1	Output for display unit + analog output (1 to 5 V)
2	Output for display unit + analog output (4 to 20 mA)

Wiring specification

—	3m lead wire with connector
N	Without lead wire

Port size

Symbol	Port size	Flow rate [l/min]				Applicable model
		10	50	100	200	
01	1/8	●	●			
02	1/4	●	●			PF2A710, PF2A750
03	3/8			●	●	PF2A711, PF2A721
04	1/2					● PF2A751

## Product Recommendation



Stocked items for fast delivery

PF2A510-F01N-2	PF2A511-F03-2	PF2A521-F03-2	PF2A551-F04-2
PF2A510-F02	PF2A511-F03N	PF2A521-F03N	PF2A551-F04N
PF2A510-F02N	PF2A511-F03N-1	PF2A521-F03N-1	PF2A551-F04N-1
PF2A550-F02	PF2A511-F03N-2	PF2A521-F03N-2	PF2A551-F04N-2
PF2A550-F02N	PF2A521-F03	PF2A551-F04	
PF2A550-F02N-2	PF2A521-F03-1	PF2A551-F04-1	



## Accessories and Related Products

- (Accessories)  
Lead wire with connector (3m): ZS-37-A
- (Related Products)  
**Series AR** - Air Regulator - page 1084  
**Series AF** - Main Line Filter - page 1082  
**Series AW** - Filter Regulator - page 1088  
**Series ZSE/ISE□0A** - Digital Pressure Switch of Air - page 1273  
**Series VNB** - 2 Port Air Operated Valves - page 1466  
**Series VXZ** - Pilot Operated 2 Port Solenoid Valves - page 1451  
**Series KQ2** - Fittings - page 1184  
**Series TU** - Tubing - page 1223

## Specifications

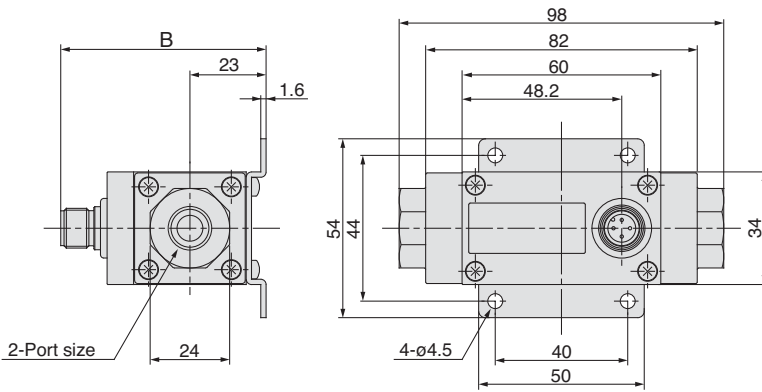
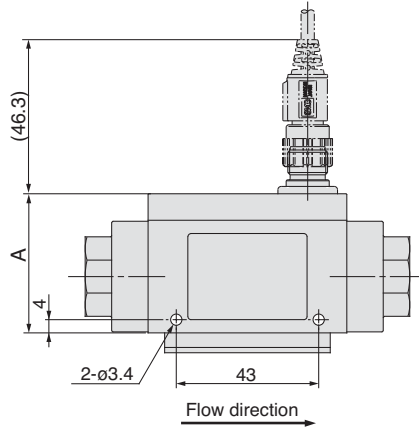
Model	PF2A510	PF2A550	PF2A511	PF2A521	PF2A551
Measured fluid	Air, Nitrogen				
Detection type	Heater type				
Flow rate measuring range	1 to 10 l/min	5 to 50 l/min	10 to 100 l/min	20 to 200 l/min	50 to 500 l/min
Operating pressure range	-50 kPa to 0.5 MPa		-50 kPa to 0.75 MPa		
Proof pressure	1.0 MPa				
Operating fluid temperature	0 to 50°C				
Linearity <sup>Note 1)</sup>	±5% F.S.				
Repeatability <sup>Note 1)</sup>	±1% F.S.				
Temperature characteristics	±2% F.S. (15 to 35°C, based on 25°C) ±3% F.S. (0 to 50°C, based on 25°C)				
Output <sup>Note 2)</sup> specifications	Output for display unit	Analogue voltage output (Non-linear) output impedance 1 kΩ output for display unit PF2A3□□			
	Analogue output	Voltage output 1 to 5 V within the flow rate range Linearity: ±5% F.S.; allowable load resistance: 100 kΩ or more.  Current output 4 to 20 mA within the flow rate range Linearity: 5% F.S. or less; allowable load resistance: 300Ω or less with 12 VDC, 600Ω or less with 24 VDC			
Power supply voltage	12 to 24 VDC (Ripple ±10% or less)				
Current consumption (No load)	100 mA or less				110 mA or less
Resistance	Enclosure	IP65			
	Operating temperature range	Operating: 0 to 50°C, Stored: -25 to 85°C (No condensation or freezing)			
	Withstand voltage	1000 VAC for 1 min. between external terminal and case			
	Insulation resistance	50 MΩ (500 VDC) between external terminal and case			
Weight <sup>Note 3)</sup>	200 g		240 g		
Port size [G]	1/8, 1/4		3/8		1/2

Note 1) The system accuracy when combined with PF2A3□□.  
 Note 2) Output system can be selected during initial setting.  
 Note 3) Without lead wire. (Add 20 g for the types of analog output whether voltage or current output selected.)  
 Note 4) Flow rate unit measured under the following conditions: 0°C and 101.3 kPa.

## Dimensions Remote Type Sensor Unit for Air

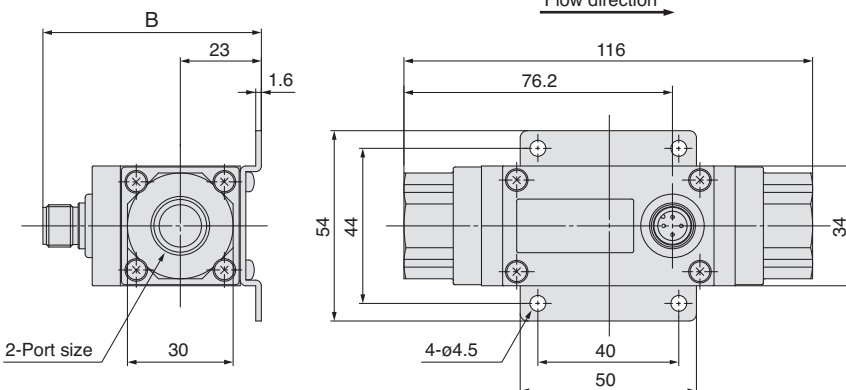
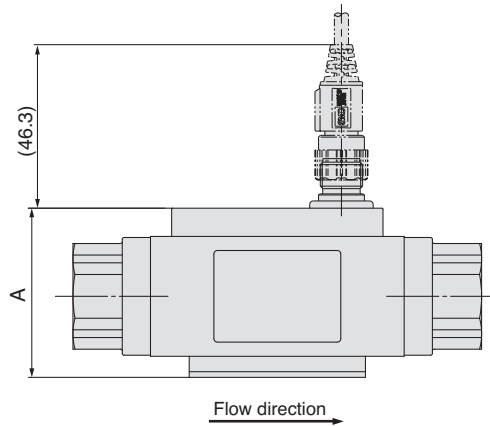
PF2A510/550

Output specifications	[mm]	
	A	B
Pulse output only	42	62
Pulse output + Analogue output	52	72

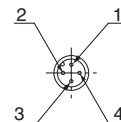


PF2A511/521/551

Output specifications	[mm]	
	A	B
Pulse output only	48	62
Pulse output + Analogue output	58	72



## Connector pin numbers



Pin no.	Pin description
1	DC (+)
2	NC/Analogue output
3	DC (-)
4	OUT



## Digital Flow Switch For Air Series PF2A

### Features

- Displays flow information.
- Works with remote sensor units.
- Panel mounting construction.
- Clear LED indication.
- Two independent digital outputs.
- Output modes instantaneous flow, total flow and counting pulse.
- Integrated LED display can show metric or imperial units.



### How to Order

PF2A3 0 1 - A

Symbol	Flow rate range	Type for sensor unit	Mounting
0	1 to 10 $\ell$ /min 5 to 50 $\ell$ /min	PF2A510 PF2A550	A Panel mounting
1	10 to 100 $\ell$ /min 20 to 200 $\ell$ /min 50 to 500 $\ell$ /min	PF2A511 PF2A521 PF2A551	

Symbol	Output specifications	Applicable model
0	NPN open collector 2 outputs	PF2A300/310
1	PNP open collector 2 outputs	PF2A301/311

### Product Recommendation



Stocked items for fast delivery

PF2A301-A PF2A310-A PF2A311-A



### Related Products

**Series AR** - Air Regulator - page 1084  
**Series AF** - Main Line Filter - page 1082  
**Series AW** - Filter Regulator - page 1088  
**Series ZSE/ISE□0A** - Digital Pressure Switch of Air - page 1273  
**Series VNB** - 2 Port Air Operated Valves - page 1466  
**Series VXZ** - Pilot Operated 2 Port Solenoid Valves - page 1451  
**Series KQ2** - Fittings - page 1184  
**Series TU** - Tubing - page 1223

### Specifications

Model	PF2A300/301			PF2A310/311	
Flow rate measurement range <sup>Note 1)</sup>	0.5 to 10.5 $\ell$ /min	2.5 to 52.5 $\ell$ /min	5 to 105 $\ell$ /min	10 to 210 $\ell$ /min	25 to 525 $\ell$ /min
Set flow rate range <sup>Note 1)</sup>	0.5 to 10.5 $\ell$ /min	2.5 to 52.5 $\ell$ /min	5 to 105 $\ell$ /min	10 to 210 $\ell$ /min	25 to 525 $\ell$ /min
Minimum set unit <sup>Note 1)</sup>	0.1 $\ell$ /min	0.5 $\ell$ /min	1 $\ell$ /min	2 $\ell$ /min	5 $\ell$ /min
Accumulated pulse flow rate exchange value (Pulse width: 50 ms) <sup>Note 1)</sup>	0.1 $\ell$ /pulse	0.5 $\ell$ /pulse	1 $\ell$ /pulse	2 $\ell$ /pulse	5 $\ell$ /pulse
Display unit <sup>Note 2)</sup>	Real-time flow rate	$\ell$ /min, CFM x 10 <sup>-2</sup>		$\ell$ /min, CFM x 10 <sup>-1</sup>	
	Accumulated flow	$\ell$ , ft <sup>3</sup> x 10 <sup>-1</sup>			
Accumulated flow range	0 to 999999 $\ell$				
Linearity <sup>Note 3)</sup>	±5% F.S.				
Repeatability <sup>Note 3)</sup>	±1% F.S.				
Temperature characteristics	±1% F.S. (15 to 35°C based on 25°C) ±2% F.S. (0 to 50°C based on 25°C)				
Current consumption	50 mA or less		60 mA or less		
Weight	45 g				
Output specifications <sup>Note 4)</sup>	Switch output	NPN open collector (PF2A300, PF2A310)		Maximum load current: 80 mA Internal voltage drop: 1 V or less (With load current of 80 mA) Maximum applied voltage: 30 V 2 outputs	
		PNP open collector (PF2A301, PF2A311)		Maximum load current: 80 mA Internal voltage drop: 1.5 V or less (With load current of 80 mA) 2 outputs	
	Accumulated pulse output	NPN or PNP open collector (same as switch output)			
Display	3-digit, 7-segment LED				
Indicator light	Lights up when output is ON OUT1: Green; OUT2: Red				
Power supply voltage	12 to 24 VDC (Ripple 10% or less)				
Response time	1 sec. or less				
Hysteresis	Hysteresis mode: Variable (can be set from 0), Window comparator mode: Fixed (3 digits) <sup>Note 5)</sup>				
Resistance	Enclosure	IP40			
	Operating temperature range	Operating: 0 to 50°C, Stored: -25 to 85°C (No condensation or freezing)			
	Withstand voltage	1000 VAC for 1 min. between external terminal and case			
	Insulation resistance	50 M $\Omega$ (500 VDC) between external terminal and case			

Note 1) The flow rate measurement range can be modified depending on the setting.

Note 2) Flow rate display can be switched between the basic condition of 0°C, 101.3 kPa and the standard condition (ANR) of 20°C, 101.3 kPa, and 65% RH.

Note 3) The system accuracy when combined with PF2A5□□.

Note 4) Switch output and accumulated pulse output can be selected during initial setting.

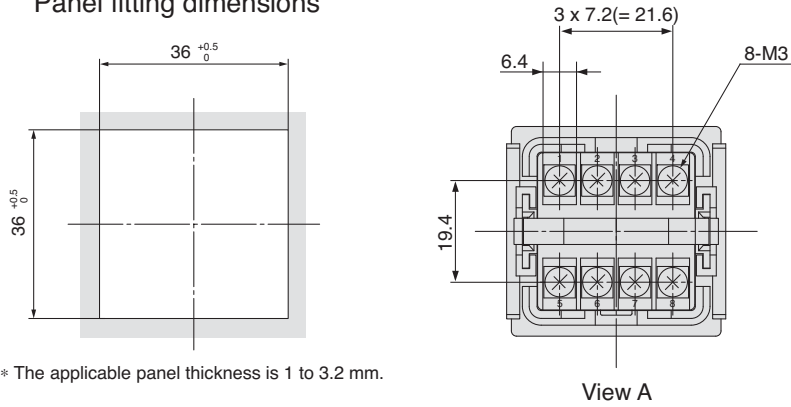
Note 5) Window comparator mode — Since hysteresis will reach 3 digits, keep P\_1 and P\_2 or n\_1 and n\_2 apart by 7 digits or more.

(In case of output OUT2, n\_1, 2 to be n\_3, 4 and P\_1, 2 to be P\_3, 4.)

## Dimensions Remote Type Display Unit for Air

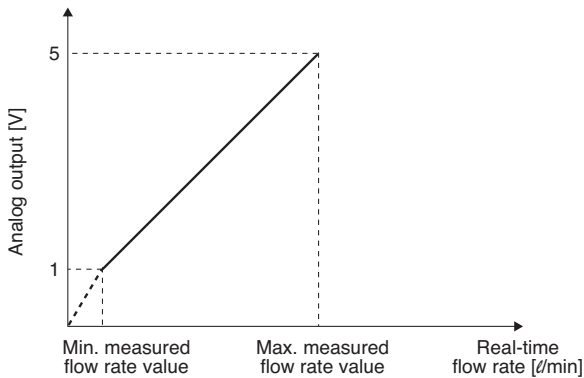
PF2A3□□-A  
Panel mounting type

### Panel fitting dimensions



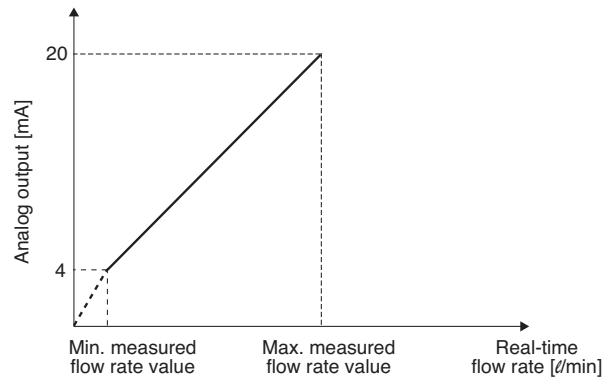
\* The applicable panel thickness is 1 to 3.2 mm.

### Analogue output 1 to 5 VDC



Part no.	Basic condition		Standard condition	
	Minimum measured flow rate value [l/min]		Minimum measured flow rate value [l/min]	
PF2A510-□-1	1	10	1.1	10.7
PF2A550-□-1	5	50	5.4	53.5
PF2A511-□-1	10	100	11	107
PF2A521-□-1	20	200	21	214
PF2A551-□-1	50	500	54	535

### 4 to 20 mADC



Part no.	Basic condition		Standard condition	
	Minimum measured flow rate value [l/min]		Minimum measured flow rate value [l/min]	
PF2A510-□-2	1	10	1.1	10.7
PF2A550-□-2	5	50	5.4	53.5
PF2A511-□-2	10	100	11	107
PF2A521-□-2	20	200	21	214
PF2A551-□-2	50	500	54	535



## Digital Flow Switch For Air Large Flow Integrated Display Type Series PF2A

### Features

- High volume flow switch for air.
- Thermal detection has no moving parts.
- Very little resistance to airflow.
- Flow ranges from 150 to 12000  $\ell$ /min.
- Integrated LED display can show metric or imperial units.
- Digital and analogue outputs.
- Digital output gives instantaneous flow, accumulated flow or counting pulse.
- IP65 splashproof construction.
- Display can be rotated for ease of viewing.



### How to Order

PF2A7 03 H - F 10 - 68

Flow rate range

03	150 to 3000 $\ell$ /min
06	300 to 6000 $\ell$ /min
12	600 to 12000 $\ell$ /min

Thread type

F	G
---	---

High flow type

Wiring specification

-	3m lead wire with connector
N	Without lead wire

Output specifications

28	NPN open collector 1 output + Analogue output (1 to 5 V)
29	NPN open collector 1 output + Analogue output (4 to 20 mA)
68	PNP open collector 1 output + Analogue output (1 to 5 V)
69	PNP open collector 1 output + Analogue output (4 to 20 mA)

\* Switching of switch output and accumulated pulse output is possible with NPN or PNP open collector outputs.

Port size

Symbol	Port size	Flow rate [ $\ell$ /min]			Applicable model
		3000	6000	12000	
10	1	●			PF2A703H
14	1 $\frac{1}{2}$		●		PF2A706H
20	2			●	PF2A712H

### Product Recommendation



Stocked items for fast delivery

PF2A703H-F10-28	PF2A703H-F10-69N	PF2A712H-F20-29N
PF2A703H-F10-29N	PF2A706H-F14-29N	PF2A712H-F20-68
PF2A703H-F10-68	PF2A706H-F14-68N	PF2A712H-F20-69
PF2A703H-F10-68N	PF2A706H-F14-69	PF2A712H-F20-69N
PF2A703H-F10-69	PF2A706H-F14-69N	



### Accessories and Related Products

(Accessories)

Lead wire with connector (3m): ZS-37-A

(Related Products)

**Series AR** - Air Regulator - page 1084

**Series AF** - Main Line Filter - page 1082

**Series AW** - Filter Regulator - page 1088

**Series ZSE/ISE□0A** - Digital Pressure Switch of Air - page 1273

**Series VNB** - 2 Port Air Operated Valves - page 1466

**Series VXZ** - Pilot Operated 2 Port Solenoid Valves - page 1451

**Series KQ2** - Fittings - page 1184

**Series TU** - Tubing - page 1223

### Specifications

Model	PF2A703H	PF2A706H	PF2A712H
Measured fluid	Dry air		
Detection type	Heater type		
Flow rate measuring range <sup>Note 1)</sup>	150 to 3000 $\ell$ /min	300 to 6000 $\ell$ /min	600 to 12000 $\ell$ /min
Minimum setting unit <sup>Note 1)</sup>	5 $\ell$ /min		10 $\ell$ /min
Display unit	Real-time flow rate		
	$\ell$ /min, CFM		
Operating pressure range	Accumulated flow		
	$\ell$ , m <sup>3</sup> , m <sup>3</sup> x 10 <sup>3</sup> , ft <sup>3</sup> , ft <sup>3</sup> x 10 <sup>3</sup> , ft <sup>3</sup> x 10 <sup>6</sup>		
Proof pressure	0.1 to 1.5 MPa		
Pressure loss	2.25 MPa		
Accumulated flow range	20 kPa (at maximum flow rate)		
Linearity <sup>Note 2)</sup>	0 to 9,999,999,999 $\ell$		
Repeatability	$\pm 1.5\%$ F.S. (0.7 MPa, at 20°C)		
Pressure characteristics	$\pm 1.0\%$ F.S. (0.7 MPa, at 20°C), $\pm 3.0\%$ of F.S. or less in case of analogue output		
Temperature characteristics	$\pm 1.5\%$ F.S. (0.1 to 1.5 MPa, based on 0.7 MPa)		
Output specifications	$\pm 2.0\%$ F.S. (0 to 50°C, based on 25°C)		
	Switch output <sup>Note 3)</sup>	NPN open collector Max. load current: 80 mA; Max. applied voltage: 30 V; Internal voltage drop: 1 V or less (With load current of 80 mA)	
	PNP open collector	Max. load current: 80 mA; Internal voltage drop: 1.5 V or less (With load current of 80 mA)	
Accumulated <sup>Note 3)</sup> pulse output	NPN or PNP open collector		Flow rate per pulse: 100 $\ell$ /pulse, 10.0 ft <sup>3</sup> /pulse Pulse width: 50 msec
Analogue output <sup>Note 4)</sup>	Output voltage: 1 to 5 V; Load impedance: 100 k $\Omega$ or more Output current: 4 to 20 mA; Load impedance: 250 $\Omega$ or less		
Response time	1 sec. or less		
Hysteresis	Hysteresis mode: Variable (can be set from 0); Window comparator mode: (can be set from 0 to 3% F.S.)		
Power supply voltage	24 VDC (Ripple 10% or less)		
Current consumption	150 mA or less		
Resistance	Enclosure		
	IP65		
	Operating temperature range		
	0 to 50°C (No condensation)		
Insulation resistance	Withstand voltage		
	1000 VAC for 1 min. between external terminal and case		
Weight	Insulation resistance		
	50 M $\Omega$ (500 VDC) between external terminal and case		
Port size	1.1 kg (Without lead wire)	1.3 kg (Without lead wire)	2.0 kg (Without lead wire)
	1	1 $\frac{1}{2}$	2

Note 1) Flow rate display can be switched between the basic condition of 0°C, 101.3 kPa and the standard condition (ANR) of 20°C, 101.3 kPa, and 65% RH.

Note 2) The high flow rate type is CE marked; however, the linearity with applied noise is 5% F.S. or less.

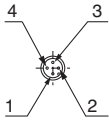
Note 3) Switch output and accumulated pulse output selections are made using the button controls.

Note 4) The analog output operates only for real-time flow rate, and does not operate for accumulated flow.

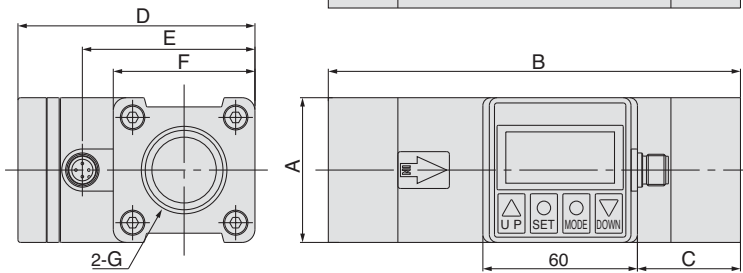
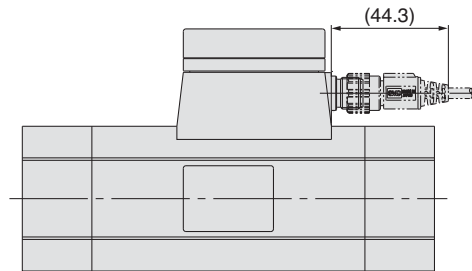
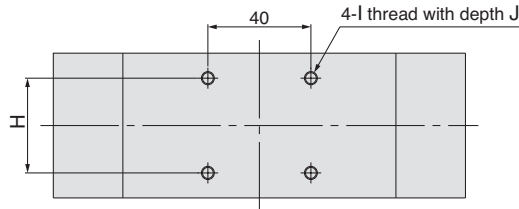
## Dimensions

## PF2A703H/706H/712H

## Connector pin numbers



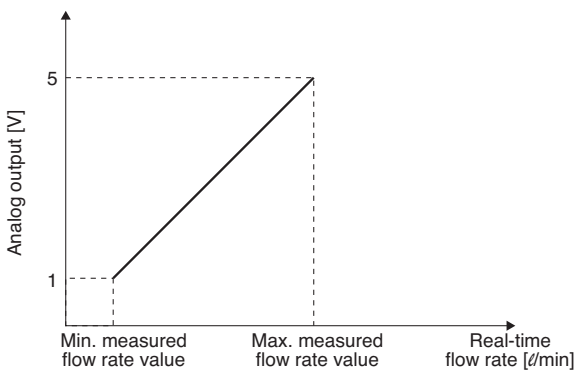
Pin no.	Pin description
1	DC (+)
2	Analog output
3	DC (-)
4	OUT1



Model	A	B	C	D	E	F	G	H	I	J
PF2A703H	55	160	40	92	67	55	1"	36	M5 x 0.8	8
PF2A706H	65	180	45	104	79	65	1 1/2"	46	M6 x 1	9
PF2A712H	75	220	55	114	89	75	2"	56	M6 x 1	9

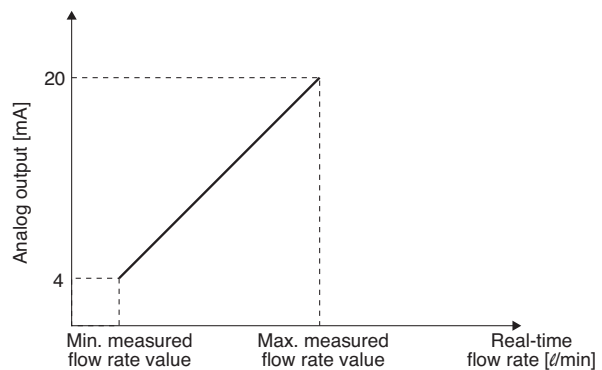
## Analogue output

1 to 5 VDC



Part no.	Minimum measured flow rate value [l/min]	Maximum measured flow rate value [l/min]
PF2A703H-□-28 PF2A703H-□-68	150	3000
PF2A706H-□-28 PF2A706H-□-68	300	6000
PF2A712H-□-28 PF2A712H-□-68	600	12000

4 to 20 mADC



Part no.	Minimum measured flow rate value [l/min]	Maximum measured flow rate value [l/min]
PF2A703H-□-29 PF2A703H-□-69	150	3000
PF2A706H-□-29 PF2A706H-□-69	300	6000
PF2A712H-□-29 PF2A712H-□-69	600	12000



# 3-Colour Display Digital Flow Switch for Water

## Series PF3W



### Features

- Compact size.
- Display visibility: 2 displays and 3 colours. Set value, accumulated flow, peak value, and bottom value can be displayed simultaneously.
- Built-in temperature sensor possible to differently monitor the flow and the temperature.
- Two models: integrated type and remote type.
- PVC piping type: for deionised water, chemical, etc (Viscosity 3mPas or less) Up to 100 ℓ/min.
- Integrated flow adjustment valve Up to 40 ℓ/min.

### How to Order

#### Digital Flow Switch for Water

Remote sensor unit

Integrated display

**Remote sensor unit** Output specification/Temperature sensor

Symbol	OUT1	OUT2	Temperature sensor
	Flow rate	Temperature	
1	Analogue 1 to 5 V	—	None
2	Analogue 4 to 20 mA	—	
1T	Analogue 1 to 5 V	Analogue 1 to 5 V	With temperature sensor

**Type**

5	Remote sensor unit
7	Integrated display

**Rated flow range (Flow range)**

Symbol	Rated flow range
04	0.5 to 4 ℓ/min
20	2 to 16 ℓ/min
40	5 to 40 ℓ/min
11	10 to 100 ℓ/min

**Flow adjustment valve**

Symbol	With/without flow adjustment valve	Rated flow rate			
		04	20	40	11
—	None	●	●	●	●
S	Yes	●	●	●	—

**Thread type**

F	G
---	---

**Port size**

Symbol	Port size	Rated flow range			
		04	20	40	11
03	3/8	●	●	—	—
04	1/2	—	●	●	—
06	3/4	—	—	●	●
10	1	—	—	—	●

**Integrated display/Unit specification**

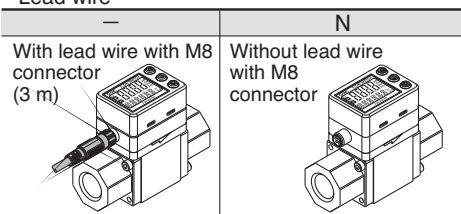
Symbol	Instantaneous flow rate	Accumulated flow	Temperature
M	ℓ/min	ℓ	°C
G	gal/min	gal	°C
F	gal/min	gal	°F
J	ℓ/min	ℓ	°F

Note) G, F, J: Made to Order  
 Reference: 1 [ℓ/min] ↔ 0.2642 [gal/min]  
 1 [gal/min] ↔ 3.785 [ℓ/min]  
 °F = 9/5°C + 32

Note 1) External input: The accumulated value, peak value, and bottom value can be reset.

Note 2) For units with temperature sensor, OUT2 can be set as either temperature output or flow rate output. Setting when shipped is for temperature output.

Symbol	OUT1	OUT2		Temperature sensor
	Flow rate	Flow rate	Temperature	
A	NPN	NPN	—	None
B	PNP	PNP	—	
C	NPN	Analogue 1 to 5 V	—	
D	NPN	Analogue 4 to 20 mA	—	
E	PNP	Analogue 1 to 5 V	—	
F	PNP	Analogue 4 to 20 mA	—	
G	NPN	External input <sup>Note 1)</sup>	—	
H	PNP	External input <sup>Note 1)</sup>	—	
AT	NPN	(NPN) <sup>Note 2)</sup>	NPN	With temperature sensor
BT	PNP	(PNP) <sup>Note 2)</sup>	PNP	
CT	NPN	(Analogue 1 to 5 V) <sup>Note 2)</sup>	Analogue 1 to 5 V	
DT	NPN	(Analogue 4 to 20 mA) <sup>Note 2)</sup>	Analogue 4 to 20 mA	
ET	PNP	(Analogue 1 to 5 V) <sup>Note 2)</sup>	Analogue 1 to 5 V	
FT	PNP	(Analogue 4 to 20 mA) <sup>Note 2)</sup>	Analogue 4 to 20 mA	



Sensors & Switches



## How to Order

### Digital Flow Switch for PVC Piping



Remote sensor unit



Integrated display

**PF3W 5 11 U 25 - 1 N**
**PF3W 7 11 U 25 - A N - M**
**Type**

5	Remote sensor unit
7	Integrated display

**Rated flow range (Flow range)**

Symbol	Rated flow range
11	10 to 100 ℓ/min

**Connection type**

U	PVC pipe
---	----------

**PVC pipe O.D.**

Symbol	Port size
25	25A

**Integrated display/Output specification**

Symbol	OUT1	OUT2
A	NPN	NPN
B	PNP	PNP
C	NPN	Analogue 1 to 5 V
D	NPN	Analogue 4 to 20 mA
E	PNP	Analogue 1 to 5 V
F	PNP	Analogue 4 to 20 mA
G	NPN	External input
H	PNP	External input

External input: The accumulated value, peak value, and bottom value can be reset.

**Remote sensor unit/Output specification**

Symbol	OUT1
1	Analogue 1 to 5 V
2	Analogue 4 to 20 mA

**Integrated display/Unit specification**

Symbol	Instantaneous flow rate	Accumulated flow	Temperature
M	ℓ/min	ℓ	°C
G	gal/min	gal	°C
F	gal/min	gal	°F
J	ℓ/min	ℓ	°F

Note) G, F, J: Made to Order

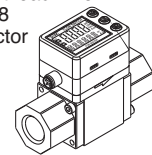
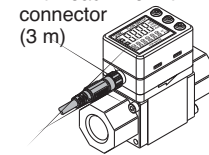
Reference: 1 [ℓ/min] ↔ 0.2642 [gal/min]

1 [gal/min] ↔ 3.785 [ℓ/min]

°F = 9/5°C + 32

**Lead wire**

—	N
With lead wire with M8 connector (3 m)	Without lead wire with M8 connector



### How to Order

#### Digital Flow Monitor for Water

PF3W 30 A – M V

Type  
3 Remote monitor unit

For remote sensor units, select the analog output 1 to 5 V type.  
Applicable sensors: PF3W5□□-□□-1(T)

#### Output specification

Symbol	OUT1	OUT2
A	NPN	NPN
B	PNP	PNP
C	NPN	Analogue 1 to 5 V
D	NPN	Analogue 4 to 20 mA
E	PNP	Analogue 1 to 5 V
F	PNP	Analogue 4 to 20 mA
G	NPN	External input
H	PNP	External input
J	Analogue 1 to 5 V	Analogue 1 to 5 V
K	Analogue 4 to 20 mA	Analogue 4 to 20 mA

In combination with remote sensor unit with temperature sensor, only OUT2 can be set for temperature sensor output.

#### Lead wire

–	With power supply/output connection lead wire (2 m) 
N	Without power supply/output connection lead wire Lead wire is not connected, but shipped together.

#### Option 1

–	None
T	Panel mount adapter 
V	Front protective cover + Panel mount adapter 

#### Remote monitor unit/Unit specification

Symbol	Instantaneous flow rate	Accumulated flow	Temperature
M	ℓ/min	ℓ	°C
G	gal/min	gal	°C
F	gal/min	gal	°F
J	ℓ/min	ℓ	°F

Note) G, F, J: Made to Order  
Reference: 1 [ℓ/min] ↔ 0.2642 [gal/min]  
1 [gal/min] ↔ 3.785 [ℓ/min]  
°F = 9/5°C + 32

### Product Recommendation



Stocked items for fast delivery (for PF3W7)

PF3W704-F03-BN-M	PF3W720-F04-BN-M	PF3W740-F06-BN-M	PF3W711-F06-BN-M
PF3W704-F03-BTN-M	PF3W720-F04-BTN-M	PF3W740-F06-BTN-M	PF3W711-F06-BTN-M
PF3W704-F03-EN-M	PF3W720-F04-EN-M	PF3W740-F06-EN-M	PF3W711-F10-BN-M
PF3W704-F03-ETN-M	PF3W720-F04-ETN-M	PF3W740-F06-ETN-M	PF3W711-F10-BTN-M
PF3W704-F03-FN-M	PF3W720-F04-FN-M	PF3W740-F06-FN-M	
PF3W704-F03-FTN-M	PF3W720-F04-FTN-M	PF3W740-F06-FTN-M	
PF3W704S-F03-BN-M	PF3W720S-F04-BN-M	PF3W740S-F06-BN-M	
PF3W704S-F03-BTN-M	PF3W720S-F04-BTN-M	PF3W740S-F06-BTN-M	



Stocked items for fast delivery (for PF3W7 of PVC)

PF3W711-U25-BN-M



#### Related Products

(Accessories)  
Lead wire with M8 connector ZS-40-A

(Related Products)  
Series ZSE/ISE80 - Digital Pressure Switch for Fluids - page 1290  
Series VNB - 2 Port Air Operated Valves - page 1466  
Series VXZ - Pilot Operated 2 Port Solenoid Valves - page 1451  
Series PA - Process Pump - page 1473  
Series KQ2 - Fittings - page 1184  
Series TU - Tubing - page 1223

## Specifications

### Integrated Display

Model	PF3W704	PF3W720	PF3W740	PF3W711
Applicable fluid	Water and ethylene glycol aqueous solution (with viscosity of 3 mPa·s [3 cP] or less)			
Rated flow range	0.5 to 4 ℓ/min	2 to 16 ℓ/min	5 to 40 ℓ/min	10 to 100 ℓ/min
Display flow range	0.35 to 5.50 ℓ/min	1.7 to 22.0 ℓ/min	3.5 to 55.0 ℓ/min	7 to 140 ℓ/min
Minimum setting unit	0.01 ℓ/min	0.1 ℓ/min		1 ℓ/min
Conversion of accumulated pulse (Pulse width: 50 ms)	0.05 ℓ/pulse	0.1 ℓ/pulse	0.5 ℓ/pulse	1 ℓ/pulse
Accumulated flow range	99999999.9 ℓ		999999999 ℓ	
Switch output	NPN or PNP open collector output			
Analogue output	Voltage output: 1 to 5 V Output impedance: 1 kΩ			
Response time	0.5s / 1s / 2s (linked with the switch output)			
Accuracy	Display value: ±3% F.S. Analogue output: ±3% F.S.			

### Remote Sensor Unit

Model	PF3W504	PF3W520	PF3W540	PF3W511
Applicable fluid	Water and ethylene glycol aqueous solution (with viscosity of 3 mPa·s [3 cP] or less)			
Rated flow range	0.5 to 4 ℓ/min	2 to 16 ℓ/min	5 to 40 ℓ/min	10 to 100 ℓ/min
Analogue output	Voltage output: 1 to 5 V Output impedance: 1 kΩ			
Response time	1 s			
Accuracy	±3% F.S.			

### Common specifications between the integrated and remote display sensor

Operating pressure range	0 to 1 MPa
Proof pressure	1.5 MPa
Fluid temperature	0 to 90°C (with no freezing and condensation)
Operating temperature range	0 to 50°C (with no freezing and condensation)
Temperature characteristics	±5% F.S. (25°C reference)
Power supply voltage	12 to 24 VDC ±10%
Enclosure	IP65

Note) The operating pressure range will vary depending on the fluid temperature. see the catalogue for details.

### Remote Display

Model	PF3W30□			
Display flow range	0.35 to 4.50 ℓ/min <small>(Flow under 0.35 ℓ/min is displayed as "0.0")</small>	1.7 to 18.0 ℓ/min <small>(Flow under 1.7 ℓ/min is displayed as "0.0")</small>	3.5 to 45.0 ℓ/min <small>(Flow under 3.5 ℓ/min is displayed as "0.0")</small>	7 to 112 ℓ/min <small>(Flow under 7 ℓ/min is displayed as "0")</small>
Set flow range	0.35 to 4.50 ℓ/min	1.7 to 18.0 ℓ/min	3.5 to 45.0 ℓ/min	7 to 112 ℓ/min
Minimum setting unit	0.01 ℓ/min	0.1 ℓ/min		1 ℓ/min
Conversion of accumulated pulse	0.05 ℓ/pulse	0.1 ℓ/pulse	0.5 ℓ/pulse	1 ℓ/pulse
Accumulated flow range	99999999.9 ℓ		999999999 ℓ	
Switch output	NPN or PNP open collector output			
Analogue output	Voltage output: 1 to 5 V Output impedance: 1 kΩ; Output current: 4 to 20 mA			
Response time	1s / 2s (linked with the switch output)			
Accuracy	Display value: ±0.5% F.S. Analogue output: ±0.5% F.S.			
Operating temperature range	0 to 50°C (with no freezing and condensation)			
Temperature characteristics	±0.5% F.S. (25°C reference)			
Power supply voltage	12 to 24 VDC ±10%			

## Accessories and Replacement Kits

Description	Part no.	Qty.	Note	
Bracket <small>Note)</small>	ZS-40-K	1	For PF3W704/720/504/520	With 4 tapping screws (3 x 8)
	ZS-40-L	1	For PF3W740/540	With 4 tapping screws (3 x 8)
	ZS-40-M	1	For PF3W711/511	With 4 tapping screws (4 x 10)
Lead wire with M8 connector	ZS-40-A	1	Lead wire length (3 m)	

Note) For units with flow adjustment valve, 2 brackets are required.

### PF3W30 Accessories

Description	Part no.	Note
Panel mount adapter	ZS-26-B	With waterproof seal and screws
Front protective cover + Panel mount adapter	ZS-26-C	With waterproof seal and screws
Front protective cover only	ZS-26-01	Separately order panel mount adapter, etc.
Power supply/output connection lead wire	ZS-40-W	Lead wire length (2 m)
Sensor connector (e-con)	ZS-28-CA-4	1 pc.
Lead wire with connector for copying	ZS-40-Y	Connect up to 10 slave units

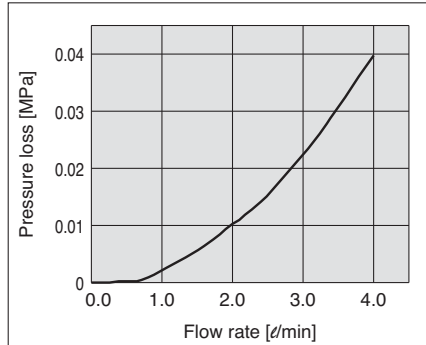


For more product options and details see our specific catalogues or on-line information.

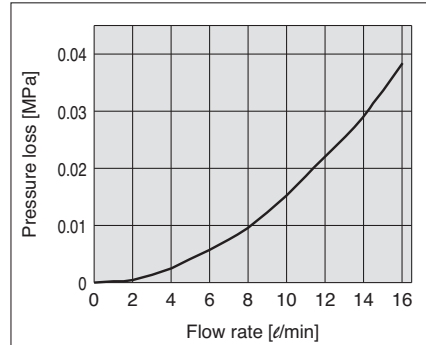
## Flow Characteristics

### Flow-rate Characteristics (Pressure Loss: Without Flow Adjustment Valve)

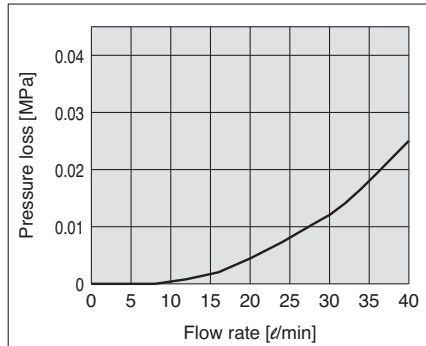
PF3W704/504



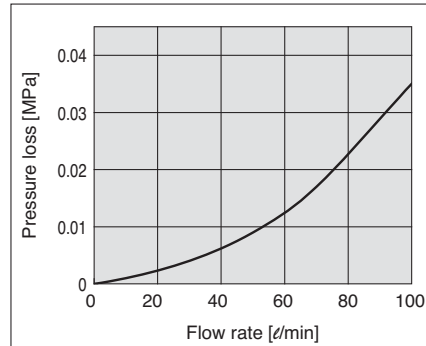
PF3W720/520



PF3W740/540

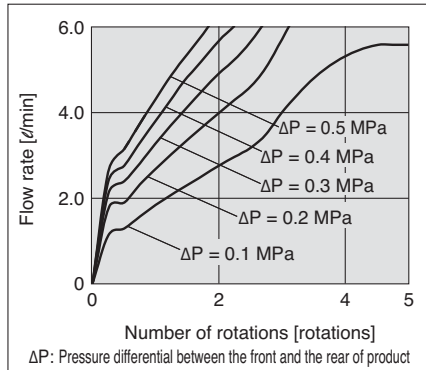


PF3W711/511

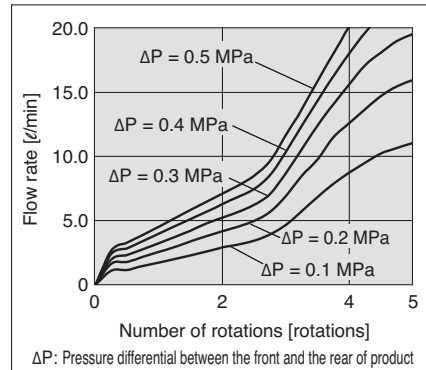


### Flow-rate Characteristics of Flow Adjustment Valve

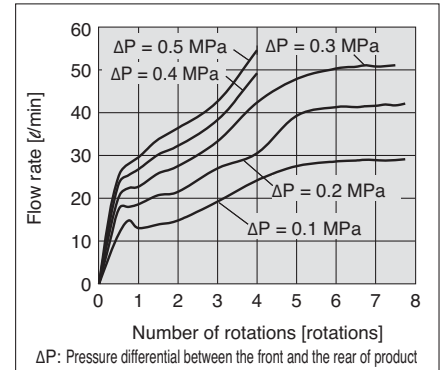
PF3W704S/504S



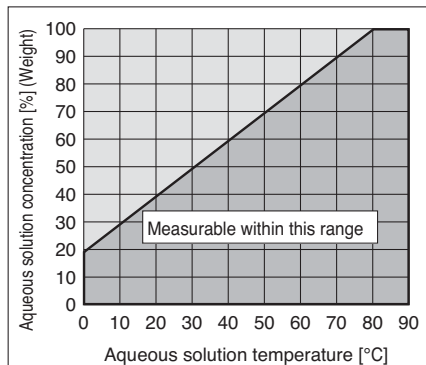
PF3W720S/520S



PF3W740S/540S

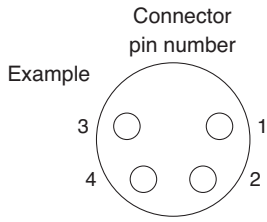


### Measurable Range for Ethylene Glycol Aqueous Solution (Reference Value)

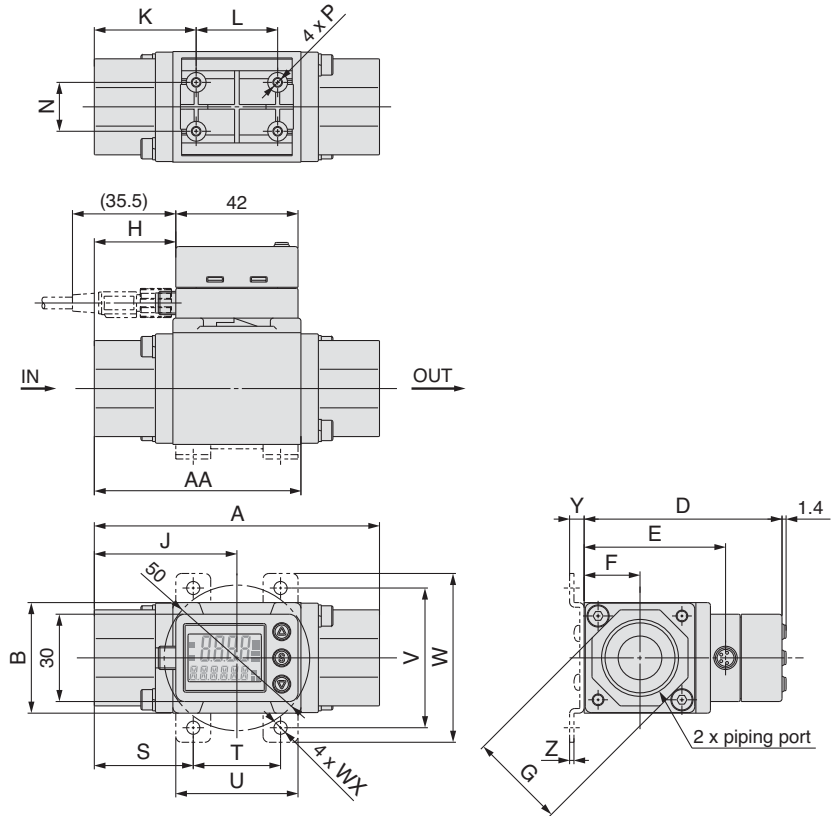


### Dimensions

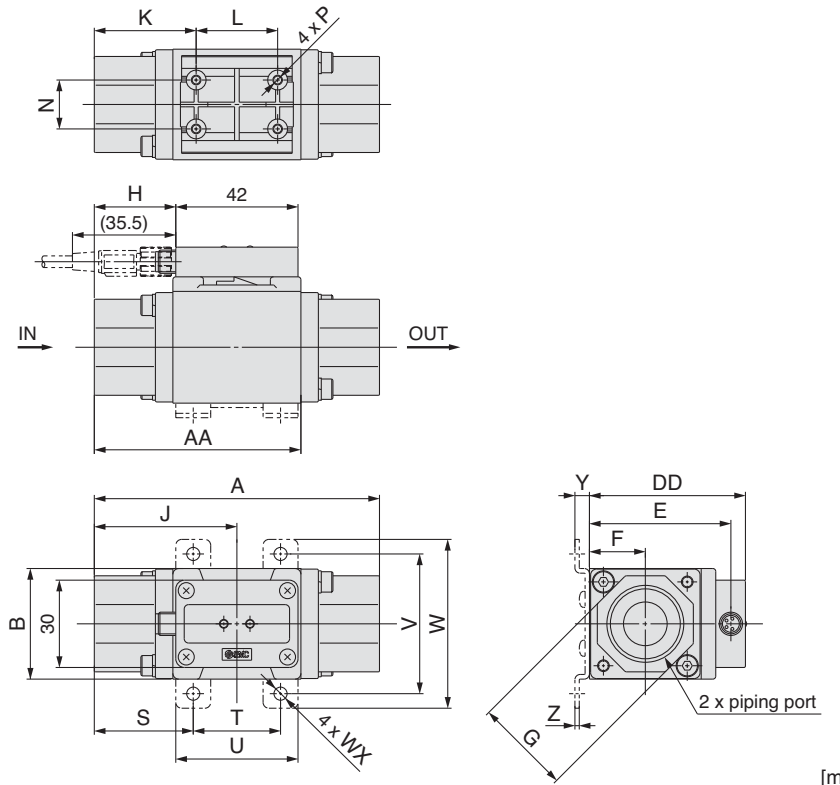
PF3W704/720/740/711  
Integrated display



Pin no.	Pin name
1	DC (+)
2	OUT2
3	DC (-)
4	OUT1



PF3W504/520/540/511  
Remote sensor unit



[mm]

Model	Port size [Rc, NPT, G]	A	AA	B	D	DD	E	F	G	H	J	K	L	N	P	Bracket dimensions							
																S	T	U	V	W	WX	Y	Z
PF3W704/504	3/8	70	50	30	60	45.6	40.6	15.2	24	14	35	26	18	13.6	ø2.7 depth 14	24	22	32	40	50	4.5	5	1.5
PF3W720/520	3/8, 1/2	78	54	30	60	45.6	40.6	15.2	27	18	39	30	18	13.6	ø2.7 depth 12	28	22	32	40	50	4.5	5	1.5
PF3W740/540	1/2, 3/4	98	71	38	68	53.6	48.6	19.2	32	28	49	35	28	16.8	ø2.7 depth 12	34	30	42	48	58	4.5	5	1.5
PF3W711/511	3/4, 1	124	92	46	77	62.6	57.6	23.0	41	42	63	48	28	18.0	ø3.5 depth 14	44	36	48	58	70	5.5	7	2.0

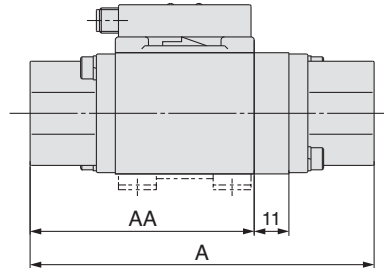
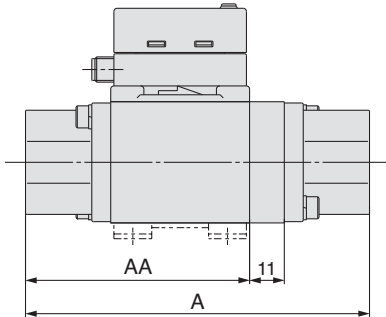


For more product options and details see our specific catalogues or on-line information.

Dimensions

PF3W704/720/740/711-□-□T  
Integrated display: With temperature sensor

PF3W504/520/540/511-□-□T  
Remote sensor unit: With temperature sensor

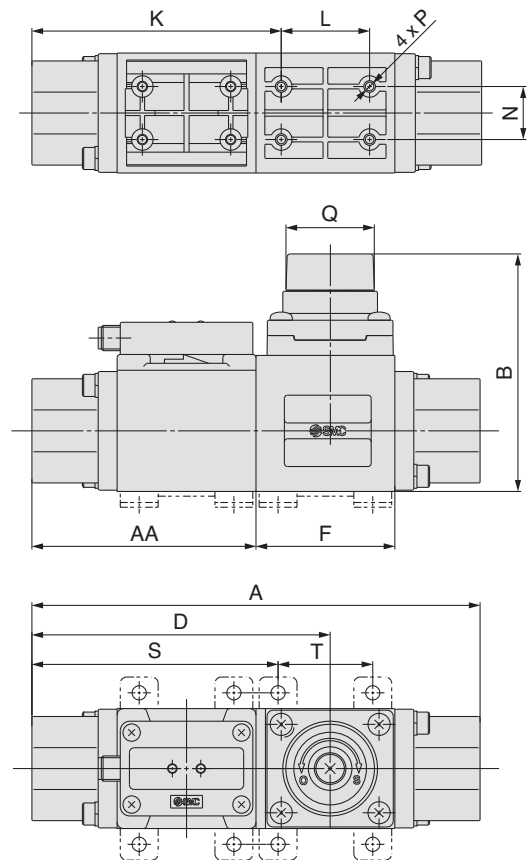
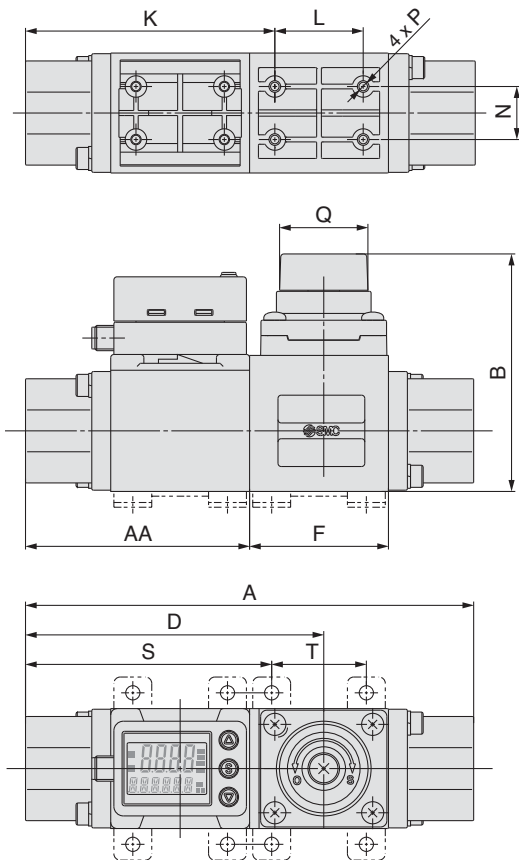


[mm]

Model	A	AA
PF3W704/504-□-□T	81	50
PF3W720/520-□-□T	89	54
PF3W740/540-□-□T	109	71
PF3W711/511-□-□T	135	92

PF3W704S/720S/740S  
Integrated display: With flow adjustment valve

PF3W504S/520S/540S  
Remote sensor unit: With flow adjustment valve



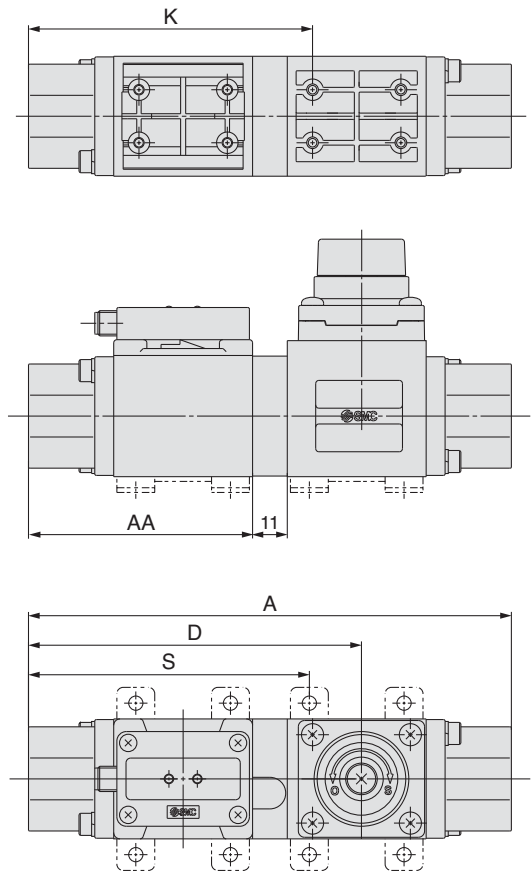
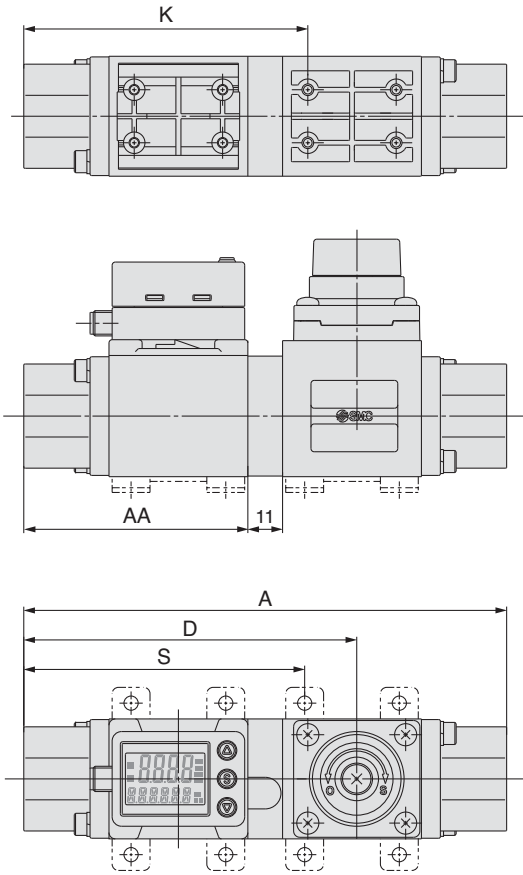
[mm]

Model	A	AA	B	D	F	K	L	N	P	Q	Q number of rotations	Bracket dimensions	
												S	T
PF3W704S/504S	104	50	63.6 (Max. 68.6)	70.2	34	58.5	18	13.6	ø2.7 depth 10	ø19	6	56.5	22
PF3W720S/520S	112	54	63.6 (Max. 68.6)	74.2	34	62.5	18	13.6	ø2.7 depth 10	ø19	6	60.5	22
PF3W740S/540S	142	71	75.25 (Max. 81)	94.5	44	79.0	28	16.8	ø2.7 depth 10	ø28	7	78.0	30

Dimensions

PF3W704S/720S/740S-□-□T  
 Integrated display: With temperature sensor  
 and flow adjustment valve

PF3W504S/520S/540S-□-□T  
 Remote sensor unit: With temperature sensor  
 and flow adjustment valve

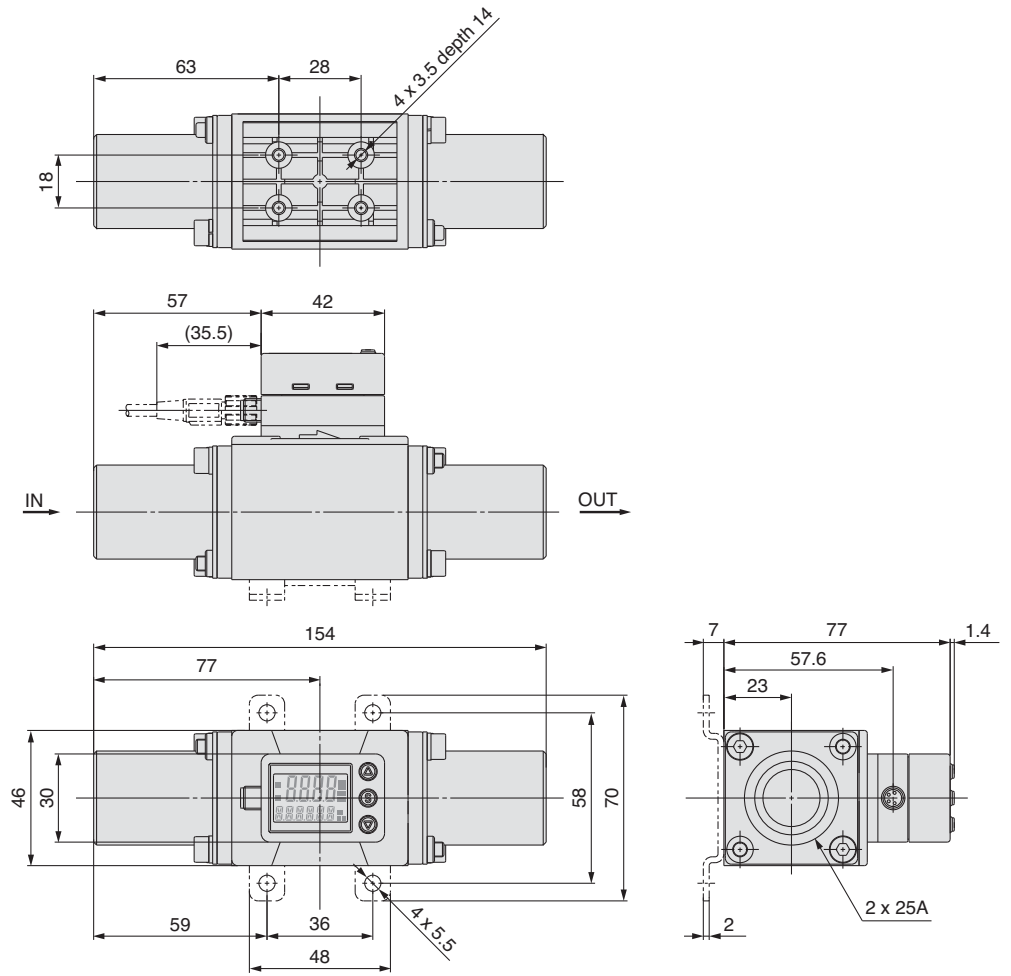
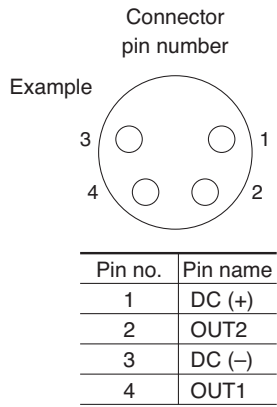


[mm]

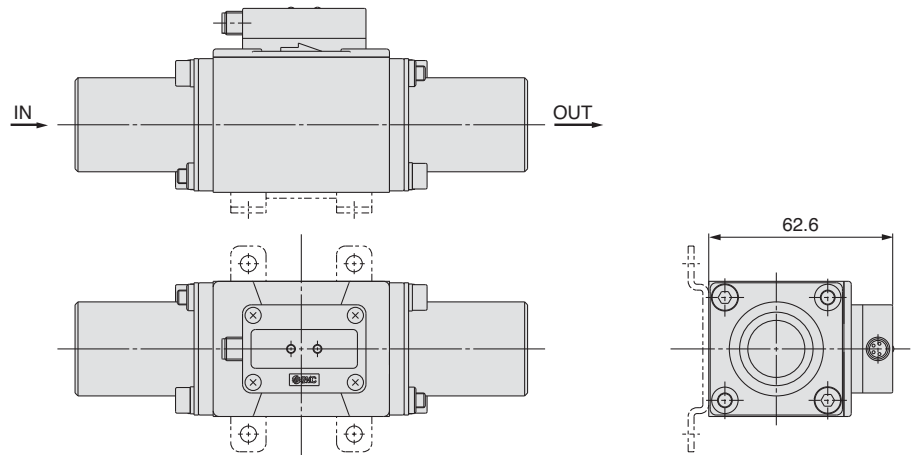
Model	A	AA	D	K	S
PF3W704S/504S-□-□T	115	50	81.2	69.5	67.5
PF3W720S/520S-□-□T	123	54	85.2	73.5	71.5
PF3W740S/540S-□-□T	153	71	105.5	90.0	89.0

Dimensions

PF3W711-U25A  
Integrated display



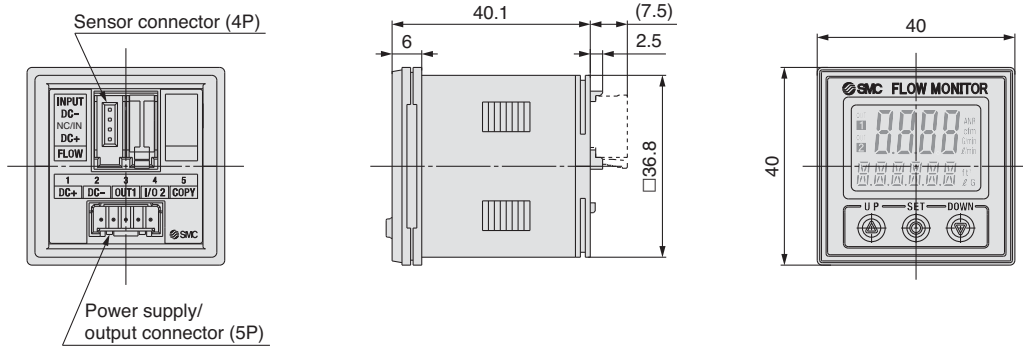
PF3W511-U25A  
Remote sensor unit



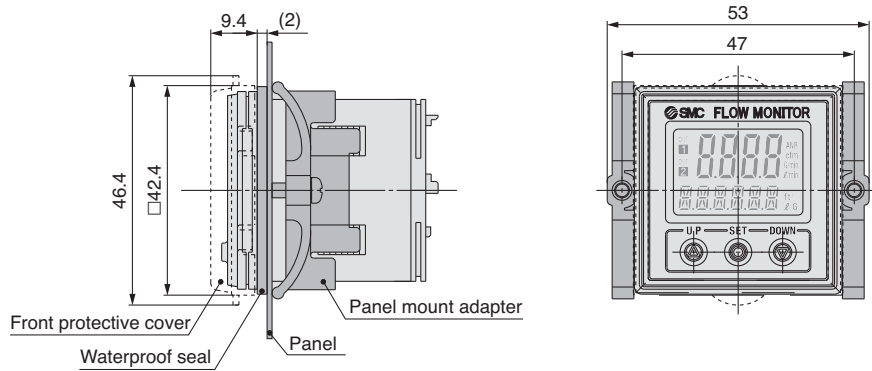


Dimensions

Digital Flow Monitor for Water



Front protective cover + Panel mount adapter



Panel fitting dimensions

Applicable panel thickness:  
 0.5 to 8 mm (Without waterproof seal)  
 0.5 to 6 mm (With waterproof seal)

