How to Order

4-channel Flow Monitor
Remote Type Display Unit

PF2A20 0 — M □ □

Output specification

0	NPN4 outputs
1	PNP4 outputs

Unit specification

Nil	With unit switching function
M	Fixed SI unit Note)

Note) Fixed units:
Real-time flow rate: ℓ/min
Accumulated flow: ℓ

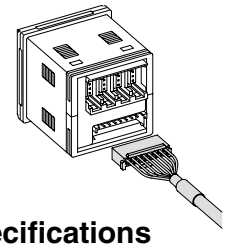
Option 1 (Refer to page 35.)

Nil	None
A	Panel mounting
B	Front protective cover + Panel mounting

Option 2 (Refer to page 35.)

Nil	None
4C	Sensor connector (4 pc.)

Accessory / Power supply output cable (2 m)



Connectable remote type sensor part is PF2A5□□-□-1 (with analog output 1 to 5 V).

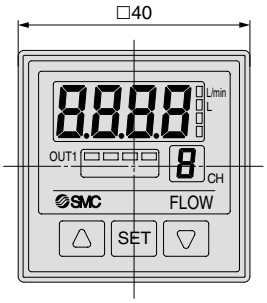
Specifications

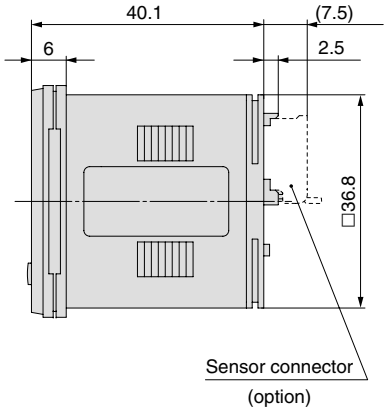
Model		PF2A200/201				
Applicable flow rate sensor		PF2A510-□-1	PF2A550-□-1	PF2A511-□-1	PF2A521-□-1	PF2A551-□-1
Flow rate measurement range Note 1)		0.5 to 10.5 ℓ/min	2.5 to 52.5 ℓ/min	5 to 105 ℓ/min	10 to 210 ℓ/min	25 to 525 ℓ/min
Set flow rate range Note 1)		0.5 to 10.5 ℓ/min	2.5 to 52.5 ℓ/min	5 to 105 ℓ/min	10 to 210 ℓ/min	25 to 525 ℓ/min
Minimum set unit Note 1)		0.1 ℓ/min	0.5 ℓ/min	1 ℓ/min	2 ℓ/min	5 ℓ/min
Accumulated pulse flow rate exchange value (Pulse width: 50 ms) Note 1)		0.1 ℓ/pulse	0.5 ℓ/pulse	1 ℓ/pulse	2 ℓ/pulse	5 ℓ/pulse
Note 1, 2) Display units	Real-time flow rate	ℓ/min, CFM x 10^{-2}		ℓ/min, CFM x 10^{-1}		
	Accumulated flow	ℓ, ft^3 x 10^{-2}		ℓ, ft^3 x 10^{-1}		
Accumulated flow range Note 1)		0 to 999999 ℓ, 0 to 999999 ft^3 x 10^{-2}		0 to 999999 ℓ, 0 to 999999 ft^3 x 10^{-1}		
Power supply voltage		24 VDC (ripple ±10% or less) (With power supply polarity protection)				
Current consumption		55 mA or less (Not including the current consumption of the sensor)				
Power supply voltage for sensor		Same as [Power supply voltage]				
Power supply current for sensor Note 3)		Max. 110 mA (However, the total current for the 4 inputs is 440 mA maximum or less.)				
Sensor input		1 to 5 VDC (Input impedance: Approx. 800K Ω)				
	No. of inputs	4 inputs				
	Input protection	Excess voltage protection				
Output specifications Note 4)	Switch output (Real-time switch output, Accumulated switch output)	NPN open collector (PF2A200)	Maximum load current: 80 mA Internal voltage drop: 1 V or less (with load current of 80 mA) Maximum applied voltage: 30 V			
		PNP open collector (PF2A201)	Maximum load current: 80 mA Internal voltage drop: 1 V or less (with load current of 80 mA)			
	Accumulated pulse output	NPN open collector or PNP open collector (same as switch output)				
	No. of outputs	4 outputs (1 output per 1 sensor input)				
	Output protection	With short circuit protection				
Hysteresis		Hysteresis mode: Variable (can be set from 0), Window comparator mode: Fixed (3-digits)				
Response time Note 5)		1s or less				
Linearity Note 5)		±5% F.S. or less				
Repeatability Note 5)		±3% F.S. or less				
Temperature characteristics		±2% F.S. or less (0 to 50°C, based on 25°C)				
Display method		For measured value display: 4-digits, 7-segment LED (Orange) For channel display: 1-digit, 7-segment LED (Red)				
Status LED's		Illuminates when output is ON OUT1: Red				
Resistance	Enclosure	IP65 for the front face only, and IP40 for the remaining parts.				
	Operating temperature range	Operating: 0 to 50°C, Stored: –10 to 60°C (with no freezing and condensation)				
	Operating humidity range	Operating or Stored: 35 to 85%RH (with no condensation)				
	Vibration resistance	10 to 500 Hz with a 1.5 mm amplitude or 98 m/s^2 acceleration, in each X, Y, Z direction for 2 hrs, whichever is smaller. (de-energized)				
	Impact resistance	980 m/s^2 in X, Y, Z directions 3 times each (de-energized)				
	Noise resistance	500 Vp-p, Pulse width 1 μs, Rise time 1 ns				
Connection		Power supply / Output connection: 8P connector, Sensor connection: 4P connector (e-con)				
Material		Housing: PBT, Display: PET, Backside rubber: CR				
Weight		60 g (Except for any accessories that are shipped together)				

Note 1) Fixed SI unit [ℓ/min or ℓ] will be set for switch types without the unit switching function. ("-M" is suffixed at the end of part number.) Accumulated flow is reset when the power supply turns OFF.
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) If Vcc side on sensor input connector part is short-circuited with the 0V side, the flow monitor inside will be damaged.
Note 4) Switch output and accumulated pulse output can be selected during initial setting.
Note 5) The system accuracy when combined with an applicable flow sensor.
Note 6) This product conforms to the CE mark.

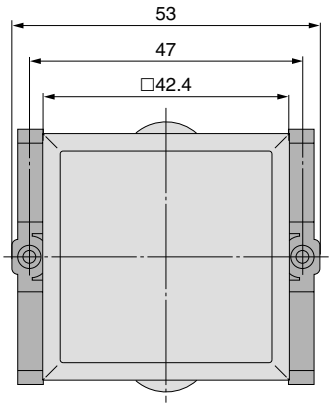
Dimensions: Remote Type Display Unit **for Air** (4-channel Flow Monitor)

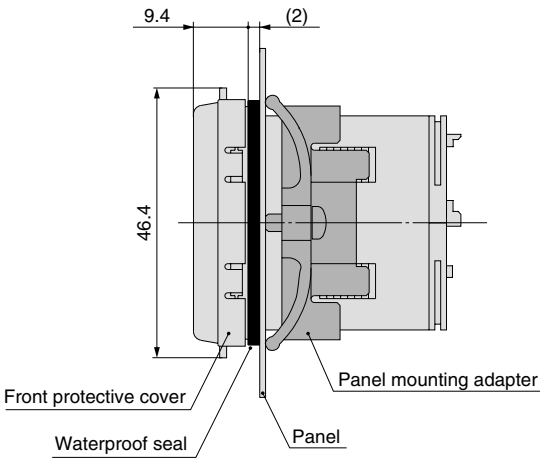
PF2A200, 201

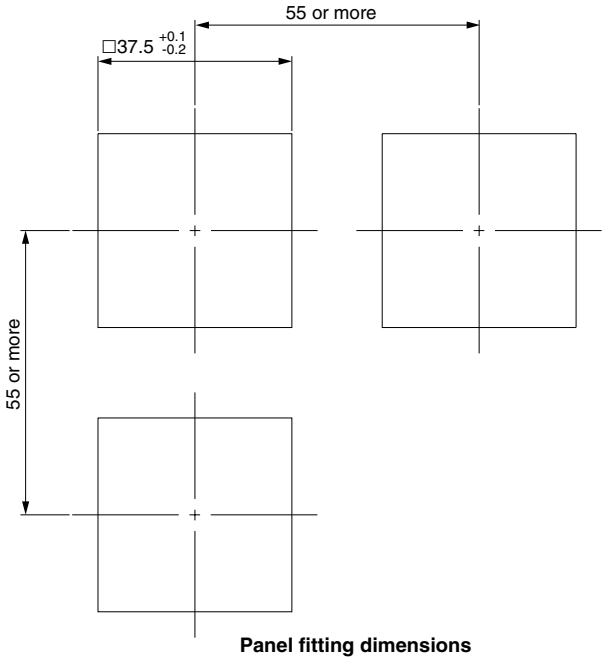




Front protective cover + Panel mounting

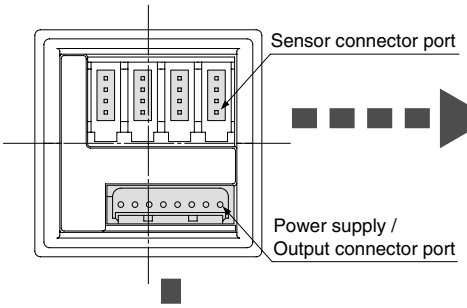




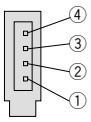


Panel fitting dimensions
Applicable panel thickness: 0.5 to 8 mm

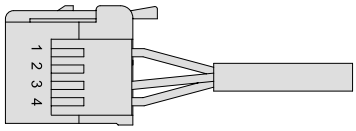
Dimensions: Remote Type Display Unit for Air (4-channel Flow Monitor)



Sensor connector (4P x 4)

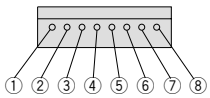


Connector (option)



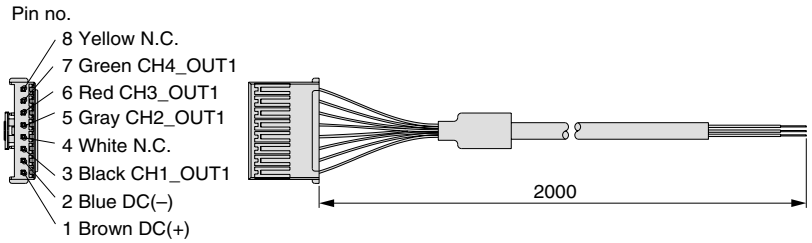
Pin no.	Terminal	Connector no.	Cable wire color
①	DC+	1	Brown
②	N.C.	2	Not used
③	DC–	3	Blue
④	IN: 1 to 5 V	4	White

Power supply / Output connector (8P)



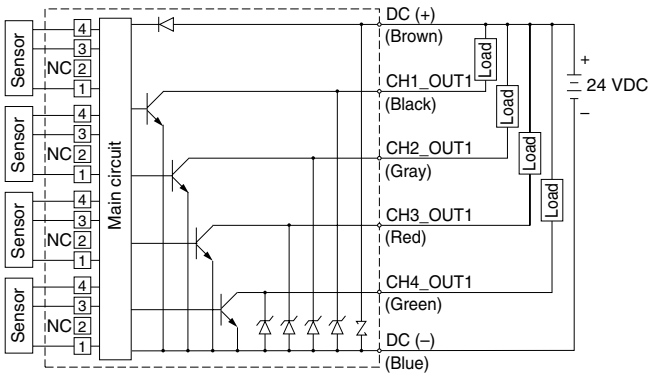
Pin no.	Terminal
①	DC (+)
②	DC (–)
③	CH1_OUT1
④	N.C.
⑤	CH2_OUT1
⑥	CH3_OUT1
⑦	CH4_OUT1
⑧	N.C.

Power supply / Output connector (accessory)

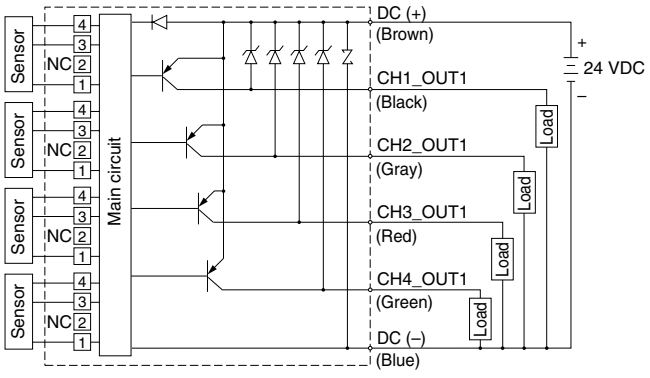


Internal circuits and wiring examples

PF2A200



PF2A201



How to Order

4-channel Flow Monitor
Remote Type
Display Unit

PF2W20 □—M□□

Output specification

0	NPN4 outputs
1	PNP4 outputs

Unit specification

Nil	With unit switching function
M	Fixed SI unit Note)

Note) Fixed units:
Real-time flow rate: ℓ/min
Accumulated flow: ℓ

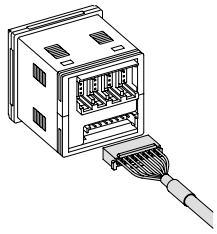
Option 1 (Refer to page 35.)

Nil	None
A	Panel mounting
B	Front protective cover + Panel mounting

Option 2 (Refer to page 35.)

Nil	None
4C	Sensor connector (4 pc.)

Accessory / Power supply output cable (2 m)



Connectable remote type sensor part is PF2W5□□-□-1 (with analog output 1 to 5 V).

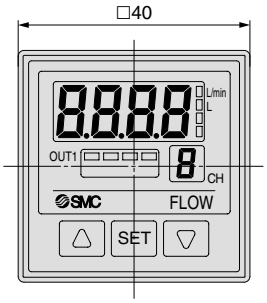
Specifications

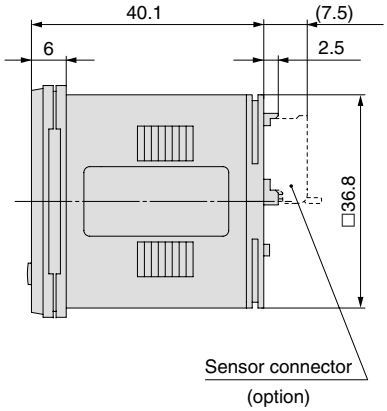
Model		**PF2W200/201**			
Applicable flow rate sensor		PF2W504/504T-□-1	PF2W520/520T-□-1	PF2W540/540T-□-1	PF2W511-□-1
Flow rate measurement range Note 1)		0.35 to 4.50 ℓ/min	1.7 to 17.0 ℓ/min	3.5 to 45.0 ℓ/min	7 to 110 ℓ/min
Set flow rate range Note 1)		0.35 to 4.50 ℓ/min	1.7 to 17.0 ℓ/min	3.5 to 45.0 ℓ/min	7 to 110 ℓ/min
Minimum set unit Note 1)		0.05 ℓ/min	0.1 ℓ/min	0.5 ℓ/min	1 ℓ/min
Accumulated pulse flow rate exchange value (Pulse width: 50 ms) Note 1)		0.05 ℓ/pulse	0.1 ℓ/pulse	0.5 ℓ/pulse	1 ℓ/pulse
Display units Note 1)	**Real-time flow rate**	ℓ/min, gal(US)/min			
	Accumulated flow	ℓ, gal(US)			
Accumulated flow range Note 1)		0 to 999999 ℓ, 0 to 999999 gal(US)			
Power supply voltage		24 VDC (ripple ±10% or less) (With power supply polarity protection)			
Current consumption		55 mA or less (Note including the current consumption of the sensor)			
Power supply voltage for sensor		Same as [Power supply voltage]			
Power supply current for sensor Note 2)		Max. 110 mA (However, the total current for the 4 inputs is 440 mA maximum or less.)			
Sensor input		1 to 5 VDC (Input impedance: Approx. 800K Ω)			
	No. of inputs	4 inputs			
	Input protection	Excess voltage protection			
Output specifications Note 3)	**Switch output (Real-time switch output, accumulated switch output)**	NPN open collector (PF2W200)	Maximum load current: 80 mA Internal voltage drop: 1 V or less (with load current of 80 mA) Maximum applied voltage: 30 V		
		PNP open collector (PF2W201)	Maximum load current: 80 mA Internal voltage drop: 1 V or less (with load current of 80 mA)		
	Accumulated pulse output	NPN open collector or PNP open collector (same as switch output)			
	No. of outputs	4 outputs (1 output per 1 sensor input)			
	Output protection	Short circuit protection			
Hysteresis		Hysteresis mode: Variable (can be set from 0), Window comparator mode: Fixed (3-digits)			
Response time Note 4)		1s or less			
Linearity Note 4)		±5% F.S. or less			
Repeatability Note 4)		±3% F.S. or less			
Temperature characteristics		±2% F.S. or less (0 to 50°C, based on 25°C)			
Display method		For measured value display: 4-digits, 7-segment LED (Orange) For channel display: 1-digit, 7-segment LED (Red)			
Status LED's		Illuminates when output is ON OUT1: Red			
Resistance	**Enclosure**	IP65 for the front face only, and IP40 for the remaining parts.			
	Operating temperature range	Operating: 0 to 50°C, Stored: –10 to 60°C (with no freezing and condensation)			
	Operating humidity range	Operating or Stored: 35 to 85%RH (with no condensation)			
	Vibration resistance	10 to 500 Hz with a 1.5 mm amplitude or 98 m/s^2 acceleration, in each X, Y, Z direction for 2 hrs, whichever is smaller. (de-energized)			
	Impact resistance	980 m/s^2 in X, Y, Z directions 3 times each (de-energized)			
	Noise resistance	500 Vp-p, Pulse width 1 μs, Rise time 1 ns			
Connection		Power supply / Output connection: 8P connector, Sensor connection: 4P connector (e-con)			
Material		Housing: PBT, Display: PET, Backside rubber: CR			
Weight		60 g (Except for any accessories that are shipped together)			

Note 1) Fixed SI unit [ℓ/min or ℓ] will be set for switch types without the unit switching function. ("-M" is suffixed at the end of part number.) Accumulated flow is reset when the power supply turns OFF.
Note 2) If Vcc side on sensor input connector part is short-circuited with 0V side, the flow monitor inside will be damaged.
Note 3) Switch output and accumulated pulse output can be selected during initial setting.
Note 4) The system accuracy when combined with applicable flow sensor.
Note 5) This product conforms to the CE mark.

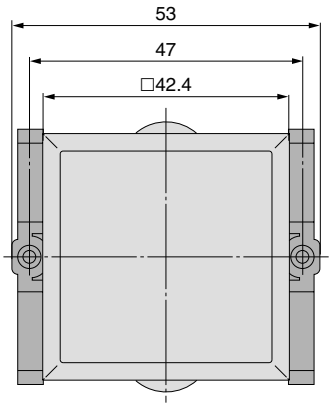
Dimensions: Remote Type Display Unit for Water (4-channel Flow Monitor)

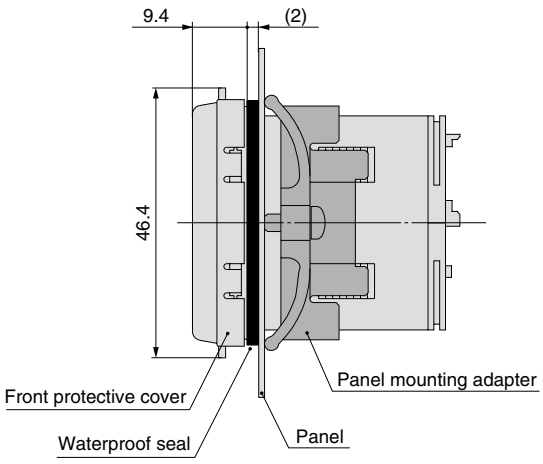
PF2W200, 201

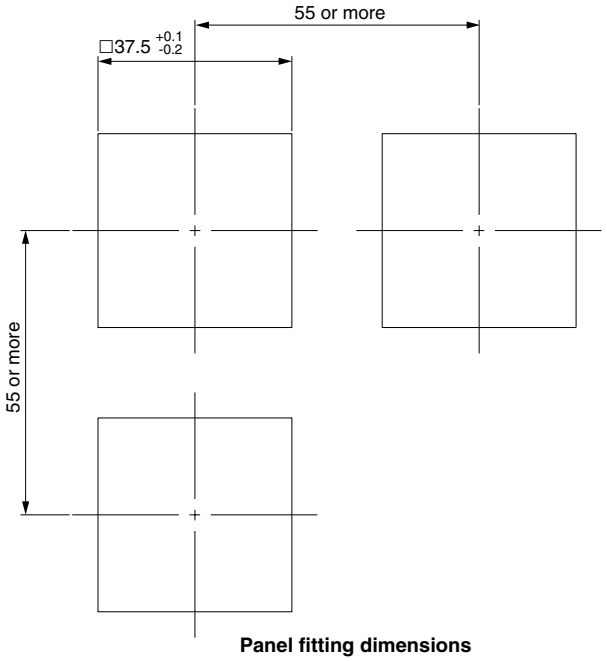




Front protective cover + Panel mounting

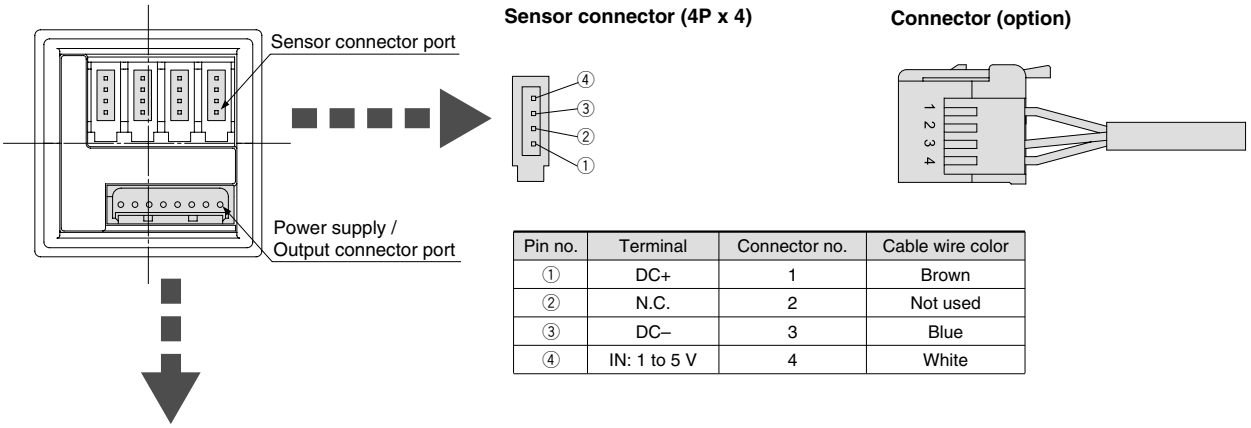






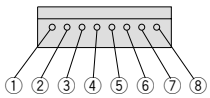
Panel fitting dimensions
Applicable panel thickness: 0.5 to 8 mm

Dimensions: Remote Type Display Unit for Water (4-channel Flow Monitor)



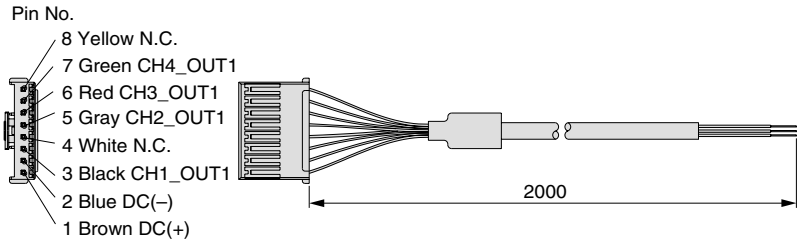
Pin no.	Terminal	Connector no.	Cable wire color
①	DC+	1	Brown
②	N.C.	2	Not used
③	DC–	3	Blue
④	IN: 1 to 5 V	4	White

Power supply / Output connector (8P)



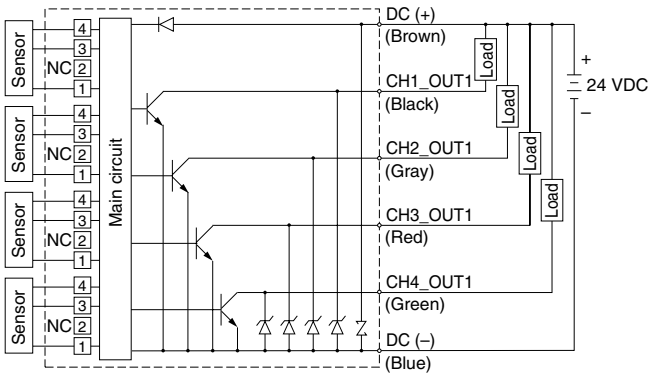
Pin no.	Terminal
①	DC (+)
②	DC (–)
③	CH1_OUT1
④	N.C.
⑤	CH2_OUT1
⑥	CH3_OUT1
⑦	CH4_OUT1
⑧	N.C.

Power supply / Output connector (accessory)

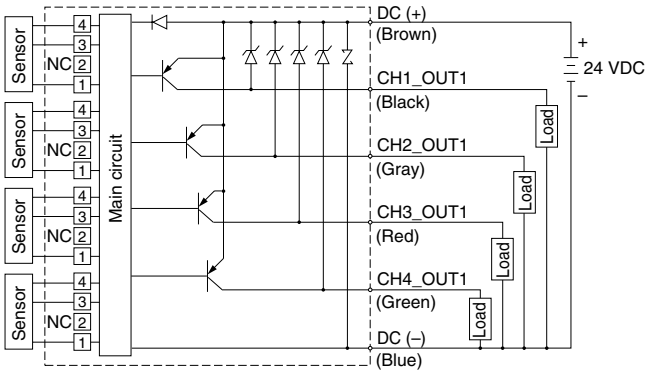


Internal circuits and wiring examples

PF2W200

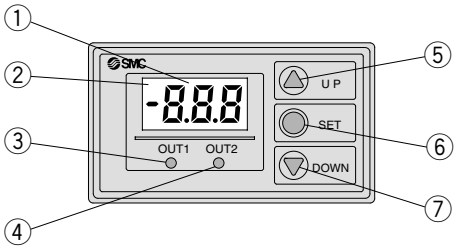


PF2W201

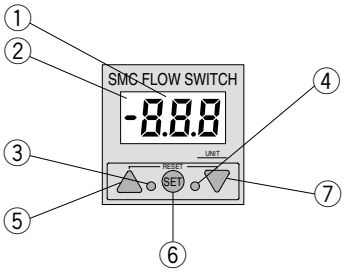


Description

Integrated Display Type
PF2A710, 750, 711, 721, 751
PF2W704(T), 720(T), 740(T), 11



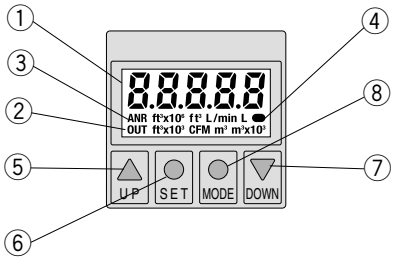
Remote Type/Display Unit
PF2A300, 301, 310, 311
PF2W300, 301, 330, 331



RESET button (▲ + ▼ button)
If the UP and DOWN buttons are pressed simultaneously, the RESET function will activate. In case of an emergency, please clear the display. The display of the accumulated flow will be reset to zero.

①	LED display/Red	Displays the measured flow rate, each setting condition, and error code.
②	Indicator (PF2A7□□, PF2A3□□ for air only)	Illuminates when the normal condition (nor) is selected.
③	Output (OUT1) display/Green	Displays the output condition of OUT1. Illuminates when turned ON.
④	Output (OUT2) display/Red	Displays the output condition of OUT2. Illuminates when turned ON.
⑤	UP button (▲ button)	Use to change the mode or to increase the set value.
⑥	SET button (● button)	Use this button to set the valve or the set mode.
⑦	DOWN button (▼ button)	Use to change the mode or decrease the set value.

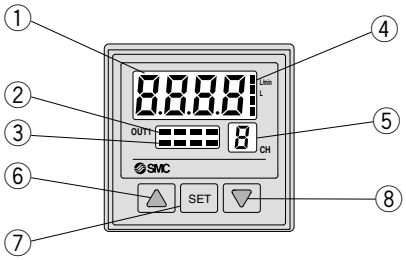
Integrated Display Type
PF2A703H, 706H, 712H



RESET button (▲ + ▼ button)
If the UP and DOWN buttons are pressed simultaneously, the RESET function will activate. In case of an emergency, please clear the display. The display of the accumulated flow will be reset to zero.

①	LCD display/Orange	Displays the measured flow rate, each setting condition, and error code.
②	Output (OUT1) display/Orange	Displays the output condition of OUT1. Illuminates when turned ON.
③	Unit display/Orange	Displays the selected unit. Type without unit switching function is fixed SI units (ℓ/min, or ℓ, m^3, $m^3 \times 10^3$).
④	Flow rate confirmation display/Orange	The blinking intervals change depending on the flow rate value.
⑤	UP button (▲ button)	Use to change the mode or to increase the set value.
⑥	SET button (● button)	Use to select the function.
⑦	DOWN button (▼ button)	Use to change the mode or decrease the set value.
⑧	MODE button (● button)	Use for changing the function.

4-channel Flow Monitor (Remote type/Display unit)
PF2A200, 201
PF2W200, 201



①	LCD display/Orange	Displays the measured flow rate, each setting condition, and error code.
②	Switch output display/Red	Displays the output condition of OUT1 (CH1 to 4). Illuminates when turned ON.
③	Unit display of flow rate for air/ Red (PF2A200, 201 for air only)	CH1 to 4 will illuminate when the normal condition (nor) is selected.
④	Unit display/Orange	Illuminates the selected unit. Use after putting the unit label other than ℓ/min, ℓ.
⑤	Channel display/Red	Displays the selected channel.
⑥	UP button (▲ button)	Use to change the mode or to increase the set value.
⑦	SET button	Use this button to set the value or the set mode.
⑧	DOWN button (▼ button)	Use to change the mode or decrease the set value.

Functions

Refer to the "Instruction Manual" for information on setting and operating.

Flow rate measurement selection

Real-time flow rate and accumulated flow rate can be selected.
A flow rate of up to 999999 can be accumulated.
The accumulated flow rate is reset when the power supply turns OFF. (PF2A7□H maintains the values.)

Unit switching

For Air

Display	Real-time flow rate	Accumulated flow
U_1	ℓ/min	ℓ
U_2	CFM x 10^{-2} x CFM x 10^{-1}	ft^3 x 10^{-1}

CFM = ft^3/min

High Flow Rate Type (For Air)

Display	Real-time flow rate	Accumulated flow
U_1	ℓ/min	ℓ, m^3, m^3 x 10^3
U_2	CFM	ft^3, ft^3 x 10^3, ft^3 x 10^6

For Water / High Temperature Fluid Type (For Water)

Display	Real-time flow rate	Accumulated flow
U_1	ℓ/min	ℓ
U_2	GPM	gal (US)

GPM = gal (US)/min

Note) Fixed SI unit (ℓ/min, or ℓ, m^3, m^3 x 10^3) will be set for the type without the unit switching function.

Flow rate conversion

Normal condition: 0°C, 101.3 kPa, dry air
Standard condition: 20°C, 101.3 kPa, 65%RH (ANR)
Switchable between these conditions.

Flow rate measuring unit confirmation

This function allows for the confirmation of the accumulated flow rate when real-time flow rate is selected and to confirm the real-time flow rate when accumulated flow rate is selected.

Key lock

This function prevents accidental operations such as changing the set value.

Accumulation clearance

This function clears the accumulated value.

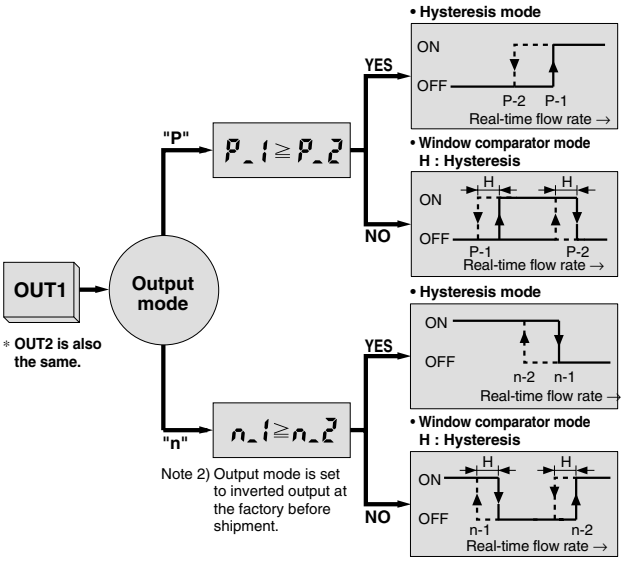
Initialization of setting (only for Series PF2A7□□H)

This function restores the setting to the original state, just as it had been shipped from the factory.

Output types

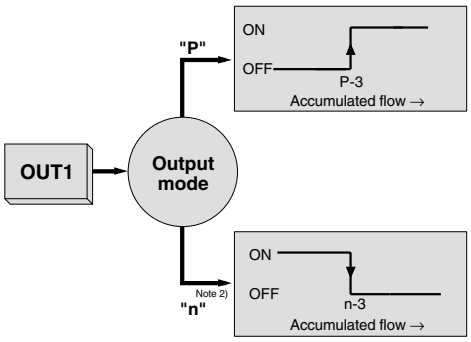
Real-time switch output, accumulated switch output, or accumulated pulse output can be selected as an output type.

Real-time switch output



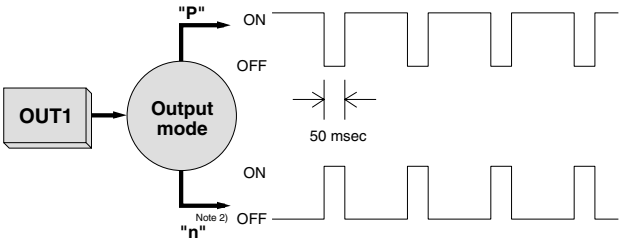
Note 2) Output mode is set to inverted output at the factory before shipment.

Accumulated switch output



Note 2) Output mode is set to inverted output at the factory before shipment.

Accumulated pulse output



Note1) For a digital flow switch with an unit switching function. (Fixed SI unit [ℓ/min, or ℓ, m^3 or m^3 x 10^3] will be set for switch types without an unit switching function.)
Refer to the specifications of the display unit for the flow rate value per pulse.

Functions

Copy function (PF2□200, 201 only)

Information to be copied is:
① **Flow rate range**
② **Display mode**
③ **Display unit (Only available when the unit specification is nil.)**
④ **Output method**
⑤ **Output mode**
⑥ **Flow rate display unit (available with PF2A20□ only)**
⑦ **Flow rate value**

Peak hold, Bottom hold display function (PF2□200, 201 only)

The maximum or minimum value can be held in the case where the real-time flow rate display mode is selected during the initial setting.

Error correction

LED display	Contents	Solution
Er 1 Note 1) / Err_1 Note 2)	A current of more than 80 mA is flowing to OUT1.	Check the load and the wiring for OUT1.
Er2 Note 1)	A current of more than 80 mA is flowing to OUT2.	Check the load and the wiring for OUT2.
Err_3 Note 2) / Er4 Note 1)	The set data has changed for some reason.	Perform the RESET operation, and reset all the data again.
- - - Note 1) / - - - - - Note 2)	The flow rate is over the flow rate measurement range.	Use an adjustment valve, etc. to reduce the flow rate until it is within the flow rate range.

Note 1) Applicable to display integrated type and remote type except PF2A7□□H series.
Note 2) Applicable to PF2A7□□H series only.

For PF2A/W200, 201

LED display	Contents	Solution
Er 1	Over current is flowing to the load of a switch output.	Shut off the power supply. After eliminating the output factor that caused the excess current, turn the power supply back on.
Er0	Internal data error.	Contact SMC.
Er7	Internal data error.	
Er10	Internal data error.	
Er5	Internal data error.	Shut off the power supply and then reset the switch.
Er6	Internal data error.	
- - -	The flow rate is over the flow rate measurement range.	Use an adjustment valve, etc. to reduce the flow rate until it is within the flow rate range.

Channel select function (PF2□200, 201 only)

Every pushing the △ button, channel selection "1→2→3→4→1..." is available. The flow rate measurement of each selected channel is shown in the display unit.

Channel scan function (PF2□200, 201 only)

Changes displaying the channel shown every about 2 seconds and its detected flow rate.

Option

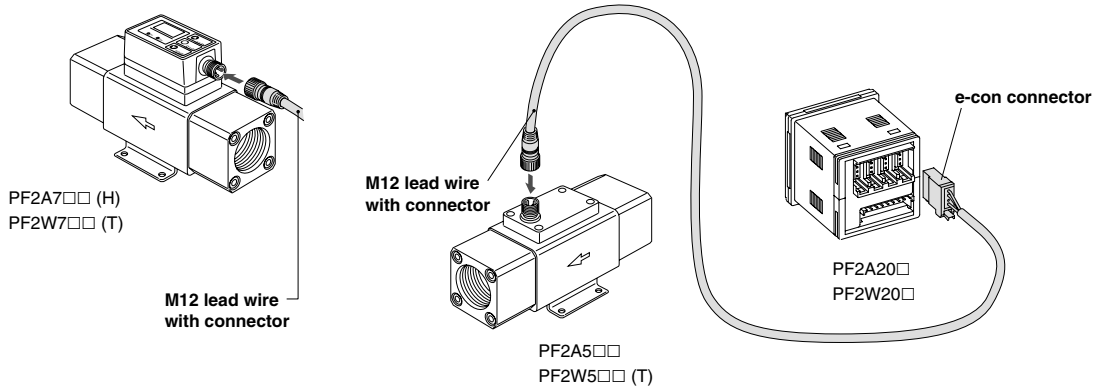
When only optional parts are required, order with the part numbers listed below.

M12 lead wire with connector

Part no.	Qty.	Lead wire length
ZS-29-A	1	3 m

e-con connector

Part no.	Qty.
ZS-28-CA-4	1



In addition to the lead wire assembly shown above, those listed below (female contact) can be connected.
However, they cannot be connected with an e-con connector because the diameter of the core wire and its coverage diameter are different. For details, contact each manufacturer.

Connector size	Pin no.	Manufacturer	Applicable series
M12	4	Correns Corp.	VA-4D
		OMRON Corp.	XS2
		Yamatake Co.,Ltd.	PA5-4I
		Hirose Electric Co., Ltd.	HR24
		DKK Ltd.	CM01-8DP4S

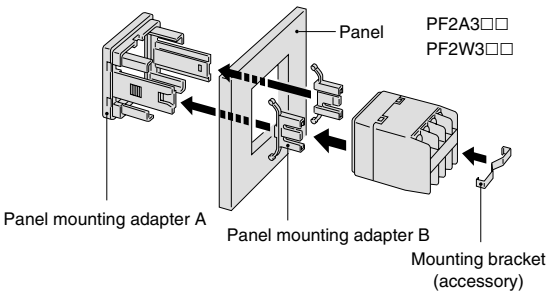
In addition to the connectors shown above, those listed below (e-con) can be connected.

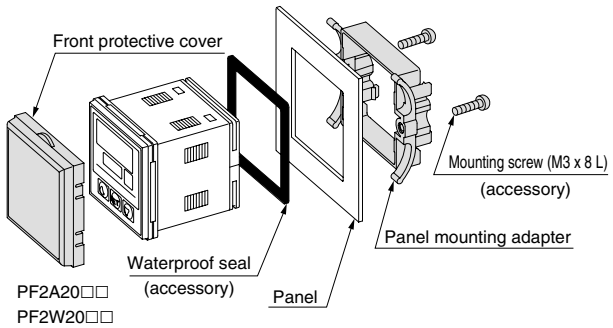
Manufacturer	Model
Sumitomo 3M Limited	37104-3122-000FL
Tyco Electronics AMP K.K.	2-1473562-4
OMRON Corp.	XN2A-1430

Panel mounting

Pin no.	Description	Note
ZS-22-E	Panel mounting adapter A, B	With mounting bracket

Part no.	Description	Note
ZS-26-B	Panel mounting adapter	With waterproof seal, mounting screw
ZS-26-C	Front protective cover + Panel mounting adapter	With waterproof seal, mounting screw





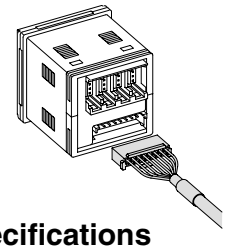
Series PF2D

How to Order

4-channel Flow Monitor
Remote Type
Display Unit

PF2D20 □ — M □ □

Accessory / Power supply output cable (2 m)



Output specification

0	NPN4 outputs
1	PNP4 outputs

Unit specification

Nil	With unit switching function
M	Fixed SI unit Note)

Note) Fixed units:
Real-time flow rate: ℓ/min
Accumulated flow: ℓ

Option 1 (Refer to page 55.)

Nil	None
A	Panel mounting
B	Front protective cover + Panel mounting

Option 2 (Refer to page 55.)

Nil	None
4C	Sensor connector (4 pc.)

Connectable remote type sensor part is PF2D5□□-□-1 (with analog output 1 to 5 V).

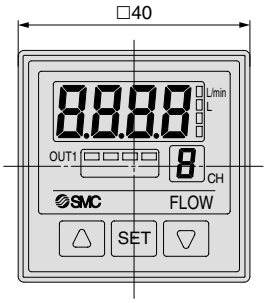
Specifications

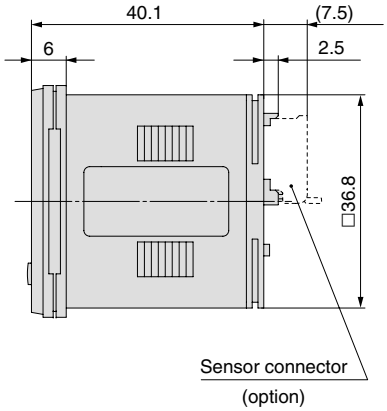
Model		PF2D200/201		
Applicable flow rate sensor		PF2D504-□-1	PF2D520-□-1	PF2D540-□-1
Flow rate measurement range Note 1)		0.25 to 4.50 ℓ/min	1.3 to 21.0 ℓ/min	2.5 to 45.0 ℓ/min
Set flow rate range Note 1)		0.25 to 4.50 ℓ/min	1.3 to 21.0 ℓ/min	2.5 to 45.0 ℓ/min
Minimum set unit Note 1)		0.05 ℓ/min	0.1 ℓ/min	0.5 ℓ/min
Accumulated pulse flow rate exchange value (Pulse width: 50ms) Note 1)		0.05 ℓ/pulse	0.1 ℓ/pulse	0.5 ℓ/pulse
Display units Note 1)	Real-time flow rate	ℓ/min, gal(US)/min		
	Accumulated flow	ℓ, gal(US)		
Accumulated flow range Note 1)		0 to 999999 ℓ, 0 to 999999 gal(US)		
Power supply voltage		24 VDC (ripple ±10% or less) (With power supply polarity protection)		
Current consumption		55 mA or less (Not including the current consumption of the sensor)		
Power supply voltage for sensor		Same as [Power supply voltage]		
Power supply current for sensor Note 2)		Max. 110 mA (However, the total current for the 4 inputs is 440 mA maximum or less.)		
Sensor input		1 to 5 VDC (Input impedance: Approx. 800K Ω)		
	No. of inputs	4 inputs		
	Input protection	Excess voltage protection		
Output specifications Note 3)	Switch output (Real-time switch output, Accumulated switch output)	NPN open collector (PF2D200)	Maximum load current: 80 mA Internal voltage drop: 1 V or less (with load current of 80 mA) Maximum applied voltage: 30 V	
		PNP open collector (PF2D201)	Maximum load current: 80 mA Internal voltage drop: 1 V or less (with load current of 80 mA)	
	Accumulated pulse output	NPN open collector or PNP open collector (same as switch output)		
	No. of outputs	4 outputs (1 output per 1 sensor input)		
	Output protection	Short circuit protection		
Hysteresis		Hysteresis mode: Variable (can be set from 0), Window comparator mode: Fixed (3-digits)		
Response time Note 4)		1s or less		
Linearity Note 4)		±5% F.S. or less		
Repeatability Note 4)		±3% F.S. or less		
Temperature characteristics		±2% F.S. or less (0 to 50°C, based on 25°C)		
Display method		For measured value display: 4-digits, 7-segment LED (Orange) For channel display: 1-digit, 7-segment LED (Red)		
Status LED's		Illuminates when output is ON OUT1: Red		
Resistance	Enclosure	IP65 for the front face only, the rest is IP40.		
	Operating temperature range	Operating: 0 to 50°C, Stored: –10 to 60°C (with no freezing and condensation)		
	Operating humidity range	Operating or Stored: 35 to 85%RH (with no condensation)		
	Vibration resistance	10 to 500 Hz with a 1.5 mm amplitude or 98 m/s^2 acceleration, in each X, Y, Z direction for 2 hrs., whichever is smaller. (de-energized)		
	Impact resistance	980 m/s^2 in X, Y, Z directions 3 times each (de-energized)		
	Noise resistance	500 Vp-p, Pulse width 1 μs, Rise time 1 ns		
Connection		Power supply / Output connection: 8P connector, Sensor connection: 4P connector (e-con)		
Material		Housing: PBT, Display: PET, Backside rubber: CR		
Weight		60 g (Except for any accessories that are shipped together.		

Note 1) Fixed SI unit [ℓ/min or ℓ] will be set for switch types without the unit switching function. ("-M" is suffixed at the end of part number.) Accumulated flow is reset when the power supply turns OFF.
Note 2) If Vcc side on sensor input connector part is short-circuited with the 0V side, the flow monitor inside will be damaged.
Note 3) Switch output and accumulated pulse output can be selected during initial setting.
Note 4) The system accuracy when combined with an applicable flow sensor.
Note 5) This product conforms to the CE mark.

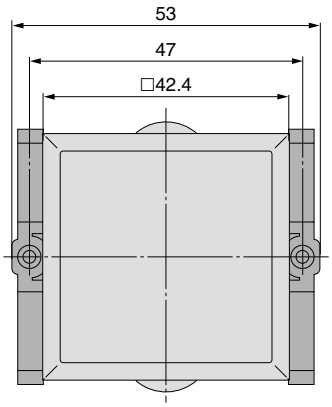
Dimensions: Remote Type Display Unit for Deionized Water and Chemicals (4-channel Controller)

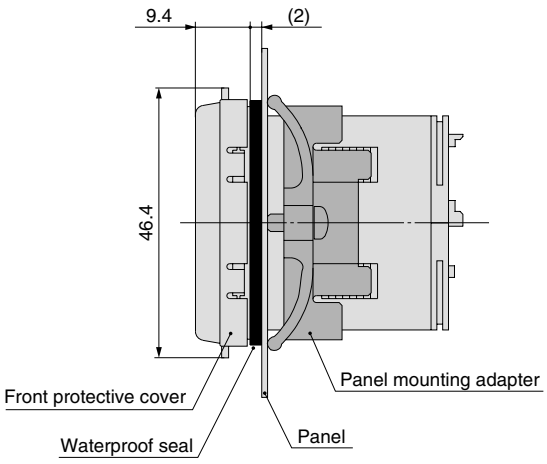
PF2D200/201

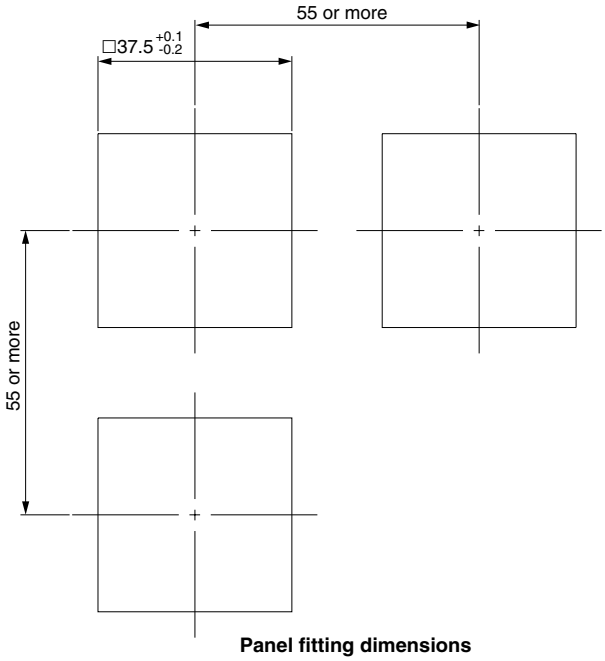




Front protective cover + Panel mounting

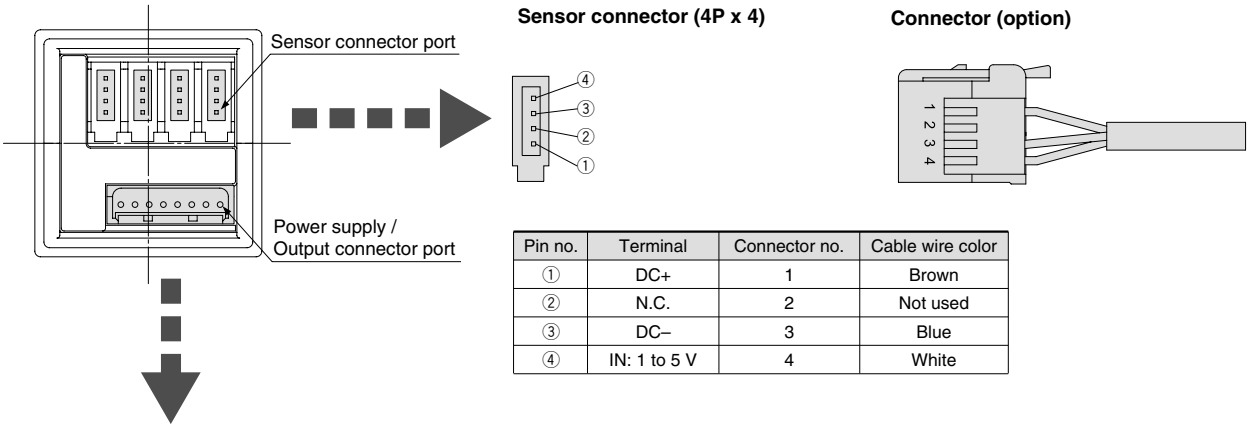






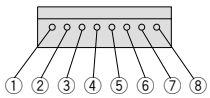
Panel fitting dimensions
Applicable panel thickness: 0.5 to 8 mm

Dimensions: Remote Type Display Unit for Deionized Water and Chemicals (4-channel Controller)



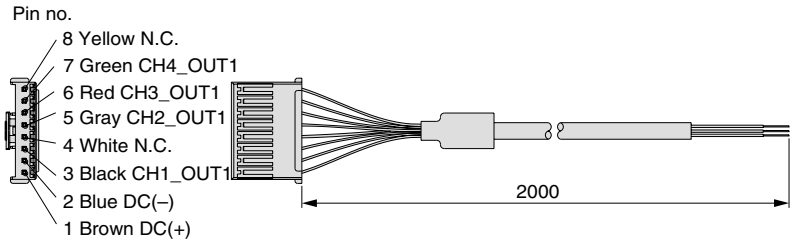
Pin no.	Terminal	Connector no.	Cable wire color
①	DC+	1	Brown
②	N.C.	2	Not used
③	DC–	3	Blue
④	IN: 1 to 5 V	4	White

Power supply / Output connector (8P)



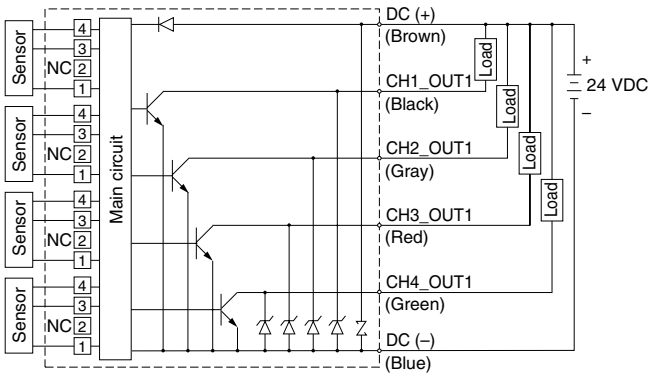
Pin no.	Terminal
①	DC (+)
②	DC (–)
③	CH1_OUT1
④	N.C.
⑤	CH2_OUT1
⑥	CH3_OUT1
⑦	CH4_OUT1
⑧	N.C.

Power supply / Output connector (accessory)

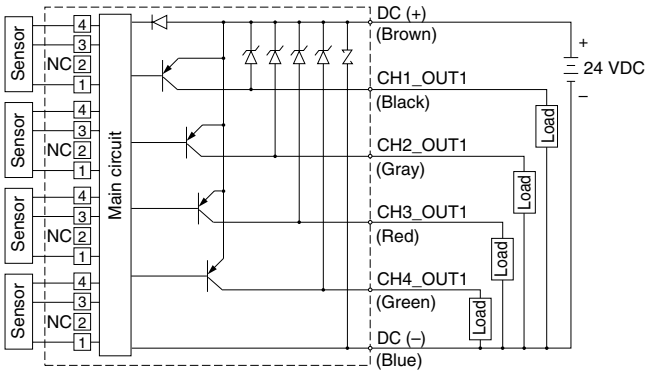


Internal circuits and wiring examples

PF2D200

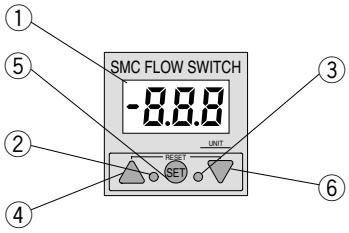


PF2D201



Description

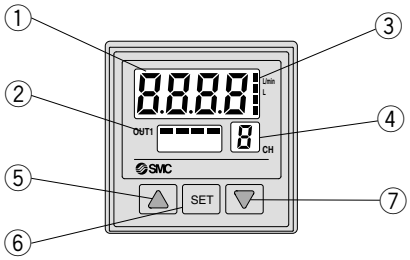
Remote Type/Display Unit
PF2D300, 301



RESET button (▲ + ▼ button)
If the UP and DOWN buttons are pressed simultaneously, the RESET function will activate.
In case of an emergency, please clear the display. The display of the accumulated flow will be reset to zero.

①	LED display/Red	Displays the measured flow rate, each setting condition, and error code.
②	Output (OUT1) display/Green	Displays the output condition of OUT1. Illuminates when turned ON.
③	Output (OUT2) display/Red	Displays the output condition of OUT2. Illuminates when turned ON.
④	UP button (▲ button)	Use to change the mode or to increase the set value.
⑤	SET button (● button)	Use this button to set the value or the set mode.
⑥	DOWN button (▼ button)	Use to change the mode or decrease the set value.

4-channel Flow Monitor (Remote type/Display unit)
PF2D200, 201



①	LED display/Orange	Displays the measured flow rate, each setting condition, and error code.
②	Switch output display/Red	Displays the output condition of OUT1 (CH1 to 4). Lights up when turned ON.
③	Unit display/Orange	Illuminates the selected unit. Use after putting the unit label other than ℓ/min, ℓ.
④	Channel display/Red	Displays the selected channel.
⑤	UP button (▲ button)	Use to change the mode or to increase the set value.
⑥	SET button	Use this button to set the value or the set mode.
⑦	DOWN button (▼ button)	Use to change the mode or decrease the set value.

Functions/PF2D

Refer to the "Instruction Manual" for information on setting and operating.

Flow rate measurement selection

Real-time flow rate and accumulated flow rate can be selected.
A flow rate of up to 999999 can be accumulated.
The accumulated flow rate is reset when the power supply turns OFF.

Unit switching

Display	Real-time flow rate	Accumulated flow
U_1	ℓ/min	ℓ
U_2	GPM	gal (US)

GPM = gal (US)/min

Note) Fixed SI unit (ℓ/min, ℓ, m^3 or m^3x10) will be set for the type without the unit switching function.

Flow rate measuring unit confirmation

This function allows to confirm the accumulated flow rate when real-time flow rate is selected and to confirm the real-time flow rate when accumulated flow rate is selected.

Error correction

For PF2D300/301

LED display	Contents	Solution
Er1	A current of more than 80 mA is flowing to OUT1.	Check the load and the wiring for OUT1.
Er2	A current of more than 80 mA is flowing to OUT2.	Check the load and the wiring for OUT2.
Er4	The set data has changed for some reason.	Perform the RESET operation, and reset all the data again.
---	The flow rate is over the flow rate measurement range.	Use an adjustment valve, etc. to reduce the flow rate until it is within the flow rate range.

For PF2D200/201

LED display	Contents	Solution
Er 1	Over current is flowing to the load of a switch output.	Shut off the power supply. After eliminating the output factor that caused the excess current, turn the power supply back on.
Er0	Internal data error.	Contact SMC.
Er7	Internal data error.	
Er10	Internal data error.	
Er5	Internal data error.	Shut off the power supply and then reset the switch.
Er6	Internal data error.	
---	The flow rate is over the flow rate measurement range.	Use an adjustment valve, etc. to reduce the flow rate until it is within the flow rate range.

Key lock

This function prevents incorrect operations such as changing the set value accidentally.

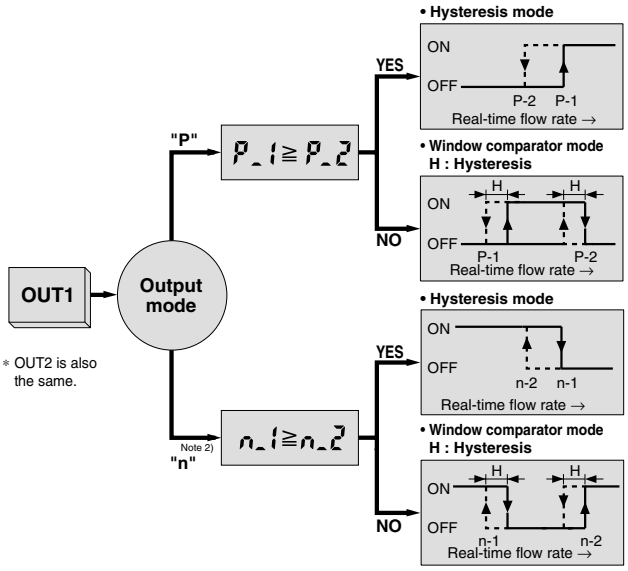
Accumulation clearance

This is to clear the accumulated value.

Output types

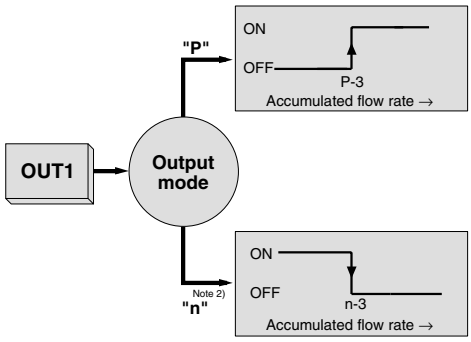
Real-time switch output, accumulated switch output, or accumulated pulse output can be selected as an output type.

Real-time switch output



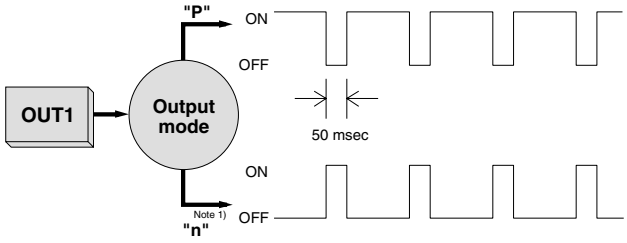
Note 2) Output mode is set to inverted output at the factory before shipment.

Accumulated switch output



Note 2) Output mode is set to inverted output at the factory before shipment.

Accumulated pulse output



Note1) Refer to the specifications of display unit for the flow rate value per pulse.

Functions

Copy function (PF2D200, 201 only)

Information to be copied is:
① **Flow rate range**
② **Display mode**
③ **Display unit (Only available when the unit specification is nil.)**
④ **Output method**
⑤ **Output mode**
⑥ **Flow rate value**

Peak hold, Bottom hold display function (PF2D200, 201 only)

The maximum or minimum value can be held in the case where the real-time flow rate display mode is selected during the initial setting.

Channel select function (PF2D200, 201 only)

Every pushing the △ button, channel selection "1→2→3→4→1..." is available. The flow rate measurement of each selected channel is shown in the display unit.

Channel scan function (PF2D200, 201 only)

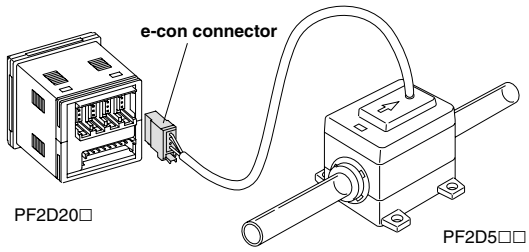
Changes displaying the channel shown every about 2 seconds and its detected flow rate.

Option

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

e-con connector

Part no.	Qty.
ZS-28-CA-2	1

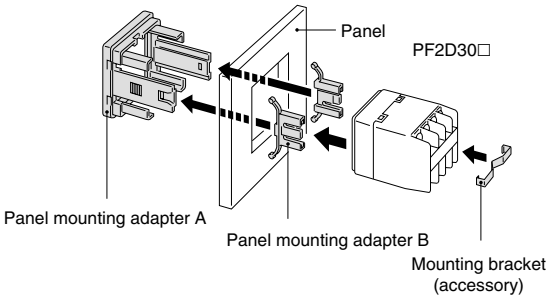


In addition to the connector shown above, those listed below (female contact) can be connected.

Manufacturer	Model
Sumitomo 3M Limited	37104-3101-000FL
Tyco Electronics AMP K.K.	1-1473562-4
OMRON Corp.	XN2A-1430

Panel mounting

Pin no.	Description	Note
ZS-22-E	Panel mounting adapter A, B	With mounting bracket



Part no.	Description	Note
ZS-26-B	Panel mounting adapter	With waterproof seal, mounting screw
ZS-26-C	Front protective cover + Panel mounting adapter	With waterproof seal, mounting screw