

How to Order

Remote Type Sensor Unit

PFA5 **10** — **01** **□**

Flow rate range ●

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

Thread type ●

Nil	Rc
N	NPT
F	G

Wiring specification ●

Nil	3m lead wire with connector
N	Without lead wire

Port size ●

Symbol	Port size	Flow rate (/min)					Applicable models
		10	50	100	200	500	
01	1/8	●	●				PFA510, PFA550
02	1/4	●	●				
03	3/8			●	●		PFA511, PFA521
04	1/2					●	PFA551



Specifications

Model	PFA510	PFA550	PFA511	PFA521	PFA551
Measured fluid	Dry air, N ₂				
Detection type	Heater type				
Flow rate measurement range	1 to 10 /min	5 to 50 /min	10 to 100 /min	20 to 200 /min	50 to 500 /min
Operating pressure range	0 to 0.5MPa				
Proof pressure	1.0MPa				
Pressure loss	3kPa (at 50 /min)		3kPa (at 100 /min)	10kPa (at 200 /min)	30kPa (at 500 /min)
Operating temperature range	0° to 50°C (with no condensation)				
Linearity ^{Note 1)}	±25% F.S. or less		±20% F.S. or less		
Repeatability	±1% F.S. or less ^{Note 2)}		±1% F.S. or less		
Temperature characteristics	±2% F.S. or less (15° to 35°C) ±3% F.S. or less (0° to 50°C)				
Power supply voltage	12 to 24VDC (ripple ±10% or less)				
Current consumption	100mA or less				110mA or less
Weight	200g (without lead wire)		240g (without lead wire)		
Enclosure	IP65				
Port size (Rc, NPT, G)	1/8, 1/4		3/8		1/2

Note 1) The system accuracy will be adjusted to ±5% F.S. or less when combined with PFA3□□.

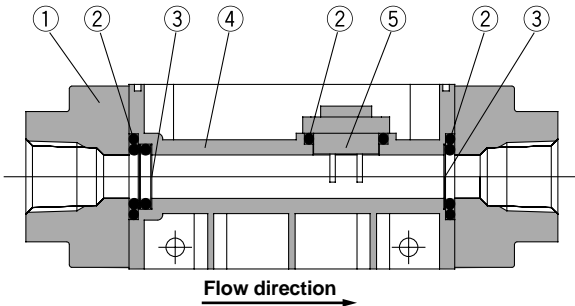
Note 2) The system accuracy will be adjusted to ±1% F.S. or less when combined with PFA30□.

* Flow rate unit measured under the following conditions: 0°C and 101.3kPa.

Series PFA

Sensor Unit Construction

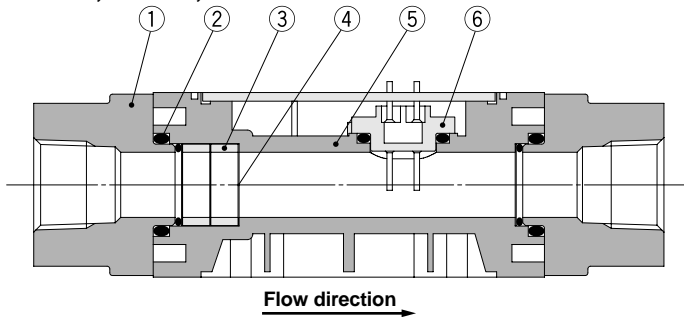
PFA710, PFA750
PFA510, PFA550



Parts list

No.	Description	Material
1	Attachment	ADC
2	Seal	NBR
3	Mesh	Stainless steel
4	Body	PBT
5	Sensor	PBT

PFA711, PFA721, PFA751
PFA511, PFA521, PFA551



Parts list

No.	Description	Material
1	Attachment	ADC
2	Seal	NBR
3	Spacer	PBT
4	Mesh	Stainless steel
5	Body	PBT
6	Sensor	PBT

Operating Unit Descriptions

RESET Buttons

Press the ▲ and ▼ buttons simultaneously to activate the RESET function.

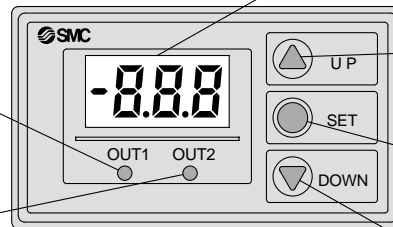
This clears the unit when an abnormality occurs and resets the accumulated flow display to "0".

Output (OUT1) Indicator: Green

Lights up when OUT1 is ON.
Blinks when an overcurrent error occurs on OUT1.

Output (OUT2) Indicator: Red

Lights up when OUT2 is ON.
Blinks when an overcurrent error occurs on OUT2.



LED Display

Displays the real-time flow rate, accumulated flow, and set value. The ● mark blinks when the accumulated flow is being measured.

UP Button (▲ Button)

Use this button to increase a set value.

SET Button (● Button)

Use this button to change a set value or any of the modes.

DOWN Button (▼ Button)

Use this button to decrease a set value.

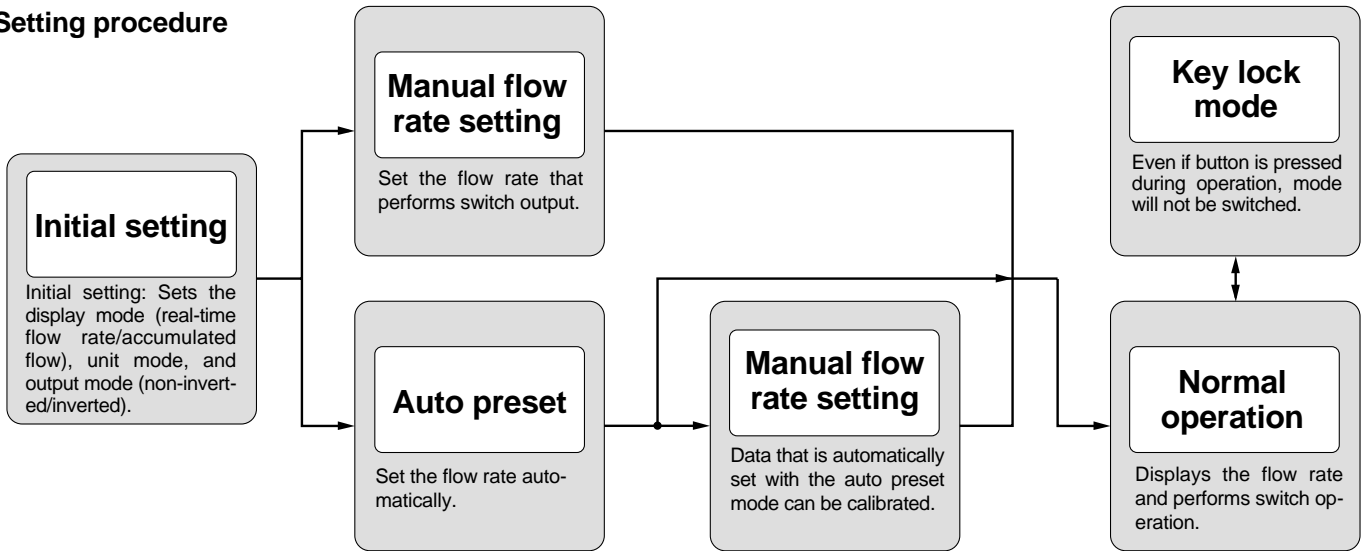
Error Correction

Take the following corrective solutions when errors occur.

LED display	Contents	Solution
E-1	A current of more than 80mA is flowing to OUT1.	Check the load and wiring for OUT1.
E-2	A current of more than 80mA is flowing to OUT2.	Check the load and wiring for OUT2.
E-4	The setting data has changed for whatever reasons.	Perform the RESET operation, and reset all data again.
- - -	The flow rate is over the flow rate measurement range (for air only).	Reduce the flow rate until it is within the flow rate measurement range, using an adjustment valve.

Flow Rate Setting

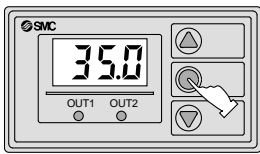
Setting procedure



Initial setting

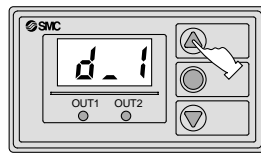
Note) Operation is the same for the integrated display type and the remote type (display unit).

1. Initial Setting Mode



Press the SET button and hold for 1 second or longer. Release the SET button once the display changes from $F_{.1}$ to $d_{.1}$ or $d_{.2}$.

2. Selection of the Display Mode

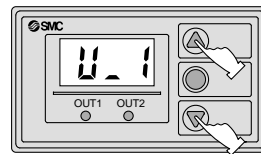


Set the display mode. Use the \blacktriangle button to switch. $d_{.1}$: Display for real-time flow rate $d_{.2}$: Display for accumulated flow

Press the SET button.



3. Selection of Display Units

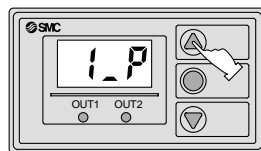


Set the display unit. Note 1) Use the \blacktriangle and \blacktriangledown buttons to switch. $U_{.n}$: Unit number (Refer to Table 1.)

Press the SET button.



4. Selection of OUT1 Output Mode

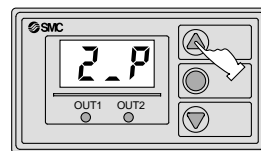


Set the output mode for OUT1. Use the \blacktriangle button to switch the output mode for OUT1. 1_P : Non-inverted output 1_n : Inverted output (Refer to Table 2.)

Press the SET button.



5. Selection of OUT2 Output Mode



Set the output mode for OUT2. Use the \blacktriangle button to switch the output mode for OUT2. 2_P : Non-inverted output 2_n : Inverted output

Press the SET button to complete the setting.



Table 1 Note 1)

For air

Display	Real-time flow rate	Accumulated flow
$U_{.1}$	/min	/
$U_{.2}$	CFM x 10 ⁻² , CFM x 10 ⁻¹	ft ³ x 10 ⁻¹

CFM = ft³/min

For water

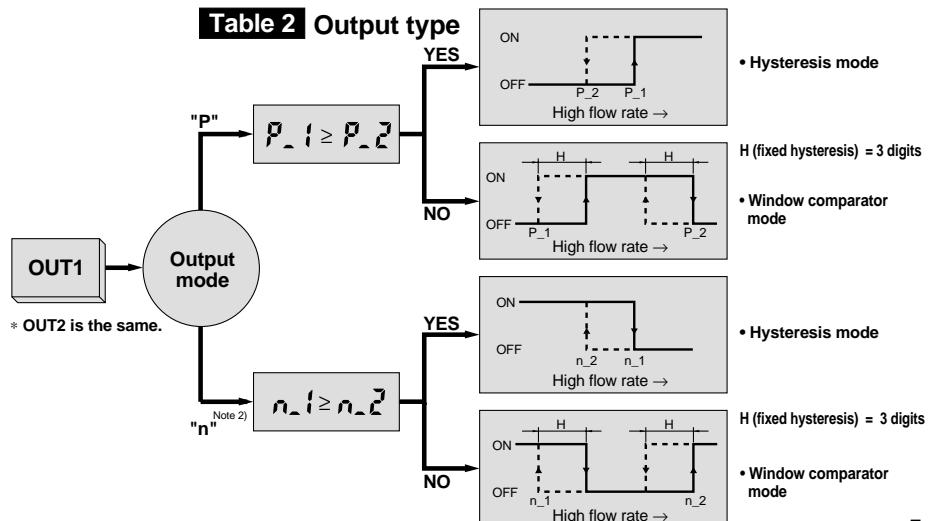
Display	Real-time flow rate	Accumulated flow
$U_{.1}$	/min	/
$U_{.2}$	GPM	gal (US)

GPM = gal (US)/min

Note 1) For digital flow switch with unit switching function (Fixed SI unit [L/min or L] will be set for the type without the unit switching function.)

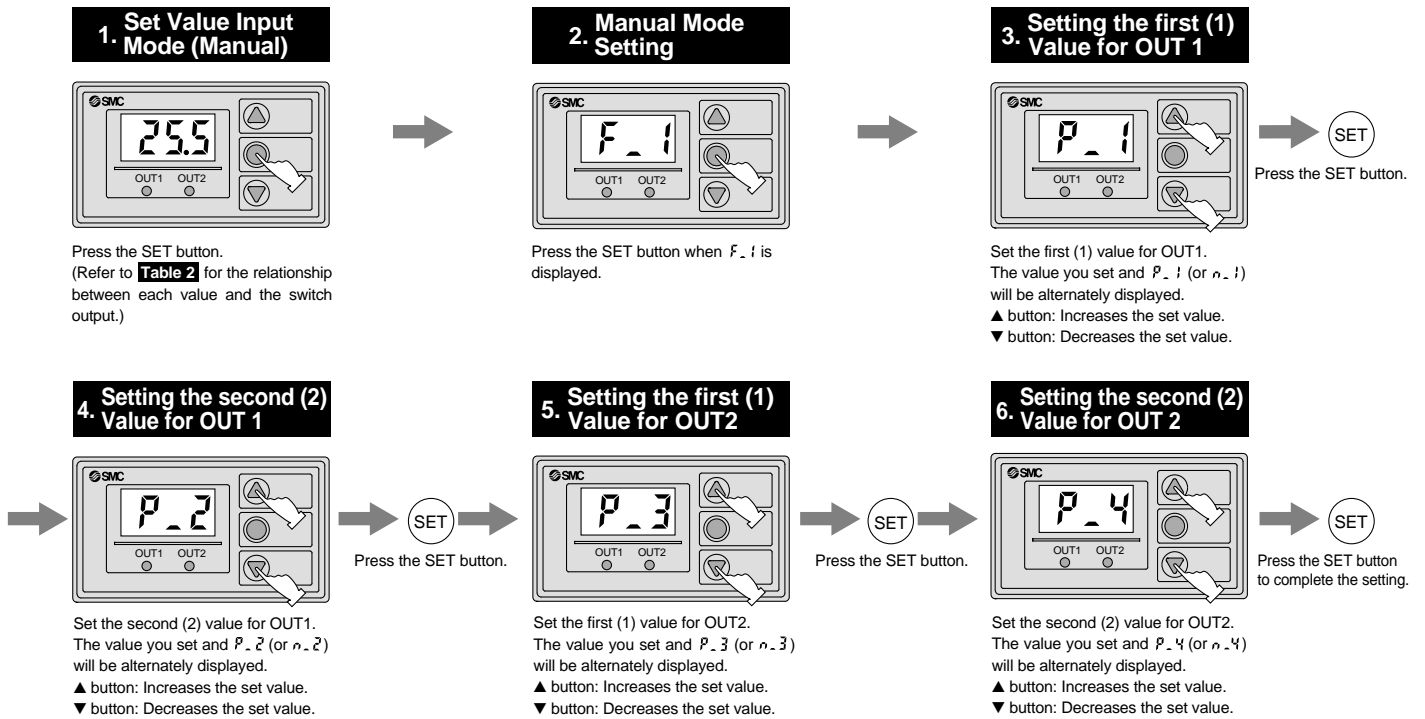
Note 2) Output mode is set to inverted output at the factory before shipment.

Table 2 Output type

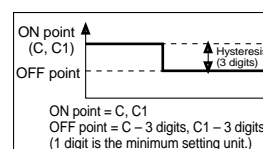
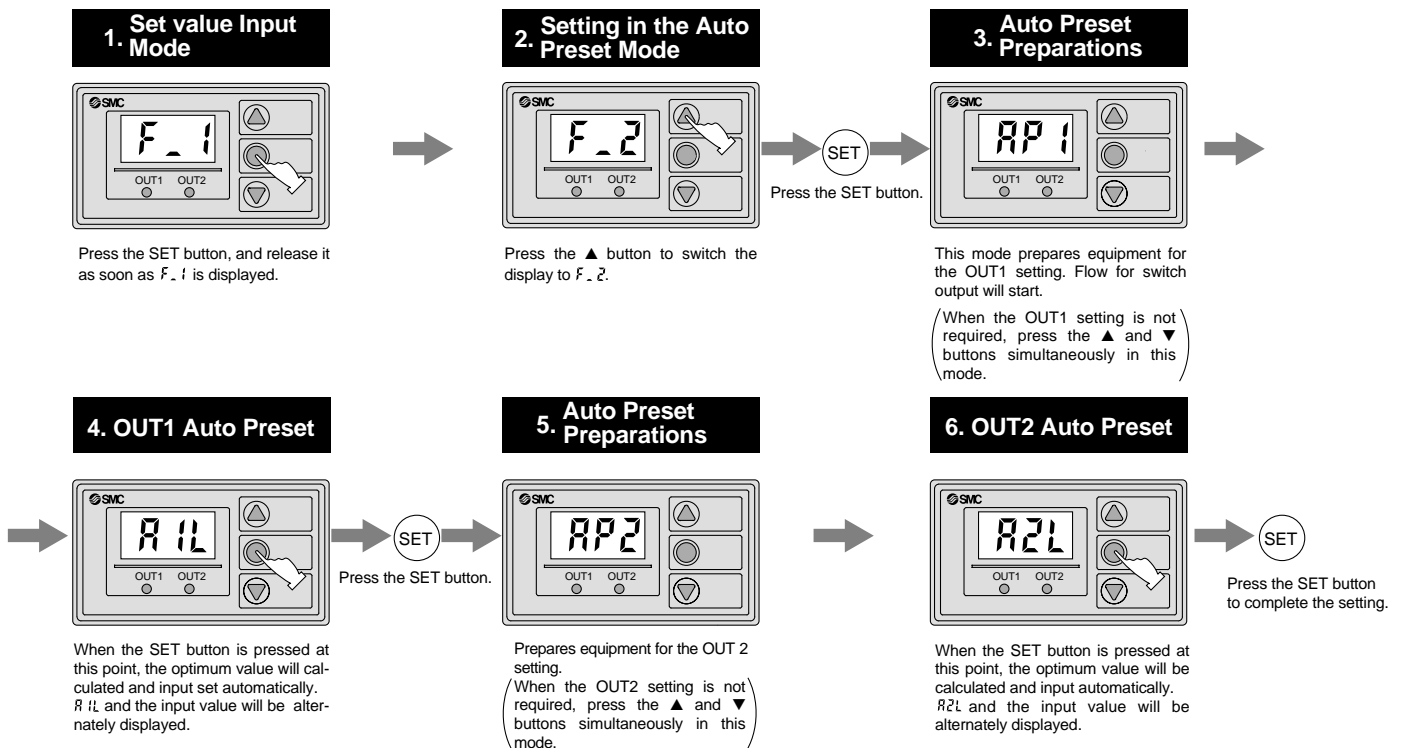


Flow Rate Setting

Flow rate setting mode (manual)



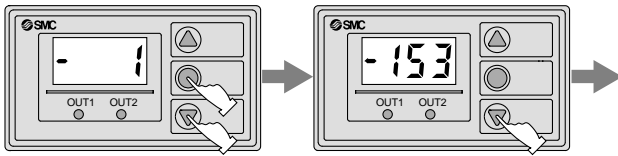
Flow rate setting mode (auto preset)



Other functions

• Accumulated flow function

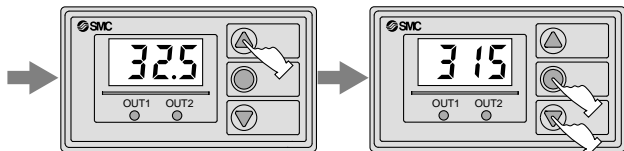
Start of Accumulation



Start accumulation. Press the SET button while pressing the ▼ button at the same time. The - mark blinks and accumulation begins.

Up to 999999 (L) of flow can be accumulated, but normally only the lower 3 digits are displayed. Press the ▼ button to verify the upper 3 digits.

Stopping Accumulation

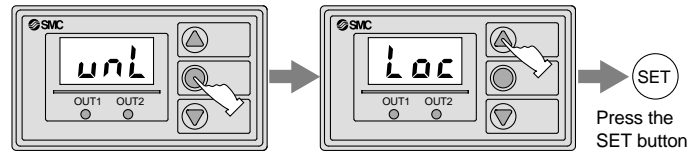


Press the ▲ button to verify the real-time flow rate during accumulation.

Press the SET button while pressing the ▼ button at the same time. The display fixes upon the current accumulated value and stops. To start further accumulation from this point, press the SET button while pressing the ▼ button at the same time. Press the ▲ and ▼ buttons simultaneously and hold for 2 seconds or longer to clear the display.

• Key lock mode --- Prevents incorrect operations of the button control.

Start of Key Lock Function

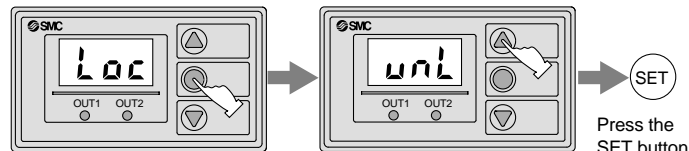


Press the SET button and hold it for 3 seconds or longer. Release the SET button when the display changes from F. L to d. L and displays uNL.

Use the ▲ button to display Loc.

Press the SET button to complete the setting.

Release of Key Lock Function



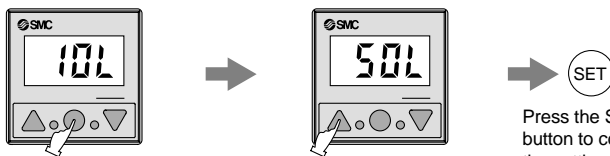
Press the SET button and hold it for 3 seconds or longer. Release the SET button when Loc is displayed.

Use the ▲ button to display uNL.

Press the SET button to complete the setting.

• Switching the flow rate range of the remote type (for air)

Switching Flow Rate Range



Press the SET button and hold it for 4 seconds or longer. the values shown in Table 3 will be displayed.

Use the ▲ button to select the desired flow rate range.

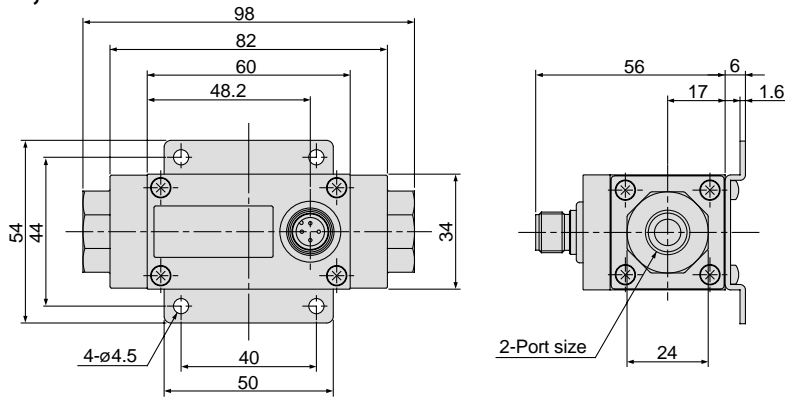
Press the SET button to complete the setting.

Table 3

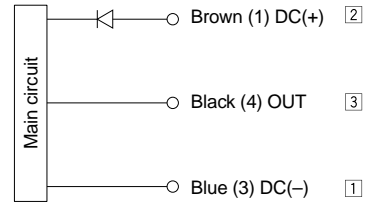
Display	Flow rate range	Applicable model
10L	1 to 10 /min	For PFA30□
50L	5 to 50 /min	
10L	10 to 100 /min	For PFA31□
20L	20 to 200 /min	
50L	50 to 500 /min	

Dimensions: Remote Type Sensor Unit for Air

PFA510, PFA550



Wiring

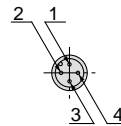


* Use this sensor by connecting to SMC remote type display unit Series PFA3□□.

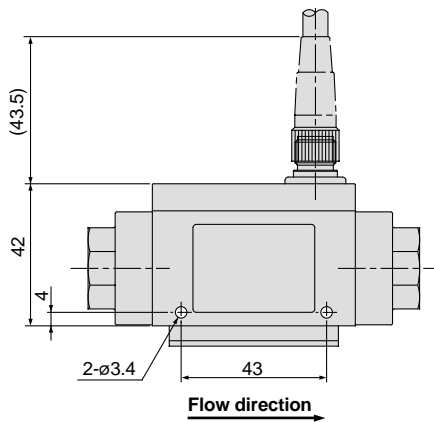
(1), (3), and (4) are connector pin numbers.

①, ②, and ③ are terminal numbers for Series PFA3□□.

Connector pin numbers



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



PFA511, PFA521, PFA551

