



Technical Specifications

Digital Flow Switch (Large Flow Rate Type)

PF2A7#H Series

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Safety

The Digital Flow Switch and this technical specification essential information for the protection of users and others from possible injury and damage to property and to ensure correct handling.

Please check that you fully understand the definition of the following messages (signs) before going on to read the text, and always follow the instructions.

Also read carefully the technical specification of relevant equipment or apparatus before use.

Indications

IMPORTANT MESSAGES	
Read this manual and follow its instructions. Signal words such as WARNING, CAUTION and NOTE, will be followed by important safety information that must be carefully reviewed.	
▲WARNING	Indicates a potentially hazardous situation which could result in death or serious injury if you do not follow instructions.
▲CAUTION	Indicates a potentially hazardous situation which if not avoided, may result in minor injury or moderate injury.
NOTE	Gives you helpful information.

Usage Restrictions

- This product is designed for use in general equipment for factory automation. Never use this product with equipment or apparatus that directly concerns human lives*¹, or which malfunction or failure can cause a huge loss.

*1:Equipment or apparatus that directly matters human lives means the following:
 - Medical equipment such as life support systems or equipment used in operating rooms
 - Compulsory equipment required by law such as the Fire Prevention Law, Construction Law and etc.
 - Equipment or apparatus that conforms with those mentioned above.
- Contact our sales department when plans are made for the product to be used for the system*² including equipment that concerns itself with the safety of persons or that seriously affects the public. This usage needs special consideration*³.

*2:The system including equipment that concerns itself with the safety of persons or that seriously affects the public means the following:
 - Nuclear reactor control systems in nuclear power plants, safety protection systems or other systems important for safety in nuclear power facilities
 - Driving control systems of mass transportation systems, and flight control systems
 - Equipment or apparatus that comes into contact with foods or beverages
- *3:Special consideration means discussing usage with our engineers to establish a safe system designed as fool-proof, fail-safe, redundant and etc.
- Special consideration of safety or maintainability should be taken to prevent hazard or loss caused by a failure or malfunction that is likely to occur in certain probability due to environmental stress (deterioration).
 - ❖ The special consideration means to fully review the equipment or apparatus in design stage and to establish a backup system in advance such as a redundant system or fail-safe system.
- Use for an interlocking circuit
When using the flow switch as a sensor for interlock, adopt a double interlocking method such as equipping the mechanical protection function in order to deal with a flow switch failure.
Check the flow switch regularly to ensure proper operation.

Operator

- This technical specification has been written for those who have knowledge of machinery and apparatus that use pneumatic equipment and have full knowledge of assembly, operation and maintenance of such equipment.
- Please read this technical specification carefully and understand it before assembling, operating or providing maintenance to the flow switch.

Safety

⚠ WARNING

- Do not disassemble, modify (including change of printed circuit board) or repair.
An injury or failure can result.
- Do not operate beyond specification range.
Operation at a range that exceeds the specifications can cause a fire, malfunction, or damage to the product.
Verify the specifications before use.
- Do not use the product in an atmosphere containing combustible, explosive, or corrosive gas.
A fire or explosion can result.
This flow switch is not an explosion-proof type.
- Do not use for inflammable or highly penetrative fluid.
This can cause explosion, damage or corrosion.
This flow switch is not an explosion-proof type.
- These instructions must be followed when using the flow switch in an interlocking circuit:
 - Provide double interlocking by another system such as mechanical protection.
 - Check the flow switch regularly to ensure proper operation.Otherwise malfunction can cause an accident.

NOTE

Follow the instruction given below when designing, selection and handling your digital flow switch.

- ◆ The instructions on design and selection
Installation, wiring, environment, adjustment, operation and maintenance described below must also be followed.
- ◆ Product specifications
 - This product is for dry air only. (Temperature range 0 to 50°C).
 - Operate the flow switch with the specified voltage.
Operation with a voltage beyond specifications can cause malfunction or damage of the flow switch.
Insufficient supply voltage may not drive a load due to a voltage drop inside the flow switch.
Verify the operating voltage of the load before use.
 - Use the flow switch within the specified ranges of the measurement flow rate and under the specified operating pressure.
Otherwise it can cause damage to the flow switch and an abnormal measurement.
 - Do not exceed the specified maximum allowable load.
Otherwise it can cause damage of the flow switch.
 - Input data to flow switch is not erased after power is off.
(Rewriting times: 10^6 times, Data duration: 20 years)
 - Reserve a space for maintenance.
Remember to leave space for maintenance when designing the piping plan.
- ◆ Product handling
- ◆ Installation
 - Do no drop, hit or apply excessive shock (490 m/s^2) to the flow switch.
Otherwise it can result in damage to the flow switch causing failure or malfunction.
 - Do not pull lead wires or lift the body with lead wires. (Tensile strength is less than 49N)
Hold the body when handing. Otherwise it can result in damage of the flow switch causing failure or malfunction.
 - Follow the specified tightening torque
Excessive tightening torque can break the terminal screws and terminal boards.
Insufficient tightening torque can displace the flow switch from the original position. (Refer to the Installation)
 - When piping, apply the wrench only to the metal portion (attachment to be piped) integrated into the piping.
Applying the wrench in other position can break the flow switch.
 - Install and joint the flow switch to a direction of measured flow using the flow direction make on a flow switch body.
Otherwise the sensing unit can prevent correct measurement.
 - Blow off all the dust inside the pipes before piping the flow switch.
Otherwise it can cause damage or malfunction.
 - Do not install the flow switch at a place used as a foothold.
Otherwise excessive load by tramping the flow switch or stepping on it can cause damage.
 - Install a filter at primary port (intake) when foreign matter may be contained in the fluid.
Otherwise it can cause damage or malfunction. Also it can cause an incorrect measurement.
- ◆ Wiring
 - Do not bend or apply tensile stress to lead wires repeatedly.
Wiring with repetitive bending stress or tensile stress can cause breakage of the lead wires.
Replace the product when damage to a lead wire is observed.
 - Connect wires and cables correctly.
Miswiring can break the flow switch depending on a miswired circuit.
 - Do not connect wires while the power is on.
Otherwise it can break the circuit inside unit of flow switch causing malfunction.
 - Do not lay wires or cables with power cable or high-voltage cable in the same wiring route.
Otherwise the wires to the flow switch can be contaminated with noise or induced surge voltage from power lines or high voltage lines causing malfunction. Lay the wires to the flow switch to a wire duct or in a protective tube other than those for power lines or high voltage lines.
 - Verify the insulation of wiring.
Poor insulation (interference with other circuit, poor insulation between terminals and etc.) can introduce excess voltage or current to the flow switch causing damage.

◆ Environment

- Do not use the product in an atmosphere containing corrosive gas, chemicals, sea water, water or vapor, or in a place where there is a possibility of adhesion of those substances to the product.
It can cause failure or malfunction.
- Avoid exposure of this product to direct sunlight.
Use sunshades if the product is exposed to direct sunlight. Otherwise it can cause failure or malfunction.
- Do not use in a place where water, oil or chemicals splashes.
Otherwise it can cause failure or malfunction.
- Do not use the product in an environment where heat cycle exists.
Heat cycles other than ordinary change of the temperature can affect the inside of the flow switch.
- Do not use a flow switch nearby a place where electric surges are generated.
Internal circuit elements of the flow switch can deteriorate or break when equipment generating a large surge (electromagnetic lifter, high frequency induction furnace, motor, etc.) is located near the flow switch. Provide surge preventives, and avoid interference.
- Do not use a load generating surge voltage.
Use the flow switch equipped with surge absorber when a surge-generating load such as relay or solenoid valve is driven directly,.
- The product is not resistive to a lightning surge defined in CE marking. Take measures to protect against a lightning surge at the load side.
- Prevent foreign matter such as remnant of wires from entering this product.
Take proper measures for the remnant not to enter the flow switch in order to prevent failure or malfunction.
- Do not expose the flow switch to vibration and impact.
Otherwise it can cause damage or malfunction.
- Follow the specified ranges of the operating fluid and maintain ambient temperatures.
When operating at low temperature of 5°C or below, breakage or malfunction can occur to the flow switch due to freezing of condensed water. Take preventive measures against freezing. Do not use the flow switch in a place where temperature suddenly changes even if it stays within the specified range. Installation of an air dryer is recommended for the flow switch in order to remove condensed water contained in the measuring fluid.
- Do not expose the flow switch to heat radiation from a heat source located nearby.
It can cause malfunction.

◆ Adjustment and Operation

- Do not short-circuit the load.
The flow switch indicates the error status when a load is short-circuited. However, excess current can damage the flow switch.
- Do not press the buttons with a sharp object.
It can cause damage to the setting buttons.
- The flow switch needs to turn the power on when flow rate is zero.
Indication may slightly fluctuate for 10 minutes after the power is on.
- Allow three seconds after power on for measurement with the flow switch.
The measurement output remains at OFF status for three seconds after the power is on.
- When in initial setting or setting flow rate to the flow switch, measured output maintains the switching status the same as the status before setting.
Perform the setting after verifying the influence on equipment.

◆ Maintenance

- Perform maintenance and check regularly.
Otherwise an unexpected malfunction of the system can occur due to a malfunction of the flow switch.
- Perform a proper functional check and leak test after maintenance.
Stop operation when an abnormality is observed such that the device does not work properly or there is a leakage of fluid. Otherwise an unexpected malfunction of the system component can occur.
- Do not use solvents such as benzene or thinner to clean the flow switch body.
It can damage the surface of the body and erase the indication on the body.
Use a soft cloth to remove stains. For heavy stains, use a cloth soaked with diluted neutral detergent and fully squeezed, then wipe up the stains again with a dry cloth.

Model Indication Method

PF2A7□H-□□-□□□

Unit specification

-M : SI units fixed (Note1)

No symbol : Unit selection function provided (Note2)

Lead wire

No symbol : Lead wire with connector (3m)

N : None Lead wire with connector

Output specification

28 : NPN open collector 1 output + Analog output (1 to 5V)

29 : NPN open collector 1 output + Analog output (4 to 20mA)

68 : PNP open collector 1 output + Analog output (1 to 5V)

69 : PNP open collector 1 output + Analog output (4 to 20mA)

Piping Port

10 : Port size 1 (Applicable for PF2A703H)

14 : Port size 1 1/2 (Applicable for PF2A706H)

20 : Port size 2 (Applicable for PF2A712H)

Port Screw Type

No symbol : Rc

N : NPT

F : G

Flow Rate Range

03 : 150 to 3000L/min

06 : 300 to 6000L/min

12 : 600 to 12000L/min

Note1) The Measurement Law of Japan does not allow use of meters or measuring instruments, which have a unit selection, in Japan.

Note2) The fixed unit

for instantaneous flow rate is : L/min

for integrated flow rate is : L, m³, m³×10³

Specification

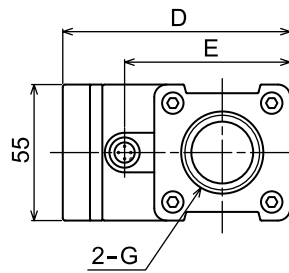
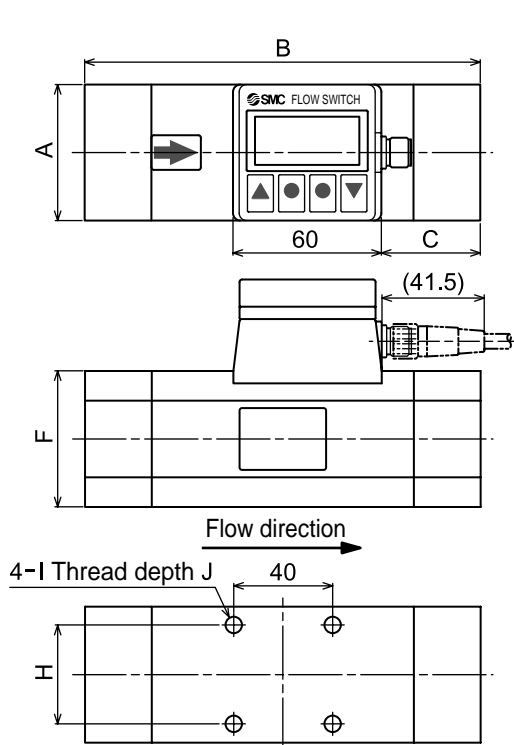
	PF2A703H	PF2A706H	PF2A712H
Fluid	Dry air		
Detecting Method	Thermal sensing		
Flow rate indication range (L/min)	125 to 3025	250 to 6050	550 to 1250
Set flow rate range (L/min)	125 to 3025	250 to 6050	550 to 1250
Measured flow rate range (L/min)	150 to 3000	300 to 6000	600 to 12000
Measured min. Unit range (L/min)	5	10	
Flow rate converted score of integrated pulse	100L/pulse		
Integrated Flow Rate Range	0 to 9,999,999,999L		
Indication Unit (*1,2)	Instantaneous flow rate : L/min, CFM Integrated Flow Rate : L, m ³ , m ³ ×10 ³ , ft ³ , ft ³ ×10 ³ , ft ³ ×10 ⁶		
Operating fluid temp.	0 to 50°C (No Condensation or no freezing)		
Linearity	Indicated value : ±1.5%F.S. or less, Analog output : ±3%F.S. or less		
Power Supply Voltage	24VDC, Ripple±10% or less		
Current Consumption	150mA or less (No load)		
Repeatability	±1.5%F.S. or less (0.7MPa, 20°C)		
Hysteresis	Hysteresis mode : Variable (Settable starting 0), Window comparator mode : Set for 0 to 3%F.S.		
Response Time	1s or less		
Output Specification (*3)	Switch Output	NPN Open collector : Max. load current 80mA, Max. applied voltage 30V Internal voltage drop 1V or less (At load current 80mA)	
		PNP Open collector : Max. load current 80mA, Internal voltage drop 1.5V or less (At load current 80mA)	
	Integrated pulse Output	NPN/PNP Open collector (Same as switch outputs)	
	Analog Output	Voltage Output : 1 to 5V (within rated flow range) Linearity ±3%F.S. or less, Permissible load impedance 100kΩ or more	
Current Output : 4 to 20mA (within rated flow range) Linearity ±3%F.S. or less, Permissible load impedance 250Ω or less			
Withstand Pressure	2.25MPa		
Operating indication Range	0.1 to 1.5MPa		
Indication digit	5digits 7segment LCD		
Enclosure	IP65		
Ambient temp. range	Operation : 0 to 50°C, Storage : -25 to 85°C (No Condensation or freezing)		
Withstand Voltage	1000VAC, 1minute (between lead block and case)		
Insulation Resistance	50MΩ or less (500VDC M) (between lead block and case)		
Noise Resistance	1000Vp-p pulse width 1μs, first transition 1ns		
Vibration proof	10 to 500Hz and amplitude 1.5mm or 98m/s ² , double amplitude, each in directions of X, Y and Z 2hours		
Impact proof	490m/s ² , 3times each in directions of X, Y and Z respectively		
Temp. Characteristics	±2.0%F.S. or less (0 to 50°C, 25°C standard)		
Material	Attachment : A6063, Packin : H-NBR, Mesh : SUS, Inner body : A6063, Spacer : PPS, Sensor case : PPS, Sensor : Leaded glass/ptlr/ FeNi/OFC		
Port size	1	1 1/2	2
Mass(Weight) (Without Lead wire)	1.1kg	1.3kg	2.0kg

*1) With a unit selection function (Without a unit selection function, fixed to SI unit [L/min or L, m³, m³×10³]).

*2) Flow rate indication is possible to be switched to normal condition of 0°C /101.3kPa and standard condition of 20°C /101.3kPa/65%RH(ANR)

*3) Switch output and integrated pulse are selected at initial setting.

Full View with Dimensions (In mm)



Thred G

PF2A703H	Rc1, NPT1, G1
PF2A706H	Rc1-1/2, NPT1-1/2, G1-1/2
PF2A712H	Rc2, NPT2, G2

Model No.	A	B	C	D	E	F	H	I	J
PF2A703H	55	160	40	92	67	55	36	M5×0.8	8
PF2A706H	65	180	45	104	79	65	46	M6×1	9
PF2A712H	75	220	55	114	89	75	56	M6×1	9

Names and Functions of Individual Parts

Display Part

Output (OUT1) Lamp : Lit when OUT1 is ON. Flickers when an over current error occurs.

Flow display : Instantaneous flow, integrated flow and set value are displayed.

Flow check display : Flickers interval varies depending on the flow.

Unit display : Selected unit is displayed. Single unit type is displayed in SI unit (L/min or L, m³, m³×10³).

▲ Button (UP) : Selects a mode and increases a set ON/OFF value.

▼ Button (DOWN) : Selects a mode and decreases a set ON/OFF value.

MODE Button (MODE) : Change the mode.

SET Button : Changes the mode and sets a set value.

*RESET :

Pressing the ▲ and ▼ buttons simultaneously will active the RESET function. Use this function to clear errors when a trouble occurs.

Body

Flow switch sensor body. The arrow on the side of the body indicates the direction of flow.

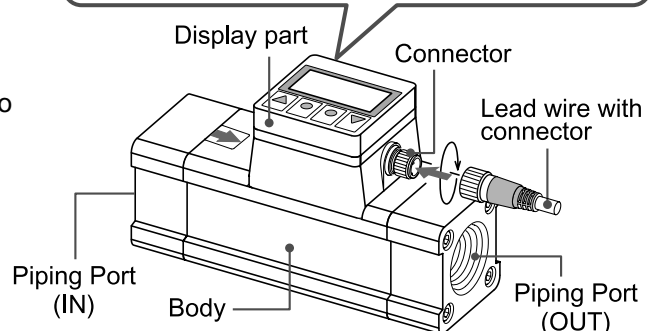
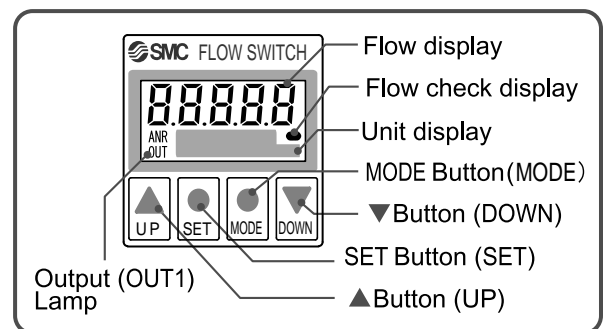
Piping port

This port connects with pipeline. Use a pipe fitting to connect with external pipeline.

Accessories

(When no symbol is specified for optional wiring in the type specification)

Lead wire with connector on the end (3m)

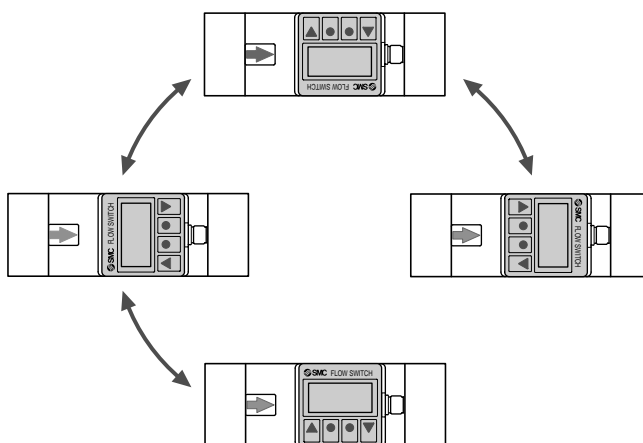


Installation

Install the flow switch after carefully reading "WARNING", "CAUTION", "NOTE", and "Mounting" below to ensure safety and accurate measurement.

Mounting

- Use within the operating pressure range.
- Use within the operating temperature range.
- Withstand pressure is 2.25MPa.
- Do not install the flow switch at a foothold position.
- Install a flow switch so that the flow direction agrees with the arrow direction on the side of the body.
- Mount the body so that the bottom of the body does not face upward.
- Provide a straight pipe length of more than eight times the pipe diameter to upstream and downstream of the flow switch.
- Set display part proper position taking the cable entry and display position into account. Display part rotates in 270 degree.

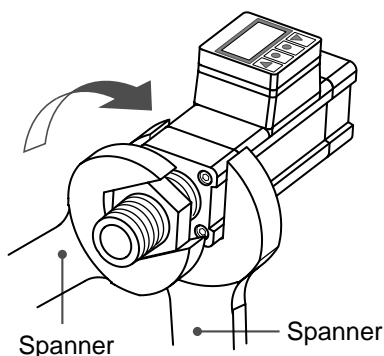


Piping Connections

- Observe the specified tightening torque when connecting pipes. Refer to the following table for the appropriate torque values.

Nominal size of screws	Appropriate tightening torque : N·m
Rc 1	36 to 38
Rc 1 1/2	48 to 50
Rc 2	48 to 50

- When connecting pipeline to the switch, apply a spanner to the metal part of the piping section for the switch.
- Make sure that sealing tapes will not enter inside the pipe when connecting pipes.



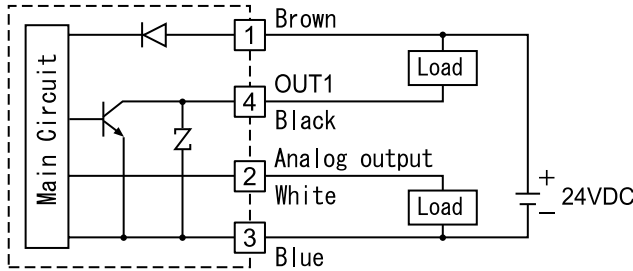
Example of Internal Circuit and Wiring

Output Specification

When the lead wire with connector provided by SMC corporation is used the color of wire (Brown, White, Black, Blue) shown on circuit diagram will be applied.

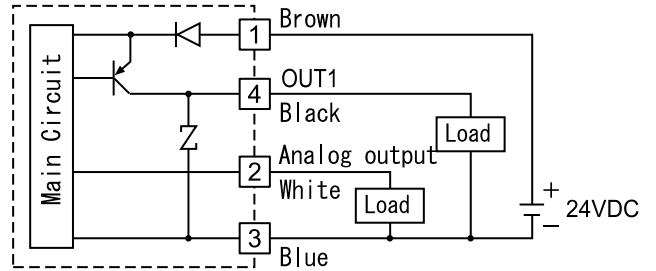
PF2A7□H-□-²⁸/₂₉ (-M)

NPN Open Collector 1 Output + Analog output
 Max. 30V, 80mA
 Internal voltage drop : 1V or less



PF2A7□H-□-⁶⁸/₆₉ (-M)

PNP Open Collector 1 Output + Analog output
 Max. 80mA
 Internal voltage drop : 1.5V or less



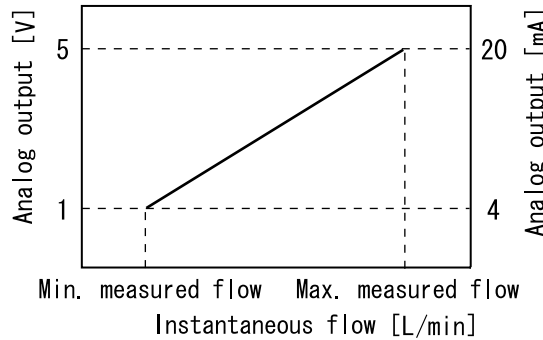
Analog Output

PF2A7□H-□-²⁸/₂₉ (-M)

Output : 1 to 5V

PF2A7□H-□-⁶⁸/₆₉ (-M)

Output : 4 to 20mA

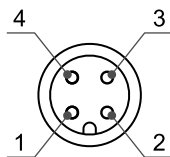


Model No.	Min. measured flow	Max. measured flow
PF2A703H	150	3000
PF2A706H	300	6000
PF2A712H	600	12000

Connecting of connector

- Connecting/disconnecting work of connector shall be done with power supply being cut off.
- Set At connecting of connector, insert by matching the key of connector and key groove of socket on the lock nut of socket.
- Set When pulling out the connector, release the connector lock nut and pull out straight to remove it.
- Set Single wiring path shall be used for wiring. Parallel wiring or wiring in the same conduit with power lines or high voltage lines may cause malfunction due to noise from these other lines.

Connector pin number

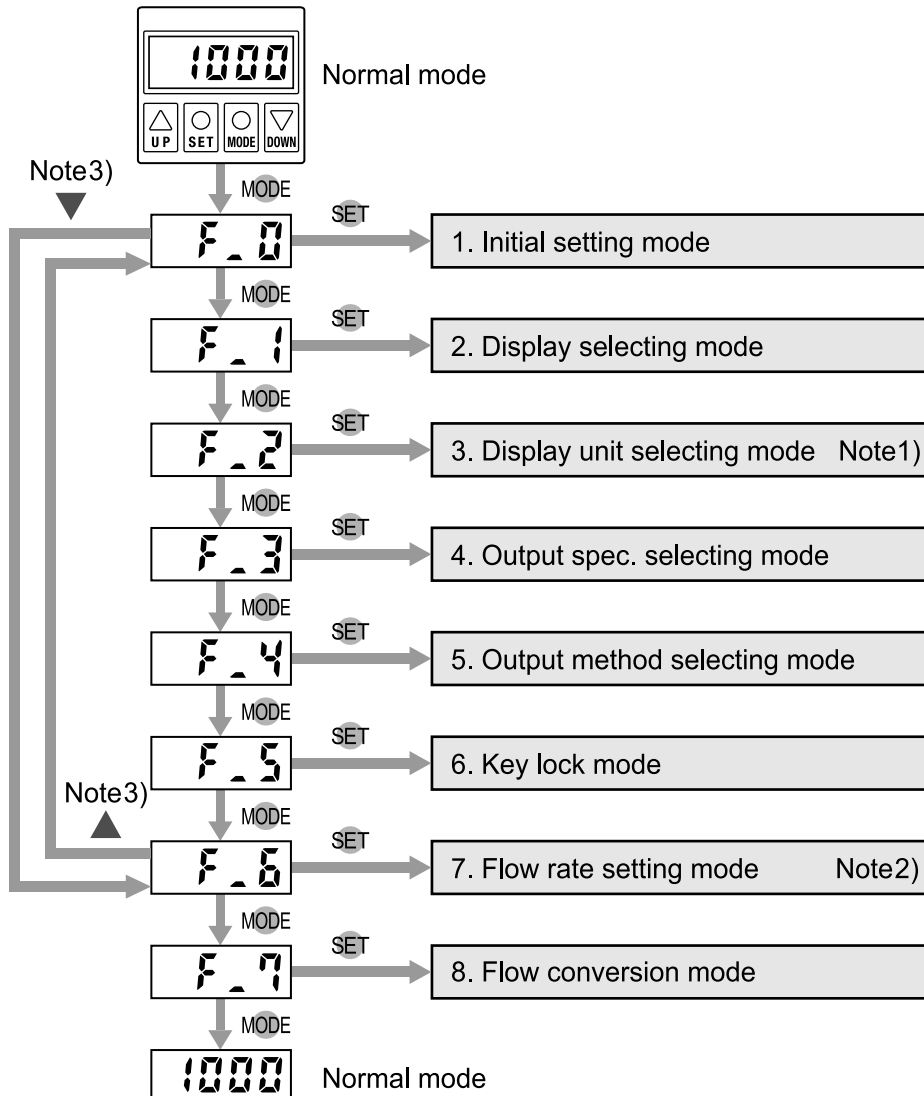


Pin No.	Pin description
1	DC(+)
2	Analog Output
3	DC(-)
4	OUT1

Setting

Setting Procedure :

Check installation condition and wiring and set as below.



Note1) [F_2] (Display unit selection mode) does not exist for -M (SI unit fixed) type.

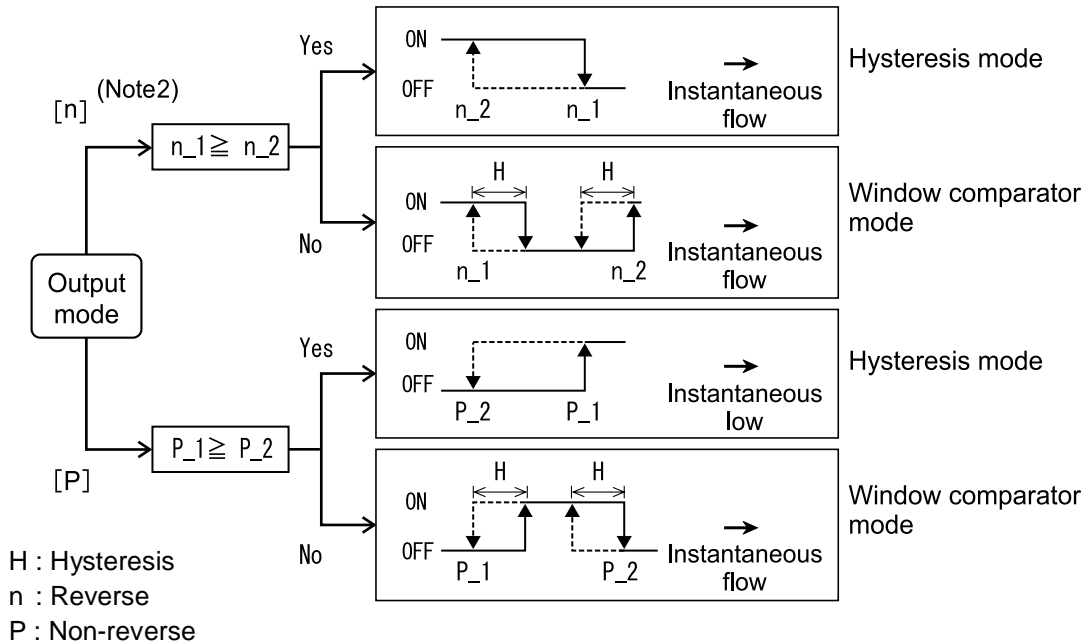
Note2) [F_6] (Flow rate setting mode) does not exist when selecting [oU1_2] during [F_3] (Output specification selecting mode).

Note3) Pressing ▲ button at each mode of [F_0] to [F_7], returns to previous mode, pressing ▼ button moves a mode ahead.

OUT1 Output Specifications

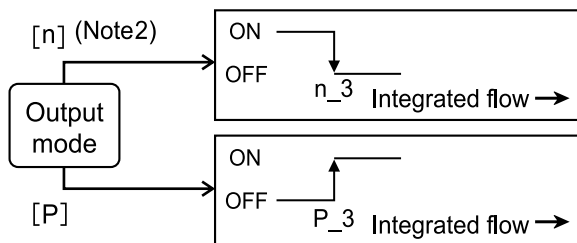
Instantaneous switch output (oU1_0)

See "Flow rate setting mode" to input setting value.

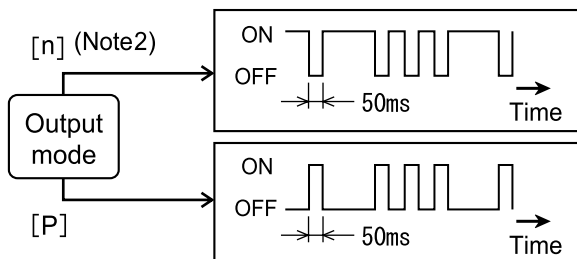


Integrated switch output (oU1_1)

See "Flow rate setting mode" to input setting value.



Integrated Pulse output (oU1_2)



Flow rate per pulse (Note1)

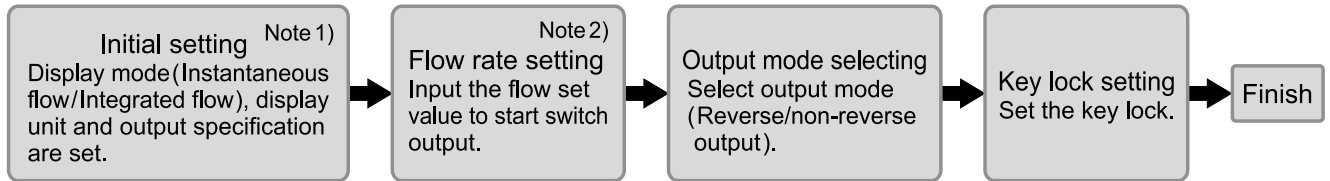
Display	Integrated flow
U_1	100L/pulse
U_2	10.0ft ³ /pulse

Note1) Unit selection function type (Unit is fixed to SI unit for the type without this function).

Note2) Reversed output is assigned at shipment.

Function Setting

1. Initial setting mode

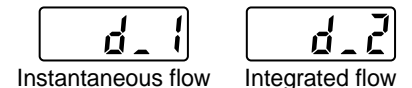


Note 1) Display unit setting is not necessary when the model indication specifies the unit as -M.

Note 2) Set value input is not necessary when the integration pulse output [oU1_2] is selected as output spec.

2. Display selecting mode

Select the display from instantaneous flow or integrated flow.
Press ▲ button to select desired flow, then press SET button.
[d_1] means instantaneous flow, [d_2] integrated flow.

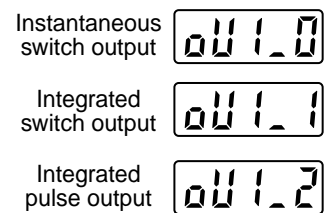


3. Display unit selecting mode

Display unit can be selected when the unit spec. of model Indication is No Symbol. -M means the unit is fixed to SI unit. See "Display unit selecting mode" below for details.

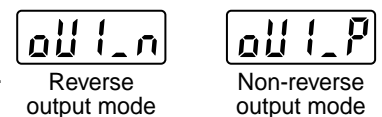
4. Output spec. selecting mode

Set OUT1 output specification.
Press ▲ button to select OUT1 output specification, then press SET button. [oU1_0] indicates instantaneous switch output, [oU1_1] integrated switch output and [oU1_2] integrated pulse output. See "OUT1 output specifications".
Pressing MODE button instead of SET button switches to [F_4].
Input the set value after selecting OUT1 output specification. See "7.Flow rate setting mode" for details.
Flow setting not required when selecting integrated pulse output [oU1_2].



5. Output method selecting mode

Set OUT1 output mode. Reverse output and non-reverse output mode are available for output.
*Press ▲ button to select the mode from reverse output or non-reverse output. And press SET button is to set.
[oU1_n] indicates reverse output mode, [oU1_P] is non-reverse output mode.
Pressing MODE button instead of SET button switches to [F_5].

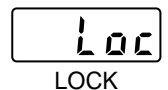


6. Key lock mode

Prevents wrong operation such as unintentional change of set value.

LOCK

- Press SET button to change the display from [F_5] to [unL], and release the SET button.
- Set the display as [Loc] by ▲ button
- Mode changed to [F_6] by pressing MODE button. ([F_7] when selecting [oU1_2] during [F_3])
- Setting completed by pressing SET button.



RELEASE

- Press MODE button longer than 3 sec. at the normal mode to display [F_5], then press SET button.
- Press ▲ button to display [unL].
- Setting completed by pressing SET button.



Display unit selecting mode (When Unit spec. in Model Indication is w/o "M")

Unit can be selected from that of Instantaneous flow and integrated flow. The unit is changed by pressing ▲ or ▼ button.

Pressing SET button to set the mode, and moves to output mode setting.

Display	Instantaneous flow	Integrated flow
U_1	L/min	L, m ³ , m ³ ×10 ³
U_2	CFM	ft ³ , ft ³ ×10 ³ , ft ³ ×10 ⁶

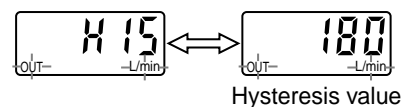
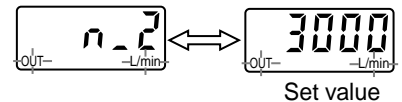
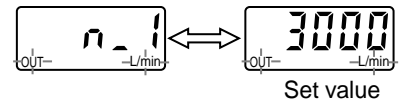
7. Flow rate setting mode

Input set value. Input method depends on OUT1 output specification.

Instantaneous switch output (oU1_0)

1. Press SET button to input n₁ (P₁) set value. [n₁] and the set value appears in turn if previous setting select reverse output mode. ([P₁]and the set value appears in turn when non-reverse output mode is selected.)
2. Select set value by ▲ button or ▼ button. ▲ button to increase the value, ▼ button to reduce.
3. Press SET button to input n₂ (P₂) set value.[n₂]and the set value appears in turn if previous setting select reverse output mode. ([P₂]and the set value appears in turn when non-reverse output mode is selected.)
4. Select set value by ▲ and ▼ button as in 2. above.
5. Press SET button to set the value.
6. *P₁<P₂ (n₁<n₂) : Window comparator mode.
[HIS] and hysteresis value appears in turn.
Press SET button after selecting hysteresis with ▲ or ▼ button.
▲ button to increase the value, ▼ button to reduce.
0 to 3% of rated flow value is adjustable as hysteresis value. If the difference between P₁ (n₁) and P₂ (n₂) is smaller than 6% of rated flow, max. set value of hysteresis is the half of the difference between P₁ (n₁) and P₂ (n₂).
*P₁≥P₂ (n₁≥n₂) : Hysteresis mode.
Hysteresis value is not set.

Reverse output mode

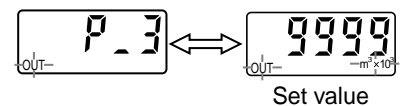
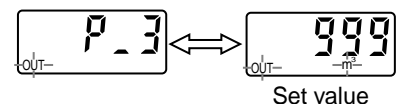
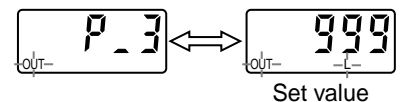


Integrated switch output (oU1_1)

The value can be set up to 9999 [m³×10³], 999 [m³], 999 [L].

1. Press SET button to input the set value in the digit of [L]. The set value and P₃ (or n₃) appears in turn, an “OUT” and “L” flicker.
*Press SET button longer than 2 sec. to complete setting.
2. Select set value by ▲ and ▼ button. ▲ button to increase the value, ▼ button to reduce.
3. Press SET button to input the set value in the digit of [m³]. The set value and P₃ (or n₃) appears in turn, an “OUT” and “m³” flicker.
*Press SET button longer than 2 sec. to complete setting.
4. Select set value by ▲ and ▼ button as in 2. Above.
5. Press SET button to input the set value in the digit of [m³×10³]. The set value and P₃ (or n₃) appears in turn, an “OUT” and “m³×10³” flicker.
*Press SET button longer than 2 sec. to complete setting.
6. Select set value by ▲ and ▼ button as in 2. Above.
7. Press SET button to return to the status of 1. above.
*Press SET button longer than 2sec. to complete setting.

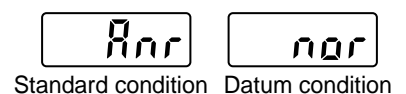
Non-reverse output mode



8. Flow conversion mode

Displays air flow converted during standard condition (Anr : 20°C, 101.3kPa, 65%RH[ANR]), and datum condition (nor : 0°C, 101.3kPa).

1. Press SET button, and switch with ▲ button. “Anr” indicates standard condition, “nor” datum condition.
2. Press SET button or MODE button to complete the setting.



Other Function

Flow display check

Check integrated flow when instantaneous flow is selected

Integrated flow is displayed only during ▼ button is pressed.

(Returns to instantaneous flow when releasing ▼ button.)

*The unit of integrated flow is changed as [L] → [m³] → [m³×10³] → [L] if press button while pressing ▼ button.

Check instantaneous flow when integrated flow is selected

Instantaneous flow is displayed only during ▼ button is pressed.

(Returns to Integrated flow when releasing ▼ button.)

Switching the unit of integrated flow display

Set the Integrated flow display unit while Integrated flow is selected.

1. Unit flickers by pressing ▲ button.
2. The unit is changed as [L] → [m³] → [m³×10³] → [L] by ▲ button.
3. Unit stops flickering when deciding the unit by SET button.

* The unit stops flickering unless pressing button for 5 sec., and complete switching the flow display unit. Integrated flow display unit is not switched.

* Flow display may flicker if fluid flows higher than the rated range of units when integrated flow is displayed.

Clear of integrated Value

Integrated value is cleared by pressing ▲ button while pressing ▼ button for 5sec.

Initialize the Set Value

All the setting can be initialized to values at shipment. Pressing ▲ button and ▼ button for longer than 2sec. during initial setting mode [F_0]. Press SET button after [F_00] appears.

* Setting is not initialized but switched to [F_0] if pressing MODE button. See below for setting at shipment.

Display setting : Instantaneous flow (d_1)

Unit setting : L/min (U_1)

Switch specification : Instantaneous switch output (oU1_0)

Output mode : Reverse output (oU1_n)

Flow setting value : Instantaneous flow, Intermediate value of full-range/Integtrated flow : 0

Key lock mode : Unlocked (unL)

Flow conversion condition : 20°C, 101.3kPa, 65%RH[ANR] (Anr)

Error Display and Troubleshooting

In case an error occurs, take the following actions.

LED display	Error nature	Troubleshooting
Err_1	A current exceeding 80mA is flowing to OUT1.	Turn the power off. Check the load and wiring of OUT1.
Err_3	Set data has been changed due to some reason.	Reset all the data.
- - - -	A fluid flow is higher than rated rate.	Reduce the flow down to the rated rate.

To reset display of Error 1 and 3, press ▲ and ▼ button simultaneously.