

3-Color Display

Digital Flow Switch for Large Flow

PF3A7□H Series



RoHS



How to Order

PF3A 7 03 H - 10 - CS - M

Type

7	Integrated display
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Rated flow range

03	30 to 3000 L/min
06	60 to 6000 L/min
12	120 to 12000 L/min

Large flow type

Thread type

Nil	Rc
N	NPT
F*1	G

*1 ISO 1179-1 compliant

Port size

Symbol	Port size	Rated flow range		
		03	06	12
10	1	●	—	—
14	1 1/2	—	●	—
20	2	—	—	●

Calibration certificate*8

Nil	None
A*9	Yes

*8 Certificate in both English and Japanese

*9 Made to order

Unit specification

Nil	Units selection function*6
M	SI unit only*7

*6 This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

*7 Fixed unit: Instantaneous flow: L/min
Accumulated flow: L

Options

Nil	With lead wire and M12 connector (3 m)*5
N	Without lead wire and M12 connector

*5 Option is shipped together, but not assembled.

Output specification

Symbol	OUT	FUNC*2	Applicable monitor unit model
CS	NPN	Analog voltage output*3 ⇔ External input*4	PFG300 series
DS	NPN	Analog current output ⇔ External input*4	PFG310 series
ES	PNP	Analog voltage output*3 ⇔ External input*4	PFG300 series
FS	PNP	Analog current output ⇔ External input*4	PFG310 series

*2 Analog output or external input can be selected by pressing the buttons. Analog output is set as default setting.

*3 1 to 5 V or 0 to 10 V can be selected by pressing the button. The default setting is 1 to 5 V.

*4 The accumulated value, peak value, and bottom value can be reset.

Option/Part No.

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

Part no.	Option	Note
ZS-37-A	Lead wire and M12 connector	Length: 3 m

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Digital Flow Switch for Large Flow **PF3A7□H Series**

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

Specifications

Model	PF3A703H	PF3A706H	PF3A712H
Fluid	Applicable fluid *1 Air, Nitrogen Fluid temperature 0 to 50°C		
Flow	Detection method Thermal type		
	Rated flow range	30 to 3000 L/min	60 to 6000 L/min
	Set point range *2	Instantaneous flow 30 to 3150 L/min	120 to 12000 L/min
		Accumulated flow 0 to 999,999,999,990 L	120 to 12600 L/min
	Smallest settable increment	Instantaneous flow 2 L/min	10 L/min
		Accumulated flow 10 L	100 L
	Accumulated volume per pulse (Pulse width = 50 ms)	Select from 100 L/pulse or 1000 L/pulse.	
Pressure	Accumulated value hold function *3	Interval of 2 or 5 minutes can be selected.	
	Rated pressure range	0.1 to 1.5 MPa	
	Proof pressure	2.25 MPa	
	Pressure loss	Refer to "Pressure Loss" graph.	
Electrical	Pressure characteristics *4	±2.5% F.S. (0.1 to 1.0 MPa, 0.5 MPa standard)	
	Power supply voltage	24 VDC ±10%	
	Current consumption	150 mA or less	
	Protection	Polarity protection	
Accuracy	Display accuracy	±3.0% F.S.	
	Analog output accuracy	±3.0% F.S.	
	Repeatability	Switch output/Display: ±1.0% F.S. Analog output: ±1.0% F.S.	
	Temperature characteristics	±5.0% F.S. (Ambient temperature of 0 to 50°C, 25°C standard)	
Switch output	Output type	NPN open collector PNP open collector	
	Output mode	Select from Instantaneous output (Hysteresis mode or Window comparator mode), Accumulated output, or Accumulated pulse output.	
	Switch operation	Select from Normal or Reversed output.	
	Max. load current	80 mA	
	Max. applied voltage (NPN only)	28 VDC	
	Internal voltage drop (Residual voltage)	NPN output type: 1 V or less (at load current of 80 mA) PNP output type: 2 V or less (at load current of 80 mA)	
	Response time *5	Select from 1 s, 2 s, or 5 s.	
	Hysteresis *6	Variable from 0	
	Protection	Over current protection	
Analog output *7	Output type	Voltage output: 1 to 5 V (0 to 10 V can be selected*8), Current output: 4 to 20 mA	
	Impedance	Output impedance: Approx. 1 kΩ	
		Maximum load impedance: Approx. 600 Ω	
	Response time *9	Linked with the response time of the switch output.	
External input *10	Input type	No-voltage input: 0.4 V or less	
	Input mode	Select from Accumulated value external reset or Peak/Bottom value reset.	
	Input time	30 ms or longer	
	Reference condition *11	Select from Standard condition or Normal condition.	
Display	Unit *12	L/min, CFM (ft³/min)	
		L, ft³	
	Display range *13	Instantaneous flow 0 to 3150 L/min (Flow under 30 L/min is displayed as "0")	0 to 6300 L/min (Flow under 60 L/min is displayed as "0")
		Accumulated flow*14 0 to 999,999,999,990 L	0 to 999,999,999,900 L
	Minimum display unit	Instantaneous flow 2 L/min	10 L/min
		Accumulated flow 10 L	100 L
	Display	LCD, 2-screen display (Main screen/Sub screen) Main screen: Red/Green, Sub screen: Orange Main screen: 5 digits, 7 segment, Sub screen: 6 digits, 7 segment	
	Indicator LED	OUT indicator: Red LED is ON when output is ON	
Environment	Enclosure	IP65	
	Withstand voltage	1000 VAC for 1 minute between terminals and housing	
	Insulation resistance	50 MΩ (500 VDC measured via megohmmeter) between terminals and housing	
	Operating temperature range	Operating: 0 to 50°C, Stored: -10 to 60°C (No freezing or condensation)	
Standards	Operating humidity range	Operating/Stored: 35 to 85% RH (No condensation)	
		CE, RoHS	
Piping	Piping specification	Rc1, NPT1, G1	Rc1 1/2, NPT1 1/2, G1 1/2
Main materials of parts in contact with fluid		Aluminum alloy, PPS, HNBR [Sensor: Pt, Au, Fe, Lead glass (exempted from the RoHS application), Al2O3]	
Length of lead wire with connector		3 m	
Weight	Piping specification	Rc	1190 g
		NPT	1680 g
		G	1680 g
	Lead wire with connector		1720 g

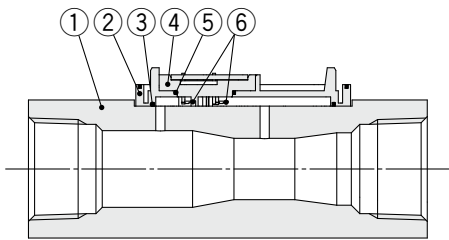
- *1 Air quality grade is JIS B 8392-1:2012 [3:6:-] and ISO 8573-1:2010 [3:6:-].
- *2 Set point range will change according to the setting of the zero cut function.
- *3 When using the accumulated value hold function, use the operating conditions to calculate the product life, and do not exceed it. The maximum update limit of the memory device is 1.5 million times. If the product is operated 24 hours per day, the product life will be as follows:
 - 5 min interval: life is calculated as 5 min x 1.5 million = 7.5 million min = 14.3 years
 - 2 min interval: life is calculated as 2 min x 1.5 million = 3 million min = 5.7 years
 If the accumulated flow external reset is repeatedly used, the product life will be shorter than calculated life.
- *4 When the pressure range is 1.0 to 1.5 MPa, the pressure characteristics will be ±5% F.S. (standard pressure is 0.5 MPa). Do not release the OUT side piping port of the product to the atmosphere without connecting piping. If the product is used with the piping port released to atmosphere, accuracy may vary.
- *5 The time from when the flow is changed by a step input (when the flow rate changes from 0 to the maximum value of the rated flow range instantaneously) until the switch output turns ON (or OFF) when set to be 90% of the rated flow rate.

- *6 If the flow fluctuates around the set value, the width for setting more than the fluctuating width needs to be set. Otherwise, chattering will occur.
- *7 Analog output or external input can be selected by pressing the buttons. Refer to the graph for analog output.
- *8 When selecting 0 to 10 V, refer to the analog output graph for the allowable load current.
- *9 The time from when the flow is changed by a step input (when the flow rate changes from 0 to the maximum value of the rated flow range instantaneously) until the analog output reaches 90% of the rated flow rate.
- *10 Analog output or external input can be selected by pressing the buttons.
- *11 The flow rate given in the specification is the value under standard conditions.
- *12 Setting is only possible for models with the units selection function.
- *13 Display range will change according to the setting of the zero cut function.
- *14 The accumulated flow display is the upper 6-digit and lower 6-digit (total of 12 digits) display. When the upper digits are displayed, x 10⁶ lights up.
- * Products with tiny scratches, marks, or display color or brightness variations which do not affect the performance of the product are verified as conforming products.

PF3A7□H Series

Construction: Parts in Contact with Fluid

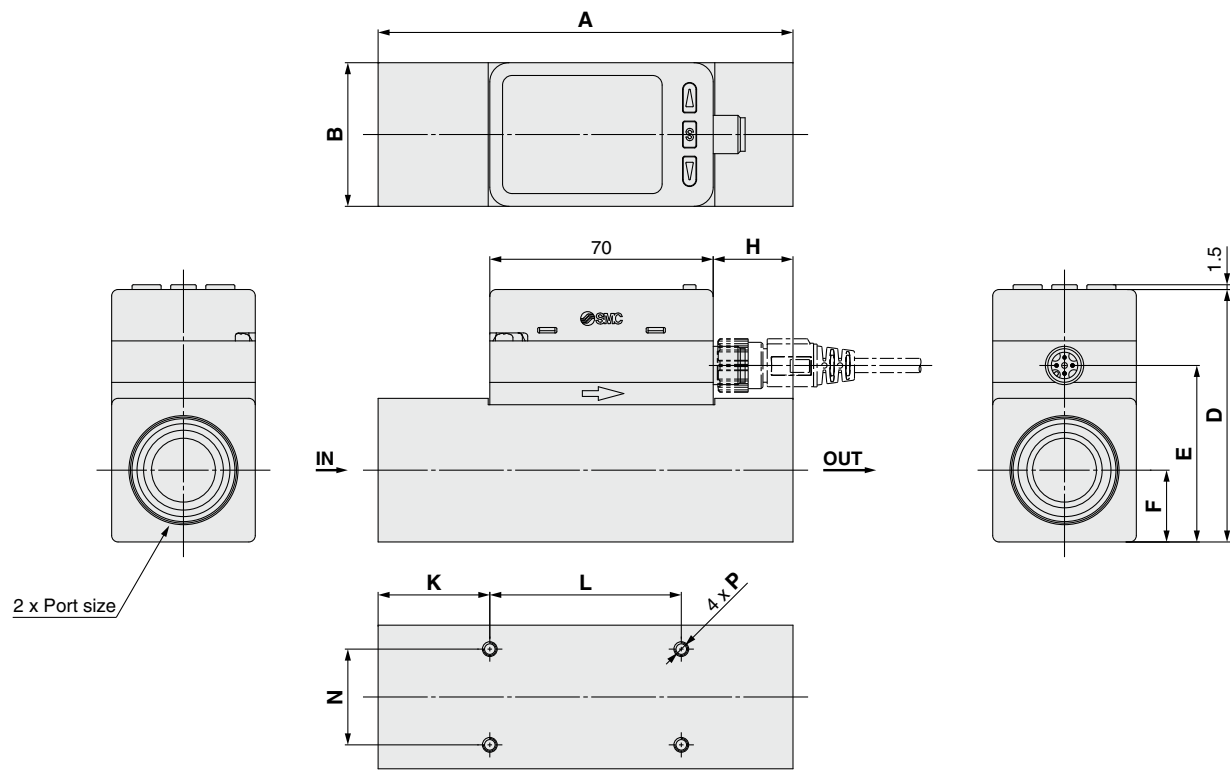
PF3A703H/706H/712H



Component Parts

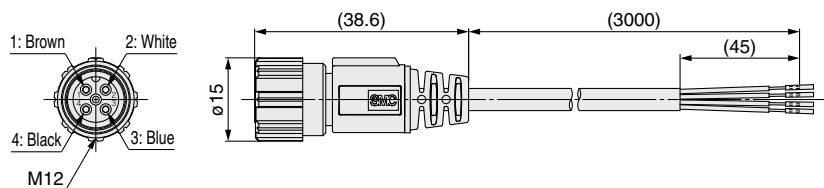
No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Branch passage	PPS	—
3	Gasket	HNBR	—
4	Sensor base	PPS	—
5	Gasket	HNBR	—
6	Sensor	Au, Pt, Al ₂ O ₃	—

Dimensions



Model	Symbol	Port size	A	B	D	E	F	H	K	L	N	P
PF3A703H		Rc1, NPT1, G1	130	45	79.1	55.3	22.5	25	35	60	30	M4 x 0.7 depth 7
PF3A706H		Rc1 1/2, NPT1 1/2, G1 1/2	170	60	94.1	70.3	30	68	45	80	40	M5 x 0.8 depth 8
PF3A712H		Rc2, NPT2, G2	200	70	104.1	80.3	35	85	50	100	50	M6 x 1.0 depth 9

Lead wire and M12 connector (Part no.: ZS-37-A)



Pin no.	Pin name	Wire color
1	DC(+)	Brown
2	FUNC	White
3	DC(-)	Blue
4	OUT	Black

* 4-wire type lead wire and M12 connector used for the PF3A series.

Cable Specifications

Conductor	Nominal cross section	AWG23
Insulator	Outside diameter	Approx. 1.1 mm
	Color	Brown, Blue, Black, White
Sheath	Finished outside diameter	ø4