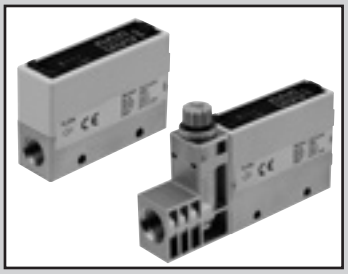


Compact flow rate sensor RAPIFLOW

FSM3 Series

LCD display

● Stainless steel body (flow rate range: 500 mL/min to 1000 L/min)

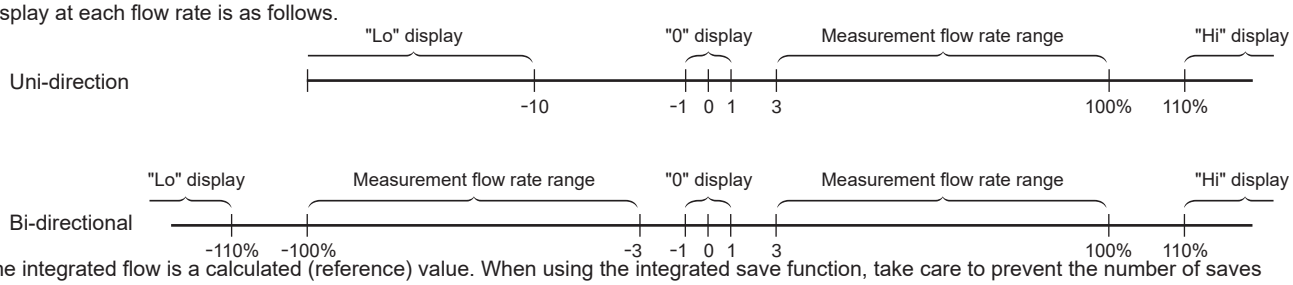
CE RoHS

LCD display specifications

Item			FSM3-[A][B][C][D][E][F][G][H][I]-[ ]										
			[B]										
			005	010	020	050	100	200	500	101	201	501	102
Flow direction	[C]	U	Uni-direction										
		B	Bi-direction										
Measurement flow rate range (□/min) *1	[C]	U	15 to 500 mL	30 to 1000 mL	0.06 to 2.00 L	0.15 to 5.00 L	0.30 to 10.00 L	0.6 to 20.0 L	1.5 to 50.0 L	3.0 to 100.0 L	6 to 200 L	15 to 500 L	30 to 1000 L
		B	−500 to −15, 15 to 500 mL	−1000 to −30, 30 to 1000 mL	−2.00 to −0.06, 0.06 to 2.00 L	−5.00 to −0.15, 0.15 to 5.00 L	−10.00 to −0.30, 0.30 to 10.00 L	−20.0 to −0.6, 0.6 to 20.0 L	−50.0 to −1.5, 1.5 to 50.0 L	−100.0 to −3.0, 3.0 to 100.0 L	−200 to −6, 6 to 200 L	−500 to −15, 15 to 500 L	−1000 to −30, 30 to 1000 L
Display			4 digit + 4 digit 2 color LCD										
Flow rate display range (□/min) *2	[C]	U	−49 to 549 mL	−99 to 1099 mL	−0.19 to 2.19 L	−0.49 to 5.49 L	−0.99 to 10.99 L	−1.9 to 21.9 L	−4.9 to 54.9 L	−9.9 to 109.9 L	−19 to 219 L	−49 to 549 L	−99 to 1099 L
		B	−549 to 549 mL	−1099 to 1099 mL	−2.19 to 2.19 L	−5.49 to 5.49 L	−10.99 to 10.99 L	−21.9 to 21.9 L	−54.9 to 54.9 L	−109.9 to 109.9 L	−219 to 219 L	−549 to 549 L	−1099 to 1099L
Integration display *3		Display range	0 to ±9999999 mL		0.00 to ±99999.99 L			0.0 to ±999999.9 L			0 to ±9999999 L		
		Pulse output rate	5 mL	10 mL	0.02 L	0.05 L	0.1 L	0.2 L	0.5 L	1 L	2 L	5 L	10 L
Working conditions		Applicable fluid *4	Clean air (JIS B 8392-1:2012 1.1.1 to 5.6.2), compressed air (JIS B 8392-1:2012 1.1.1 to 1.6.2), nitrogen gas										
			Argon, carbon dioxide(*5), and gas mixture (argon + carbon dioxide)										−
			Oxygen (When oxygen specifications are selected, the clean-room specifications of Ⓜ cannot be selected. Specifications automatically become oil-prohibited specifications.)										−
		Temperature range	0 to 50°C (no condensation)										
		Pressure range	−0.09 to 1.00 MPa										−0.09 to 0.75 MPa
		Proof pressure	1.5 MPa										
Operating ambient temperature/humidity			0 to 50°C, 90% RH or less										
Storage temperature			−10 to 60°C										
Accuracy *6 (Fluid: in dry air)		Accuracy *7	Within ±3% F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measurement flow rate range.")										
		Repeatability *8	Within ±1% F.S. (Secondary side released to atmosphere)										
		Temperature characteristics	Within ±0.2% F.S./°C (15 to 35°C, base temperature 25°C)										
		Pressure characteristics	Within ±5% F.S. (-0.09 to 0.7 MPa, where secondary side is released to atmosphere)								Within ±5% F.S. (-0.09 to 0.7 MPa, 0.35 MPa standard)		
Response time *9			50 msec or less (setting response time OFF)										
Switch output	[G]	A, B, E, F	NPN open collector output (50 mA or less, voltage drop 2.4 V or less)										
		C, D, G, H	PNP open collector output (50 mA or less, voltage drop 2.4 V or less)										
Analog output *10		A, B, C, D	1 to 5 V voltage output (connecting load impedance 50 kΩ or more)										
		E, F, G, H	4 to 20 mA current output (connecting load impedance 0 to 300 Ω)										
Power supply voltage *11		A, B, C, D	12 to 24 VDC (10.8 to 26.4 V) ripple rate 1% or less										
		E, F, G, H	24 VDC (21.6 to 26.4 V) ripple rate 1% or less										
Current consumption *12			45 mA or less										
Lead wire			ø3.7, AWG26 or equivalent x 5-conductor (connector), insulator O.D. ø1.0										
Functions *13			① Gas type selection, ② Setting copy function, ③ Flow rate integration, ④ Peak hold, etc.										
Degree of protection			IP40 or equivalent (IEC standard)										
Protection circuit *14			Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection										
Vibration resistance			10 to 150 Hz, 100 m/s^2, 2 hours each in X, Y, Z directions										
EMC Directive			EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8										
Mounting		Mounting orientation *15	Unrestricted in vertical/horizontal direction										
		Straight piping section *16	Not required										

*1: The value converted to volumetric flow rate at standard condition (20°C, 1 barometric pressure (101 kPa), 65%RH). (20°C, 1 atmospheric pressure (101 kPa), 0%RH with a type of gas other than air.)

*2: Display at each flow rate is as follows.



*3: The integrated flow is a calculated (reference) value. When using the integrated save function, take care to prevent the number of saves from exceeding the access count limit of the storage device (1 million times). (Changes to the settings are counted in number of accesses.)

$$\text{Number of saves} = \frac{\text{Usage time}}{\text{5 mins}} < \text{1 million times}$$

When the instantaneous flow rate is 1% or less, the flow rate is counted as integrated flow rate.

*4: Use dry gas which does not contain corrosive elements such as chlorine, sulfur or acids, and which is clean and does not contain dust or oil mist. When using compressed air, use clean air that complies with JIS B 8392-1:2012 Class 1.1.1 to 1.6.2. Compressed air from the compressor contains drainage (water, oil oxides, foreign matter, etc.). To maintain the function of this product, install a filter, air dryer (min. pressure dew point 10˚C or less), and oil mist filter (max. oil content 0.1 mg/m^3) on the primary side (upstream side) of this product. (Refer to page 72 for details on recommended circuit.)

*5: With the gas type switching function, the full scale flow rate after switching to carbon dioxide is half the flow rate range. Output type can also be selected for analog output.

Gas	Flow direction	Measurement flow rate range (□/min)							
		005	010	020	100	200	500	101	201
Carbon dioxide	Uni-direction	15 to 250mL	30 to 500mL	0.06 to 1.00L	0.30 to 5.00L	0.6 to 10.0L	1.5 to 25.0L	3.0 to 50.0L	6 to 100L
	Bi-direction	-250 to -15mL	-500 to -30mL	-1.00 to 0.06L	-5.00 to 0.30L	-10.0 to -0.6L	-25.0 to -1.5L	-50.0 to -3.0L	-100 to -6L
		15 to 250mL	30 to 500mL	0.06 to 1.00L	0.30 to 5.00L	0.6 to 10.0L	1.5 to 25.0L	3.0 to 50.0L	6 to 100L

Gas	Flow direction	Analog output			
		Output A		Output B	
		Voltage	Current	Voltage	Current
Carbon dioxide	Uni-direction	1 to 3V	4 to 12mA	1 to 5V	4 to 20mA
	Bi-direction	2 to 4V	8 to 16mA	1 to 5V	4 to 20mA

*6: Compressed air is used for adjusting and inspecting this product. Accuracy for gas types other than air is a guideline.

*7: Accuracy is based on a CKD standard flow rate meter. It does not indicate absolute accuracy.
Repeatability, temperature characteristics, and pressure characteristics are not included for an accuracy of ±3% F.S.
Consider separately according to the working environment and working conditions.

*8: Repeatability calculated during a short time. Change over time is not included. (Refer to the product specifications for details.)

*9: The actual response time changes depending on the piping conditions. As a guideline, the response time setting can be selected within the range 50 msec to 1.5 sec.

*10: The output impedance of the output impedance of the analog output voltage output is approximately 1 kΩ. If the impedance of the connecting load is small, output and error increase. Check error with the impedance of the connecting load before using.

*11: The power supply voltage specifications differ for the voltage output and current output types.

*12: Current for when 24 VDC is connected, and no load is applied. The current consumption will vary depending on how the load is connected.

*13: The gas type switching function enables switching to argon, carbon dioxide and a gas mixture of argon 80% + carbon dioxide 20%. The full scale flow rate and analog output after changing are as follows. (Note that the 500 L/min and 1,000 L/min models do not have a gas change function.)

Gas	Flow direction	Measurement flow rate range (□/min)							
		005	010	020	100	200	500	101	201
・Air ・Nitrogen ・Argon ・Argon 80% + Carbon dioxide 20%	Uni-direction	15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L
	Bi-direction	-500 to -15mL	-1000 to -30mL	-2.00 to -0.06L	-10.00 to -0.30L	-20.0 to -0.6L	-50.0 to -1.5L	-100.0 to -3.0L	-200 to -6L
		15 to 500mL	30 to 1000mL	0.06 to 2.00L	0.30 to 10.00L	0.6 to 20.0L	1.5 to 50.0L	3.0 to 100.0L	6 to 200L

The "Setting copy function" setting is selected at "Ⓖ Output specifications".
Note that the "External input" function is not available on models on which the "Setting copy function" is enabled.

*14: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

*15: This product measures changes in heat distribution that are caused by flow.
When this product is mounted in a vertical orientation, convective flow may affect heat distribution or cause the zero point to deviate.

*16: Accuracy may be affected by the piping conditions. To perform measurement with greater accuracy, install a straight pipe with a piping I.D. ten times larger. With the 500 L/min and 1,000 L/min models, use piping with an internal diameter of 9 mm or more. If it is less than 9 mm, accuracy may be negatively affected.

*17: Refer to page 58 for weight.

How to order

FSM3 - L 005 U 2 AA 1 A 1 N - B M R - P80

Model No. FSM3
Ⓐ Display — L
Ⓑ Flow rate ranges (full scale) — 005
Ⓒ Flow direction — U
Ⓓ Body material / applicable fluid — 2
Ⓔ Port size — AA
Ⓕ Piping direction — 1
Ⓖ Output specifications — A
Ⓗ Unit specifications — 1
Ⓘ Valve option — N
Ⓙ Lead wire — B
Ⓚ Mounting (not assembled) — M
Ⓛ Attached documents — R
Ⓜ Clean-room specifications — P80

[Example of model No.]

FSM3-L005U2AA1A1N-BMR-P80

Model: RAPIFLOW FSM3 Series

Ⓐ Display	L	: Liquid crystal display
Ⓑ Flow rate	005	: 500 mL/min
Ⓒ Flow direction	U	: Uni-direction
Ⓓ Body material / applicable fluid	2	: SUS/air
Ⓔ Port size	AA	: Rc1/8
Ⓕ Piping direction	1	: Straight
Ⓖ Output specifications	A	: Analog voltage output ×1, NPN switch output ×1, setting copy function
Ⓗ Unit specifications	1	: SI units only
Ⓘ Valve option	N	: None
Ⓙ Lead wire	B	: 5-conductor 3 m
Ⓚ Mounting attachment	M	: DIN rail mount
Ⓛ Attached documents	R	: Company certification
Ⓜ Clean-room specifications	P80	: Oil free

Precautions for model No. selection

*1: Refer to the correspondence table on the following page when selecting the model.
*2: The only Ⓘ valve option is "N: None" with models where the flow direction is "B: Bidirectional" and models where the applicable fluid is oxygen.
*3: "3: Oxygen" cannot be selected with 500 L/min and 1000 L/min models.
*4: The G thread connection shape is compliant with ISO16030 standards.
*5: Please refer to the external dimension diagram (Page 27) for the G thread connection shape when making a selection. (The G thread connection shape is compliant with JIS B 2351-1, O types.)
*6: Models with the unit switching function are not sold in Japan.
*7: Optional parts are provided with the product. They are not assembled to the product.
*8: The product surface is degreased and cleaned before packaging, and heat-sealed into an antistatic bag on a clean bench (Class 1000 or more).
*9: In addition to P70 specifications, wetted section materials are degreased and cleaned.
*10: No oxygen type can be selected (None only).

Code	Description
Ⓐ Display	
L	Liquid crystal display

Ⓑ Flow rate ranges (full scale)			
005	500 mL/min	**500**	50 L/min
010	1000 mL/min	**101**	100 L/min
020	2 L/min	**201**	200 L/min
050	5 L/min	**501**	500 L/min
100	10 L/min	**102**	1000 L/min
200	20 L/min		

Ⓒ Flow direction	*2
U	Uni-direction
B	Bi-direction

Ⓓ Body material / applicable fluid		
	Body material	Applicable fluid
2	SUS	Air (gas switchable)
3	SUS	Oxygen (oil-prohibited specifications) *3

Ⓔ Port size	
AA	Rc1/8
BA	Rc1/4
CA	Rc1/2
AF	G1/8 *4
BF	G1/4 *4
CF	G1/2 *4
AB	G1/8 *5
BB	G1/4 *5
CB	G1/2 *5
AC	NPT1/8
BC	NPT1/4
CC	NPT1/2
AD	1/4" double barbed fitting (50 L/min or less)
BD	1/4" double barbed fitting (50 to 200 L/min)
AE	1/4" JXR male fitting (50 L/min or less)
BE	1/4" JXR male fitting (50 to 200 L/min)

Ⓕ Piping direction	
1	Straight

Ⓖ Output specifications			
	Analog output	Switch output	Setting copy function
A	1 point (Voltage output) 1-5 V	1 point (NPN)	With
B		2 points (NPN)	–
C		1-point output (PNP)	With
D		2-points output (PNP)	–
E	1 point (Current output) 4-20 mA	1 point (NPN)	With
F		2 points (NPN)	–
G		1-point output (PNP)	With
H		2-points output (PNP)	–

Ⓗ Unit specifications	
1	SI units only
2	With unit switching function (overseas models only) *6

Ⓘ Valve option	*2, *10
N	None
T	With needle valve (only for models 200 L or less)

Ⓙ Lead wire	
Blank	None
A	5-conductor 1 m
B	5-conductor 3 m

Ⓚ Mounting (not assembled)	*7
Blank	None
H	Bracket 1 (for models 200 L or less)
J	Bracket 2 (for 500 or 1000 L models)
K	Panel mounting (for sensor products of models 200 L or less)
L	Panel mounting (for needle valves of models 200 L or less)
M	DIN rail mounting (for models 200 L or less)

Ⓛ Attached documents	
Blank	None
R	Company certification
S	Inspection certificate + Calibration certificate + Traceability system diagram

Ⓜ Clean-room specifications	*10
Blank	None
P70	Anti-dust generation *8
P80	Oil free *9

Flow rate ranges and port sizes

B Flow rate range	E Port sizes															
	AA	BA	CA	AF	BF	CF	AB	BB	CB	AC	BC	CC	AD	BD	AE	BE
	Rc1/8	Rc1/4	Rc1/2	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2	NPT1/8	NPT1/4	NPT1/2	1/4" Double barbed fitting		1/4" JXR Male fitting	
005	●○			●○			●○			●○			●○		●○	
010	●○			●○			●○			●○			●○		●○	
020	●○			●○			●○			●○			●○		●○	
050	●○			●○			●○			●○			●○		●○	
100	●○			●○			●○			●○			●○		●○	
200	●○			●○			●○			●○			●○		●○	
500	●○	●○		●○	●○		●○	●○		●○	●○		●○	●○	●○	●○
101		●○			●○			●○			●○			●○		●○
201		●○			●○			●○			●○			●○		●○
501			●			●			●			●				
102			●			●			●			●				

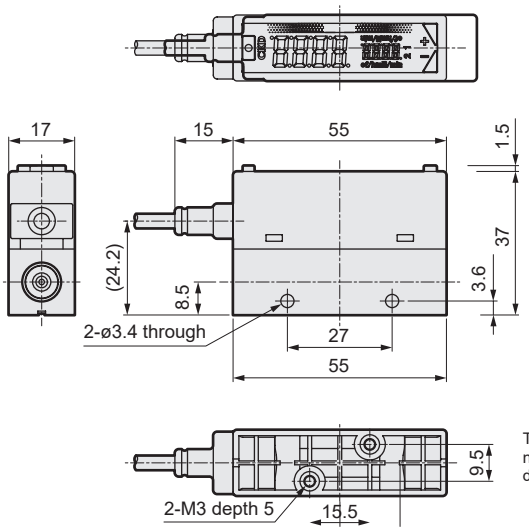
●: Port size compatibility ○: Needle valve option compatibility

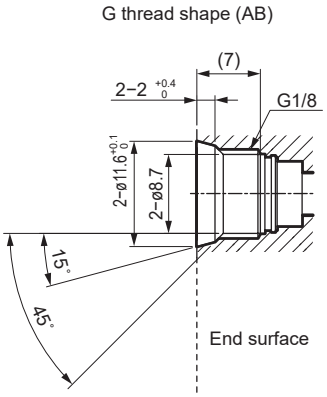
Dimensions (LCD display) (flow rate range: 500 mL/min to 50 L/min)

Port sizes: Straight Rc1/8, G1/8, NPT1/8

● FSM3−L□□$\frac{2}{3}$/AA1/AB1/AC1

(Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



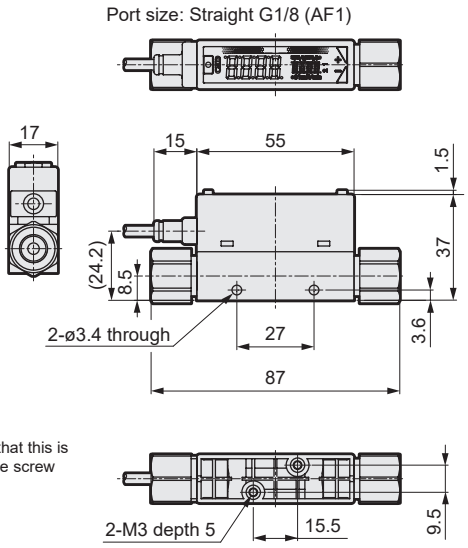


The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

Port size: Straight G1/8

● FSM3−L□□$\frac{2}{3}$/AF1

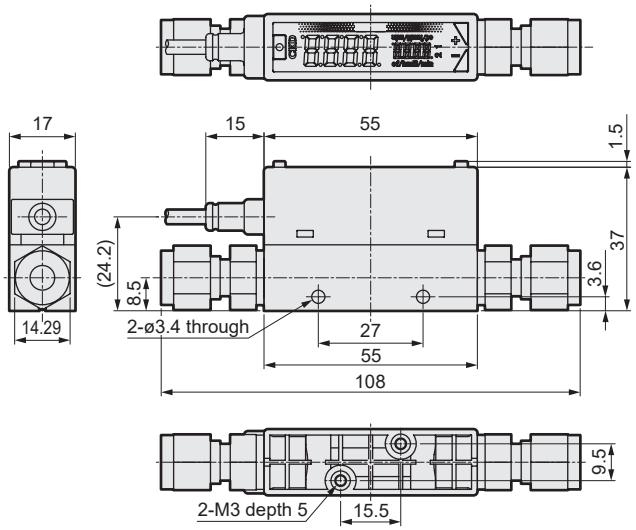
(Full scale flow rates: 500mL/min, 1, 2, 5, 10, 20, 50L/min)



Port size: Straight 1/4" double barbed fitting

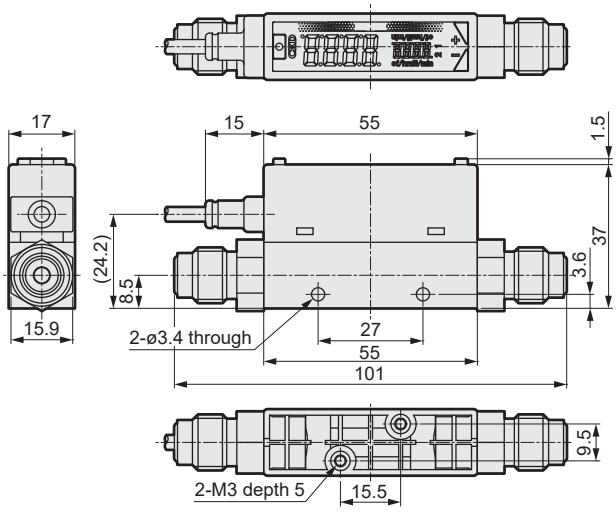
● FSM3−L□□$\frac{2}{3}$/AD1

(Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



Port size: Straight 1/4" JXR male fitting

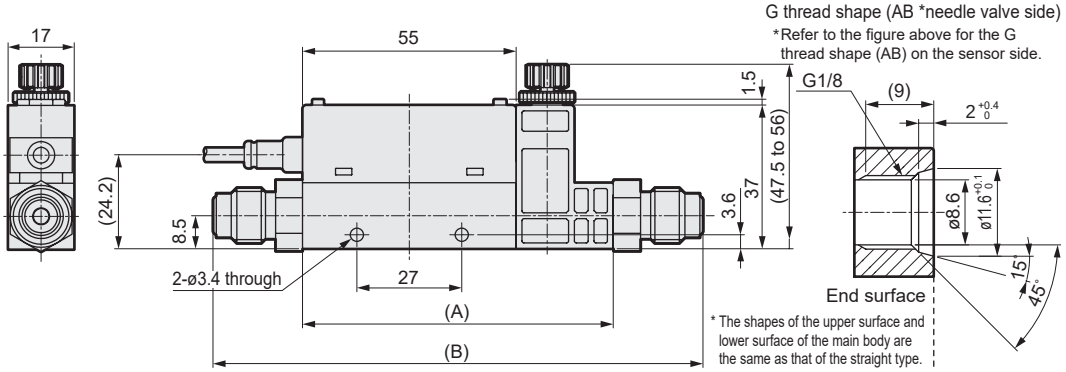
● FSM3−L□□$\frac{2}{3}$/AE1 (Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



Solenoid valve with needle dimensions

Port sizes: Rc1/8, G1/8, NPT1/8, 1/4" double barbed fitting, 1/4" JXR male fitting

● FSM3−L□□$\frac{2}{3}$/AA1AF1/AB1/AC1/AD/AE□□T (Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

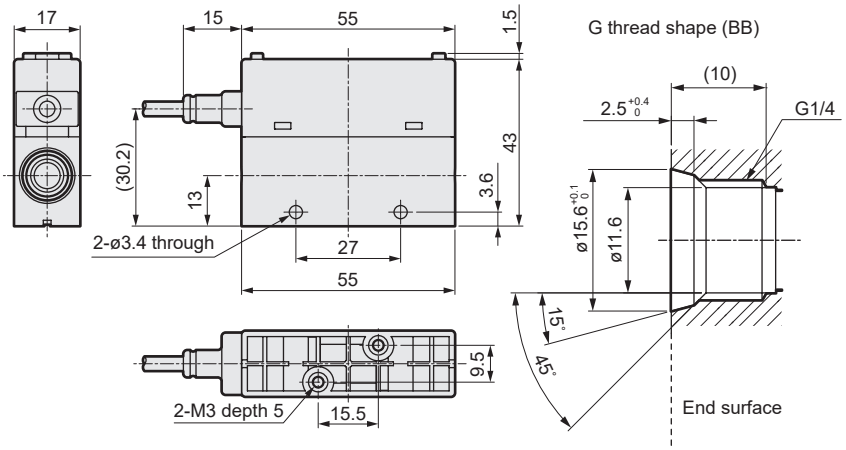
Port size	Dimension (A)	Dimension (B)
Rc 1/8	80	–
G 1/8 (AF1)	80	132
G 1/8 (AB1)	80	–
NPT 1/8	80	–
1/4" Double barbed fitting	80	133
1/4" JXR male fitting	80	126

Dimensions (LCD display) (flow rate range: 50 L/min to 200 L/min)

Port sizes: Straight Rc1/4, G1/4, NPT1/4

● FSM3−L[B][C]$^{2}_{3}$/BA1/BB1/BC1

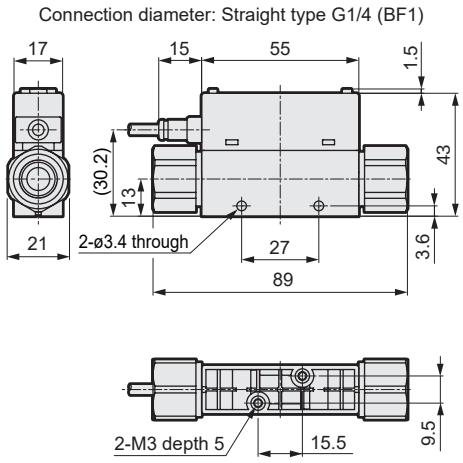
(Full scale flow rates: 50, 100, 200 L/min)



Port size: Straight G1/4 (BF1)

● FSM3−L[B][C]$^{2}_{3}$/BF1

(Full scale flow rates: 50, 100, 200 L/min)

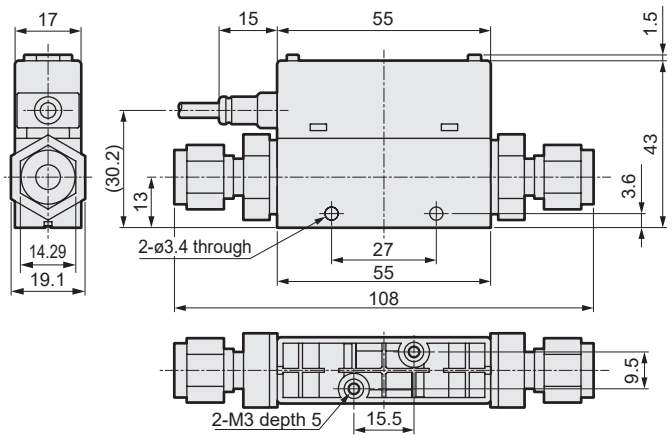


The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

Port size: Straight 1/4" double barbed fitting

● FSM3−L[B][C]$^{2}_{3}$/BD1

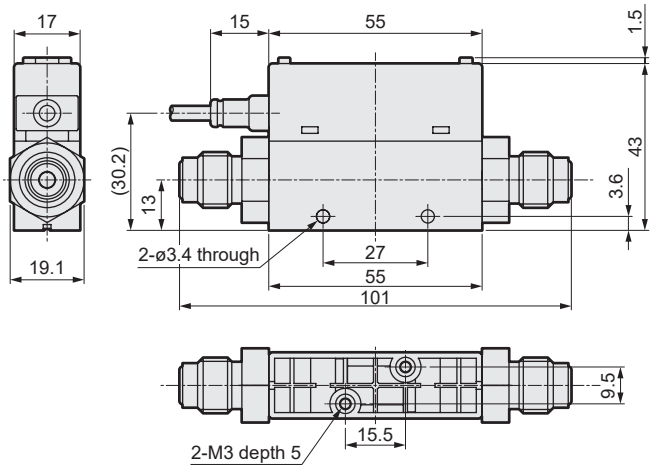
(Full scale flow rates: 50, 100, 200 L/min)



Port size: Straight 1/4" JXR male fitting

● FSM3−L[B][C]$^{2}_{3}$/BE1

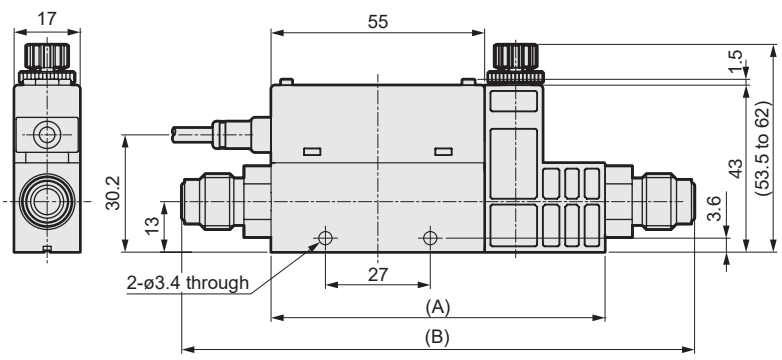
(Full scale flow rates: 50, 100, 200 L/min)



Solenoid valve with needle dimensions

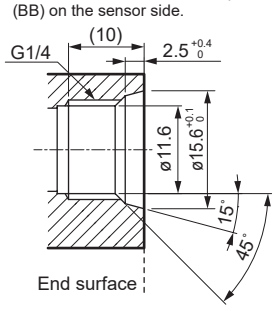
Port sizes: Rc1/4, G1/4, NPT1/4, 1/4" double barbed fitting, 1/4" JXR male fitting

● FSM3−L[B][C]$^{2}_{3}$/BA1/BF1/BB1/BC1/BD/BE[G][H]T (Full scale flow rates: 50, 100, 200 L/min)



G thread shape (BB *needle valve side)

*Please refer to the diagram above for details on the G thread shape (BB) on the sensor side.



* The shapes of the upper surface and lower surface of the main body are the same as that of the straight type.

The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

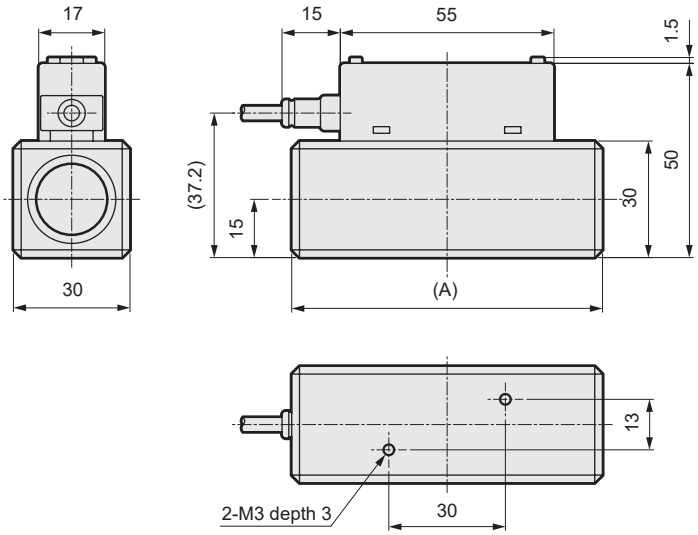
Port size	Dimension (A)	Dimension (B)
Rc 1/8	86	–
G 1/4 (BF1)	86	120
G 1/4 (BB1)	86	–
NPT 1/4	86	–
1/4" Double barbed fitting	86	139
1/4" JXR male fitting	86	132

Dimensions (LCD display) (flow rate range: 500 L/min to 1000 L/min)

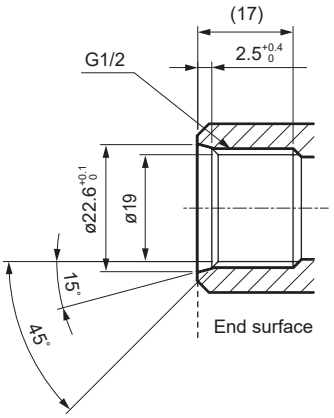
Port sizes: Straight Rc1/2, G1/2, NPT1/2

● FSM3−L B C 2/CA1/CF1/CB1/CC1

(Full scale flow rates: 500,1000L/min)



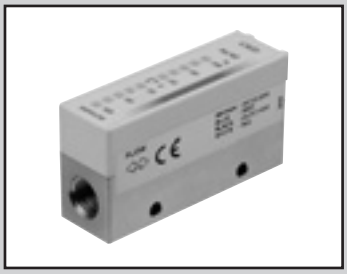
G thread shape (CB)



The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

Model No.	Port size	Dimension (A)
FSM3-L□□2CA1	Rc1/2	(80)
FSM3-L□□2CF1	G1/2	(80)
FSM3-L□□2CB1	G1/2	(95.4)
FSM3-L□□2CC1	NPT1/2	(80)

MEMO



Compact flow rate sensor RAPIFLOW

FSM3 Series

Bar display

● Stainless steel body (flow rate range: 500 mL/min to 1000 L/min)

CE RoHS

Bar display specifications

Item			FSM3-[A][B][C][D][E][F][G][H][I]-[ ]										
			[B]										
			005	010	020	050	100	200	500	101	201	501	102
Flow direction	[C]	U	Uni-direction										
		B	Bi-direction										
Measurement flow rate range (□/min) *1	[B]	U	15 to 500 mL	30 to 1000 mL	0.06 to 2.00 L	0.15 to 5.00 L	0.30 to 10.00 L	0.6 to 20.0 L	1.5 to 50.0 L	3.0 to 100.0 L	6 to 200 L	15 to 500 L	30 to 1000 L
		B	−500 to −15, 15 to 500 mL	−1000 to −30, 30 to 1000 mL	−2.00 to −0.06, 0.06 to 2.00 L	−5.00 to −0.15, 0.15 to 5.00 L	−10.00 to −0.30, 0.30 to 10.00 L	−20.0 to −0.6, 0.6 to 20.0 L	−50.0 to −1.5, 1.5 to 50.0 L	−100.0 to −3.0, 3.0 to 100.0 L	−200 to −6, 6 to 200 L	−500 to −15, 15 to 500 L	−1000 to −30, 30 to 1000 L
Display			LED bar display										
Working conditions		Applicable fluid *2	Clean air (JIS B 8392-1:2012 1.1.1 to 5.6.2), compressed air (JIS B 8392-1:2012 1.1.1 to 1.6.2), nitrogen gas										
			Oxygen (When oxygen specifications are selected, the clean-room specifications of Ⓜ cannot be selected. Specifications automatically become oil-prohibited specifications.)									–	
		Temperature range	0 to 50°C (no condensation)										
		Pressure range	−0.09 to 1.00 MPa									−0.09 to 0.75 MPa	
		Proof pressure	1.5 MPa										
Operating ambient temperature/humidity			0 to 50°C, 90% RH or less										
Storage temperature			−10 to 60°C										
Accuracy		Accuracy *3	Within ±3% F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measurement flow rate range.")										
		Repeatability *4	Within ±1% F.S. (Secondary side released to atmosphere)										
		Temperature characteristics	Within ±0.2% F.S./°C (15 to 35°C, base temperature 25°C)										
		Pressure characteristics	Within ±5% F.S. (-0.09 to 0.7 MPa, where secondary side is released to atmosphere)								Within ±5% F.S. (-0.09 to 0.7 MPa, 0.35 MPa standard)		
Response time		*5	50 msec or less										
Analog output *6	[G]	J	1 to 5 V voltage output (connecting load impedance 50 kΩ or more)										
		K	4 to 20 mA current output (connecting load impedance 0 to 300 Ω)										
Power supply voltage *7		J	12 to 24 VDC (10.8 to 26.4 V) ripple rate 1% or less										
		K	24 VDC (21.6 to 26.4 V) ripple rate 1% or less										
Current consumption		*8	45 mA or less										
Lead wire			ø3.7, AWG26 or equivalent × 4-conductor (connector), insulator O.D. ø1.0										
Degree of protection			IP40 or equivalent (IEC standard)										
Protection circuit		*9	Power supply reverse connection protection										
Vibration resistance			10 to 150 Hz, 100 m/s^2, 2 hours each in X, Y, Z directions										
EMC Directive			EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8										
Mounting		Mounting orientation *10	Unrestricted in vertical/horizontal direction										
		Straight piping section *11	Not required										

*1: The value converted to volumetric flow rate at standard condition (20°C, 1 barometric pressure (101 kPa), 65%RH).
(20°C, 1 atmospheric pressure (101kPa), relative humidity 0%RH with a gas other than air.)

*2: Use dry gas which does not contain corrosive elements such as chlorine, sulfur or acids, and which is clean and does not contain dust or oil mist. When using compressed air, use clean air that complies with JIS B 8392-1:2012 Class 1.1.1 to 1.6.2. Compressed air from the compressor contains drainage (water, oil oxides, foreign matter, etc.). To maintain the function of this product, install a filter, air dryer (min. pressure dew point 10˚C or less), and oil mist filter (max. oil content 0.1 mg/m^3) on the primary side (upstream side) of this product. (Refer to page 72 for details on recommended circuit.)
The sensor for oxygen gas is a custom model. To prevent ignition accidents, do not allow oxygen to flow again when a fluid other than oxygen has flown even once.

*3: Accuracy is based on a CKD standard flow rate meter. It does not indicate absolute accuracy.
Repeatability, temperature characteristics, and pressure characteristics are not included for an accuracy of ±3% F.S.
Consider separately according to the working environment and working conditions.

*4: Repeatability calculated during a short time. Change over time is not included. (Refer to the product specifications for details.)

*5: The actual response time changes depending on the piping conditions.

*6: The output impedance of the output impedance of the analog output voltage output is approximately 1 kΩ. If the impedance of the connecting load is small, output and error increase. Check error with the impedance of the connecting load before using.

*7: The power supply voltage specifications differ for the voltage output and current output types.

*8: Current for when 24 VDC is connected, and no load is applied. The current consumption will vary depending on how the load is connected.

*9: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

*10: This product measures changes in heat distribution that are caused by flow.
When this product is mounted in a vertical orientation, convective flow may affect heat distribution or cause the zero point to deviate.

*11: Accuracy may be affected by the piping conditions. To perform measurement with greater accuracy, install a straight pipe with a piping I.D. ten times larger. With the 500 L/min and 1,000 L/min models, use piping with an internal diameter of 9 mm or more. If it is less than 9 mm, accuracy may be negatively affected.

*12: Refer to page 58 for weight.

How to order

FSM3 - B 005 U 2 AA 1 J 1 N - D H S - P70

- Model No.
- A Display
- B Flow rate ranges (full scale)
- C Flow direction
- D Body material / applicable fluid
- E Port size
- F Piping direction
- G Output specifications
- H Unit specifications
- I Valve option
- J Lead wire
- K Mounting (not assembled)
- L Attached documents
- M Clean-room specifications

A Display

Code	Description
B	Bar display

B Flow rate ranges (full scale)

Code		Code	
005	500 mL/min	500	50 L/min
010	1000 mL/min	101	100 L/min
020	2 L/min	201	200 L/min
050	5 L/min	501	500 L/min
100	10 L/min	102	1000 L/min
200	20 L/min		

C Flow direction

Code	Description
U	Uni-direction
B	Bi-direction

D Body material / applicable fluid

Code	Body material	Applicable fluid
2	SUS	Air
3	SUS	Oxygen (oil-prohibited specifications) *3

E Port size

Code		
AA	Rc1/8	
BA	Rc1/4	
CA	Rc1/2	
AF	G1/8	*4
BF	G1/4	*4
CF	G1/2	*4
AB	G1/8	*5
BB	G1/4	*5
CB	G1/2	*5
AC	NPT1/8	
BC	NPT1/4	
CC	NPT1/2	
AD	1/4" double barbed fitting (50 L/min or less)	
BD	1/4" double barbed fitting (50 to 200 L/min)	
AE	1/4" JXR male fitting (50 L/min or less)	
BE	1/4" JXR male fitting (50 to 200 L/min)	

F Piping direction

Code	Description
1	Straight

G Output specifications *2

Code	Description
J	Analog voltage output × 1 point
K	Analog current output × 1 point

H Unit specifications

Code	Description
1	SI units only

I Valve option

Code	Description
N	None

J Lead wire

Code	Description
Blank	None
C	4-conductor 1 m
D	4-conductor 3 m

K Mounting (not assembled) *6

Code	Description
Blank	None
H	Bracket 1 (for models 200 L or less)
J	Bracket 2 (for 500 or 1000 L models)
M	DIN rail mounting (for models 200 L or less)

L Attached documents

Code	Description
Blank	None
R	Company certification
S	Inspection certificate + Calibration certificate + Traceability system diagram

M Clean-room specifications *9

Code		
Blank	None	
P70	Anti-dust generation	*7
P80	Oil free	*8

[Example of model No.]

FSM3-B005U2AA1J1N-DHS-P70

Model: RAPIFLOW FSM3 Series

A Display	B	: Bar display
B Flow rate	005	: 500 mL/min
C Flow direction	U	: Uni-direction
D Body material / applicable fluid	2	: SUS/air
E Port size	AA	: Rc1/8
F Piping direction	1	: Straight
G Output specifications	J	: Analog voltage output ×1
H Unit specifications	1	: SI units only
I Valve option	N	: None
J Lead wire	D	: 4-conductor 3 m
K Mounting attachment	H	: Bracket
L Attached documents	S	: Company certification + Traceability certification
M Clean-room specifications	P70	: Anti-dust generation

Precautions for model No. selection

*1: Refer to the correspondence table on the following page when selecting the model.
*2: When using in combination with a separated display (FSM2-D), select "J".
*3: "3: Oxygen" cannot be selected with 500 L/min and 1000 L/min models.
*4: The G thread connection shape is compliant with ISO16030 standards.
*5: Please refer to the external dimension diagram (Page 35) for the G thread connection shape when making a selection. (The G thread connection shape is compliant with JIS B 2351-1, O types.)
*6: Optional parts are provided with the product. They are not assembled with the product.
*7: The product surface is degreased and cleaned before packaging, and heat-sealed into an antistatic bag on a clean bench (Class 1000 or more).
*8: In addition to P70 specifications, wetted section materials are degreased and cleaned.
*9: This cannot be selected on an oxygen type (blank only).

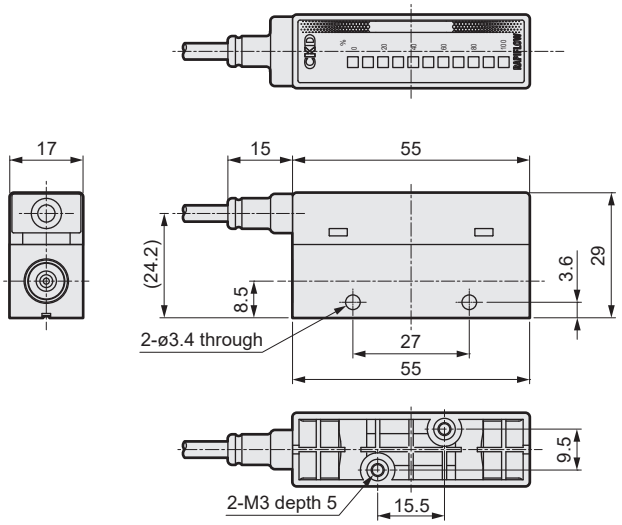
Flow rate ranges and port sizes

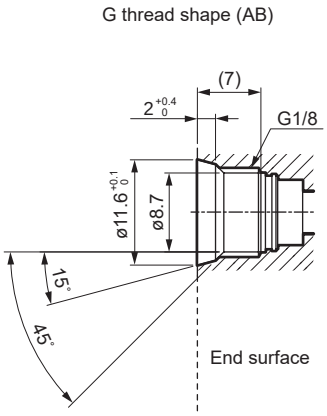
Ⓑ Flow rate range	Ⓔ Port sizes															
	AA	BA	CA	AF	BF	CF	AB	BB	CB	AC	BC	CC	AD	BD	AE	BE
	Rc1/8	Rc1/4	Rc1/2	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2	NPT1/8	NPT1/4	NPT1/2	1/4" Double barbed fitting		1/4" JXR Male fitting	
005	●			●			●			●			●		●	
010	●			●			●			●			●		●	
020	●			●			●			●			●		●	
050	●			●			●			●			●		●	
100	●			●			●			●			●		●	
200	●			●			●			●			●		●	
500	●	●		●	●		●	●		●	●		●	●	●	●
101		●			●			●			●			●		●
201		●			●			●			●			●		●
501			●			●			●			●				
102			●			●			●			●				

Dimensions (bar display) (flow rate range: 500 mL/min to 50 L/min)

Port sizes: Straight Rc1/8, G1/8, NPT1/8

● FSM3−B□C$\frac{2}{3}$/AA1/AB1/AC1 (Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)

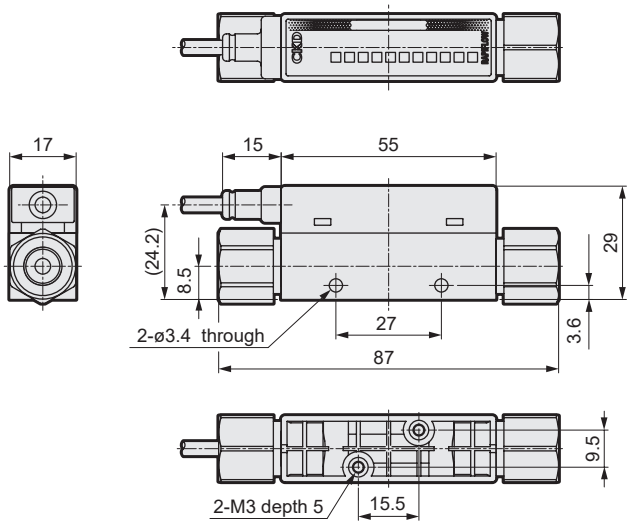




The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

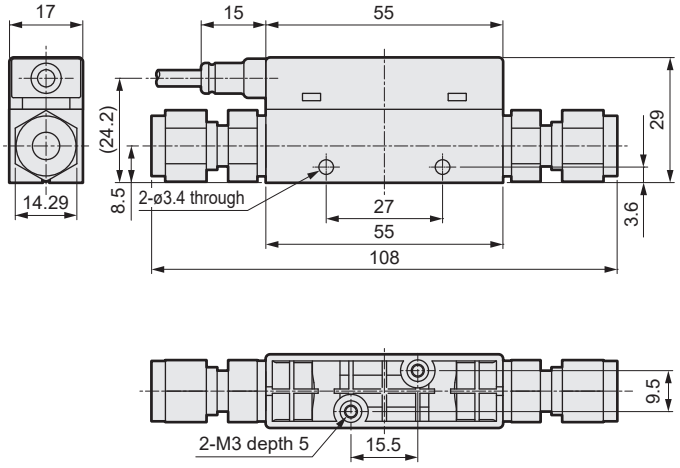
Port size: Straight G1/8

● FSM3−B□C$\frac{2}{3}$/AF1 (Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



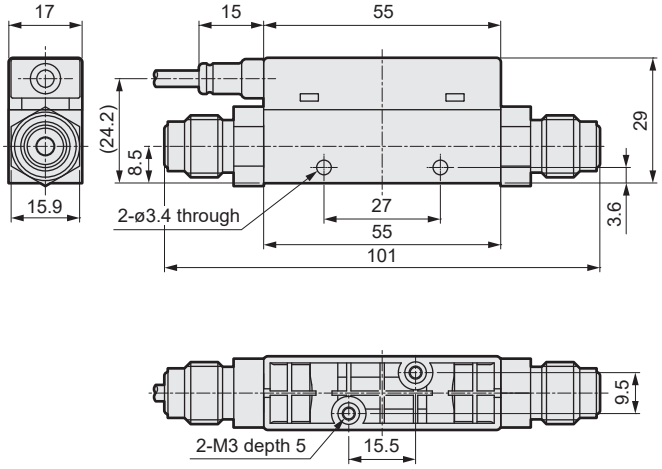
Port size: Straight 1/4" double barbed fitting

● FSM3−B□C$\frac{2}{3}$/AD1
(Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



Port size: Straight 1/4" JXR male fitting

● FSM3−B□C$\frac{2}{3}$/AE1
(Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)

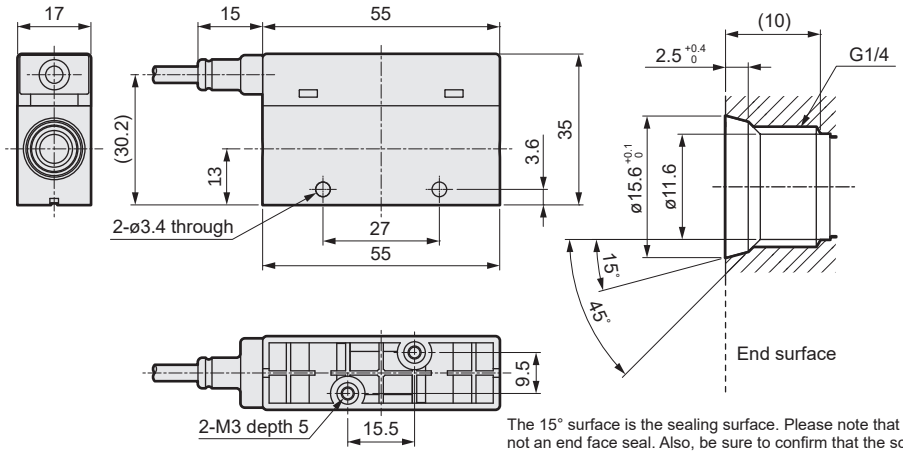


Dimensions (bar display) (flow rate range: 50 L/min to 1000 L/min)

Port sizes: Straight Rc1/4, G1/4, NPT1/4

● FSM3−B□□2/3/BA1/BB1/BC1 (Full scale flow rates: 50, 100, 200 L/min)

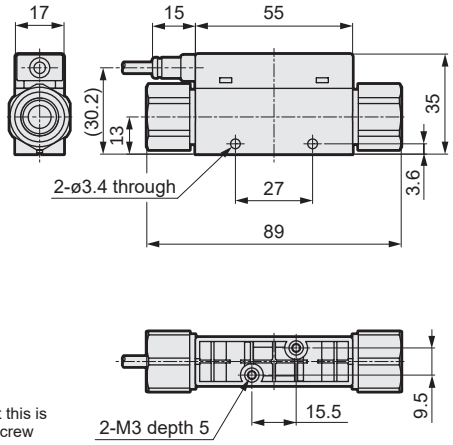
G thread shape (BB)



The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

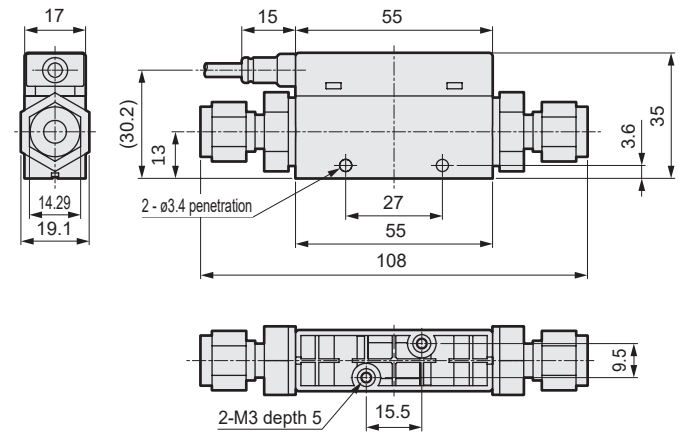
Port size: Straight G1/4

● FSM3−B□□2/3/BF1
(Full scale flow rates: 50, 100, 200 L/min)



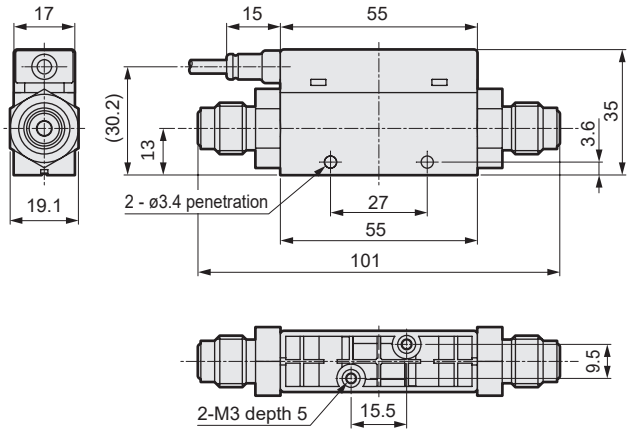
Port size: Straight 1/4" double barbed fitting

● FSM3−B□□2/3/BD1 (Full scale flow rates: 50, 100, 200 L/min)



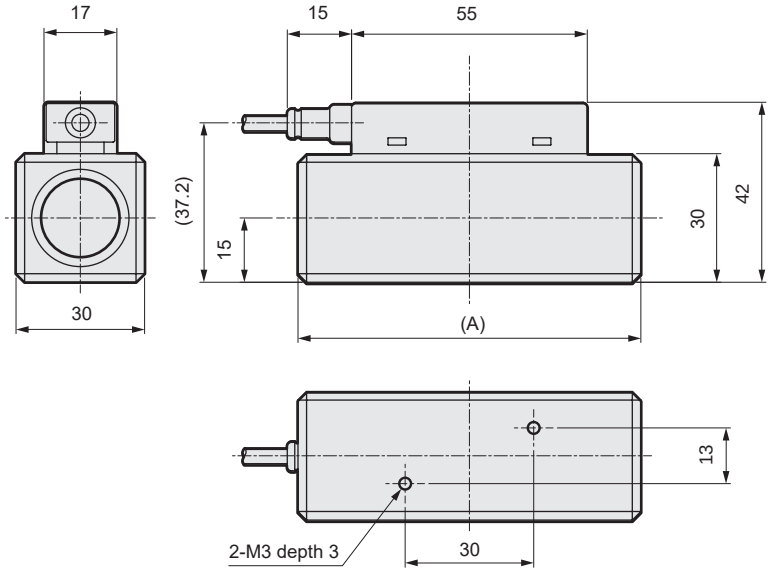
Port size: Straight 1/4" JXR male fitting

● FSM3−B□□2/3/BE1 (Full scale flow rates: 50, 100, 200 L/min)

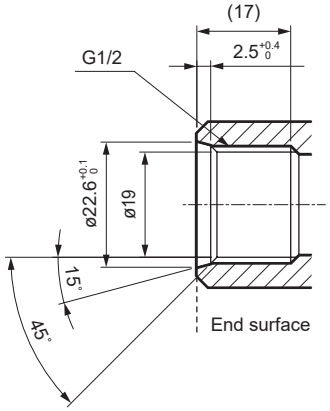


Port sizes: Straight Rc1/2, G1/2, NPT1/2

● FSM3−B□□2/CA1/CF1/CB1/CC1 (Full scale flow rates: 500,1000L/min)



G thread shape (CB)



The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

Model No.	Port size	Dimension (A)
FSM3-B□□2CA1	Rc1/2	(80)
FSM3-B□□2CF1	G1/2	(80)
FSM3-B□□2CB1	G1/2	(95.4)
FSM3-B□□2CC1	NPT1/2	(80)

Compact flow rate sensor RAPIFLOW

FSM3 Series

IO-Link

● Stainless steel body (flow rate range: 500 mL/min to 1000 L/min)

IO-Link specifications

Item			FSM3-[A][B][C][D][E][F][G][H][I]-[ ]										
			[B]										
			005	010	020	050	100	200	500	101	201	501	102
Flow direction	[C]	U	Uni-direction										
		B	Bi-direction										
Measurement flow rate range (□/min) *1	[C]	U	15 to 500 mL	30 to 1000 mL	0.06 to 2.00 L	0.15 to 5.00 L	0.30 to 10.00 L	0.6 to 20.0 L	1.5 to 50.0 L	3.0 to 100.0 L	6 to 200 L	15 to 500 L	30 to 1000 L
		B	−500 to −15, 15 to 500 mL	−1000 to −30, 30 to 1000 mL	−2.00 to −0.06, 0.06 to 2.00 L	−5.00 to −0.15, 0.15 to 5.00 L	−10.00 to −0.30, 0.30 to 10.00 L	−20.0 to −0.6, 0.6 to 20.0 L	−50.0 to −1.5, 1.5 to 50.0 L	−100.0 to −3.0, 3.0 to 100.0 L	−200 to −6, 6 to 200 L	−500 to −15, 15 to 500 L	−1000 to −30, 30 to 1000 L
Display			LED display (power and status indicators)										
Working conditions		Applicable fluid *2	Clean air (JIS B 8392-1:2012 1.1.1 to 5.6.2), compressed air (JIS B 8392-1:2012 1.1.1 to 1.6.2), nitrogen gas										
			Argon, carbon dioxide(*3), and gas mixture (argon + carbon dioxide)									–	
			Oxygen (When oxygen specifications are selected, the clean-room specifications of Ⓜ cannot be selected. Specifications automatically become oil-prohibited specifications.)									–	
		Temperature range	0 to 50°C (no condensation)										
		Pressure range	−0.09 to 1.00 MPa									−0.09 to 0.75 MPa	
		Proof pressure	1.5 MPa										
Operating ambient temperature/humidity			0 to 50°C, 90% RH or less										
Storage temperature			−10 to 60°C										
Accuracy *4		Accuracy *5	Within ±3% F.S. (Secondary side released to atmosphere) (The scope of warranty is in accordance with the "measurement flow rate range.")										
		Repeatability *6	Within ±1% F.S. (Secondary side released to atmosphere)										
		Temperature characteristics	Within ±0.2% F.S./°C (15 to 35°C, base temperature 25°C)										
		Pressure characteristics	Within ±5% F.S. (-0.09 to 0.7 MPa, where secondary side is released to atmosphere)								Within ±5% F.S. (-0.09 to 0.7 MPa, 0.35 MPa standard)		
Response time *7			50 msec or less (Setting response time OFF)										
Power supply voltage			18 to 30 VDC (ripple rate 1% or less)										
Current consumption *8			45 mA or less										
Lead wire *9			M12 both-end connector lead wire (3 m), AWG#23 or equivalent, 4-conductor										
Functions *10, *11			① Gas type selection, ② Flow rate integration, ③ Peak hold, etc.										
Degree of protection			IP40 or equivalent (IEC standard)										
Protection circuit *12			Power supply reverse connection protection										
Vibration resistance *13			10 to 150 Hz, 100 m/s^2, 2 hours each in X, Y, Z directions										
EMC Directive			EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8										
Mounting		Mounting orientation *14	Unrestricted in vertical/horizontal direction										
		Straight piping section *15	Not required										

* Refer to page 63 for communication specifications.

*1: The value converted to volumetric flow rate at standard condition (20°C, 1 barometric pressure (101 kPa), 65%RH).
(20°C, 1 atmospheric pressure (101kPa), 0%RH with a gas other than air.)

*2: Use dry gas which does not contain corrosive elements such as chlorine, sulfur or acids, and which is clean and does not contain dust or oil mist. When using compressed air, use clean air that complies with JIS B 8392-1:2012 Class 1.1.1 to 1.6.2. Compressed air from the compressor contains drainage (water, oil oxides, foreign matter, etc.). To maintain the function of this product, install a filter, air dryer (min. pressure dew point 10˚C or less), and oil mist filter (max. oil content 0.1 mg/m^3) on the primary side (upstream side) of this product. (Refer to page 72 for details on recommended circuit.)
The sensor for oxygen gas is a custom model. To prevent ignition accidents, do not allow oxygen to flow again when a fluid other than oxygen has flown even once.

*3: With the gas type switching function, the full scale flow rate after switching to carbon dioxide is half the flow rate range.

Gas type	Flow direction	Measurement flow rate range (□/min)							
		005	010	020	100	200	500	101	201
• Carbon dioxide	Uni-direction	15 to 250 mL	30 to 500 mL	0.06 to 1.00 L	0.30 to 5.00 L	0.6 to 10.0 L	1.5 to 25.0 L	3.0 to 50.0 L	6 to 100 L
	Bi-direction	−250 to −15 mL	−500 to −30 mL	−1.00 to −0.06 L	−5.00 to −0.30 L	−10.0 to −0.6 L	−25.0 to −1.5 L	−50.0 to −3.0 L	−100 to −6 L
		15 to 250 mL	30 to 500 mL	0.06 to 1.00 L	0.30 to 5.00 L	0.6 to 10.0 L	1.5 to 25.0 L	3.0 to 50.0 L	6 to 100 L

*4: Compressed air is used for adjusting and inspecting this product. Accuracy for gas types other than air is a guideline.

*5: Accuracy is based on a CKD standard flow rate meter. It does not indicate absolute accuracy.
Repeatability, temperature characteristics, and pressure characteristics are not included for an accuracy of ±3% F.S.
Consider separately according to the working environment and working conditions.

*6: Repeatability calculated during a short time. Change over time is not included. (Refer to the product specifications for details.)

*7: The actual response time changes depending on the piping conditions.

*8: Current for when 24 VDC is connected, and no load is applied. The current consumption will vary depending on how the load is connected.

*9: The male end is straight, and the female end is angled. (Refer to page 65.)
Tighten the M12 connector at a torque of 0.5 N·m or less.
Note, however, that using excessive force to tighten the connector can cause it to break.

*10: The gas type switching function enables switching to argon, carbon dioxide and a gas mixture of argon 80% + carbon dioxide 20%.
The measurement flow rate ranges after switching are as follows. (Note that the gas change function cannot be set with the 500 L/min, and 1000 L/min oxygen models.)
Refer to Note 3 for carbon dioxide.

Gas type	Flow direction	Measurement flow rate range (□/min)							
		005	010	020	100	200	500	101	201
• Air • Nitrogen • Argon • Argon 80% + carbon dioxide 20%	Uni-direction	15 to 500 mL	30 to 1000 mL	0.06 to 2.00 L	0.30 to 10.00 L	0.6 to 20.0 L	1.5 to 50.0 L	3.0 to 100.0 L	6 to 200 L
	Bi-direction	−500 to −15 mL	−1000 to −30 mL	−2.00 to −0.06 L	−10.00 to −0.30 L	−20.0 to −0.6 L	−50.0 to −1.5 L	−100.0 to −3.0 L	−200 to −6 L
		15 to 500 mL	30 to 1000 mL	0.06 to 2.00 L	0.30 to 10.00 L	0.6 to 20.0 L	1.5 to 50.0 L	3.0 to 100.0 L	6 to 200 L

*11: The integrated flow is a calculated (reference) value. When using the integrated save function, take care to prevent the number of saves from exceeding the access count limit of the storage device (1 million times). (Changes to various settings also are counted in the access count.)

$$\text{Number of saves} = \frac{\text{Usage time}}{5 \text{ mins}} < 1 \text{ million times}$$

When the instantaneous flow rate is 1% or less, the flow rate is counted as integrated flow rate.

*12: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

*13: A communication error might occur depending on the vibration conditions. Install this product as far as possible in a place not subject to vibration.

*14: This product measures changes in heat distribution that are caused by flow.
When this product is mounted in a vertical orientation, convective flow may affect heat distribution or cause the zero point to deviate.

*15: Accuracy may be affected by the piping conditions. To perform measurement with greater accuracy, install a straight pipe with a piping I.D. ten times larger. With the 500 L/min and 1,000 L/min models, use piping with an internal diameter of 9 mm or more. If it is less than 9 mm, accuracy may be negatively affected.

*16: Refer to page 58 for weight.

How to order

FSM3 - C 005 U 2 AA 1 L 1 N - G H R - P70

Model No. FSM3

Ⓐ Display — C

Ⓑ Flow rate ranges (full scale) — 005

Ⓒ Flow direction — U

Ⓓ Body material / applicable fluid — 2

Ⓔ Port size — AA

Ⓕ Piping direction — 1

Ⓖ Output specifications — L

Ⓗ Unit specifications — 1

Ⓘ Valve option — N

Ⓙ Lead wire — G

Ⓚ Mounting (not assembled) — H

Ⓛ Attached documents — R

Ⓜ Clean-room specifications — P70

Ⓐ Display

Code	Description
C	IO-Link

Ⓑ Flow rate ranges (full scale)

005	500 mL/min	500	50 L/min
010	1000 mL/min	101	100 L/min
020	2 L/min	201	200 L/min
050	5 L/min	501	500 L/min
100	10 L/min	102	1000 L/min
200	20 L/min		

Ⓒ Flow direction

U	Uni-direction
B	Bi-direction

Ⓓ Body material / applicable fluid

	Body material	Applicable fluid
2	SUS	Air (gas switchable)
3	SUS	Oxygen (oil-prohibited specifications) *2

Ⓔ Port size

AA	Rc1/8
BA	Rc1/4
CA	Rc1/2
AF	G1/8 *3
BF	G1/4 *3
CF	G1/2 *3
AB	G1/8 *4
BB	G1/4 *4
CB	G1/2 *4
AC	NPT1/8
BC	NPT1/4
CC	NPT1/2
AD	1/4" double barbed fitting (50 L/min or less)
BD	1/4" double barbed fitting (50 to 200 L/min)
AE	1/4" JXR male fitting (50 L/min or less)
BE	1/4" JXR male fitting (50 to 200 L/min)

Ⓕ Piping direction

1	Straight

Ⓖ Output specifications

L	IO-Link communication

Ⓗ Unit specifications

1	SI units only

Ⓘ Valve option

N	None

Ⓙ Lead wire

Blank	None
G	M12 both-end lead wire with connector (3 m)

Ⓚ Mounting (not assembled) *5

Blank	None
H	Bracket 1 (for models 200 L or less)
J	Bracket 2 (for 500 or 1000 L models)
M	DIN rail mounting (for models 200 L or less)

Ⓛ Attached documents

Blank	None
R	Company certification
S	Inspection certificate + Calibration certificate + Traceability system diagram

Ⓜ Clean-room specifications *8

Blank	None	
P70	Anti-dust generation	*6
P80	Oil free	*7

[Example of model No.]

FSM3-C005U2AA1L1N-GHR-P70

Model: RAPIFLOW FSM3 Series

Ⓐ Display	C	: IO-Link
Ⓑ Flow rate	005	: 500 mL/min
Ⓒ Flow direction	U	: Uni-direction
Ⓓ Body material / applicable fluid	2	: SUS/air
Ⓔ Port size	AA	: Rc1/8
Ⓕ Piping direction	1	: Straight
Ⓖ Output specifications	L	: IO-Link
Ⓗ Unit specifications	1	: SI units only
Ⓘ Valve option	N	: None
Ⓙ Lead wire	G	: M12 both-end lead wire with connector (3 m)
Ⓚ Mounting attachment	H	: Bracket
Ⓛ Attached documents	R	: Company certification
Ⓜ Clean-room specifications	P70	: Anti-dust generation

Precautions for model No. selection

*1: Refer to the correspondence table on the following page when selecting the model.
*2: "3: Oxygen" cannot be selected with 500 L/min and 1000 L/min models.
*3: The G thread connection shape is compliant with ISO16030 standards.
*4: Please refer to the external dimension diagram (Page 41) for the G thread connection shape when making a selection. (The G thread connection shape is compliant with JIS B 2351-1, O types.)
*5: Optional parts are provided with the product. They are not assembled with the product.
*6: The product surface is degreased and cleaned before packaging, and heat-sealed into an antistatic bag on a clean bench (Class 1000 or more).
*7: In addition to P70 specifications, wetted section materials are degreased and cleaned.
*8: This cannot be selected on an oxygen type (blank only).

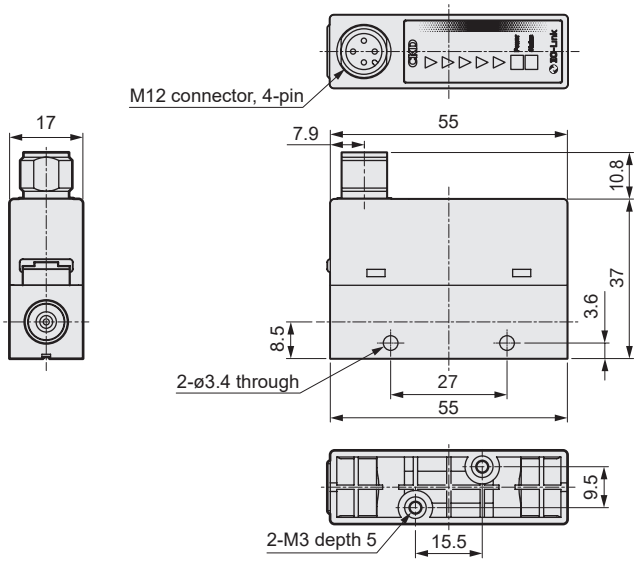
Flow rate ranges and port sizes

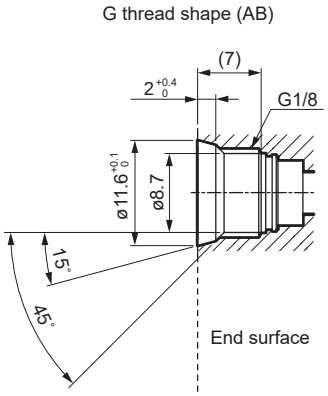
B Flow rate range	E Port sizes															
	AA	BA	CA	AF	BF	CF	AB	BB	CB	AC	BC	CC	AD	BD	AE	BE
	Rc1/8	Rc1/4	Rc1/2	G1/8	G1/4	G1/2	G1/8	G1/4	G1/2	NPT1/8	NPT1/4	NPT1/2	1/4" Double barbed fitting		1/4" JXR Male fitting	
005	●			●			●			●			●		●	
010	●			●			●			●			●		●	
020	●			●			●			●			●		●	
050	●			●			●			●			●		●	
100	●			●			●			●			●		●	
200	●			●			●			●			●		●	
500	●	●		●	●		●	●		●	●		●	●	●	●
101		●			●			●			●			●		●
201		●			●			●			●			●		●
501			●			●			●			●				
102			●			●			●			●				

Dimensions (IO-Link) (flow rate range: 500 mL/min to 50 L/min)

Port sizes: Straight Rc1/8, G1/8, NPT1/8

● FSM3−C□□2/3/AA1/AB1/AC1 (Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)

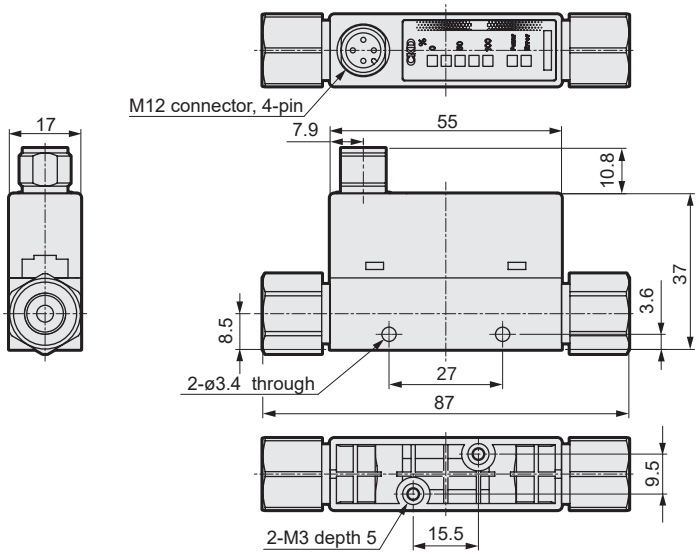




The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

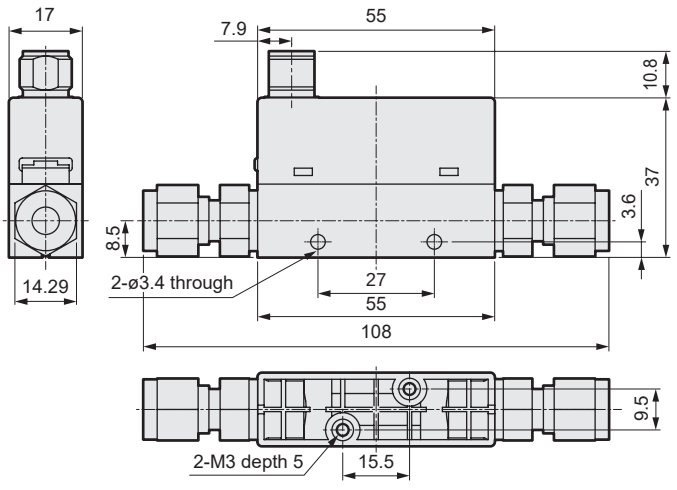
Port size: Straight G1/8

● FSM3−B□□2/3/AF1 (Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



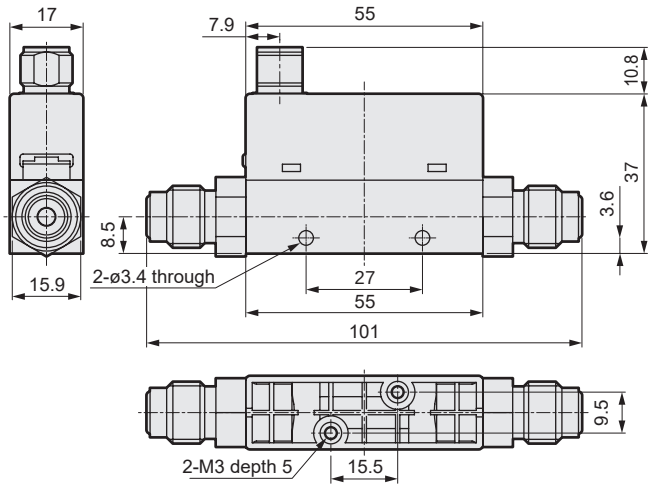
Port size: Straight 1/4" double barbed fitting

● FSM3−C□□2/3/AD1
(Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



Port size: Straight 1/4" JXR male fitting

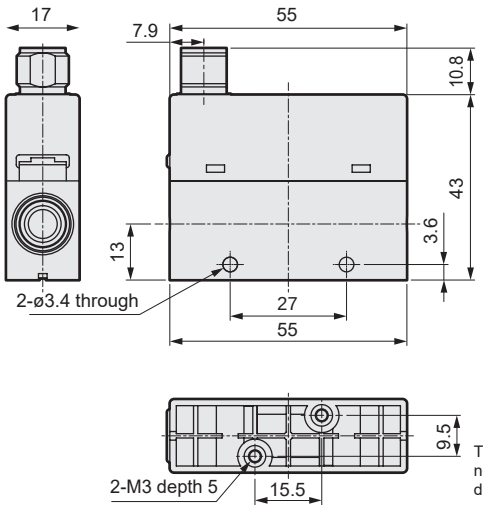
● FSM3−C□□2/3/AE1
(Full scale flow rates: 500 mL/min, 1, 2, 5, 10, 20, 50 L/min)



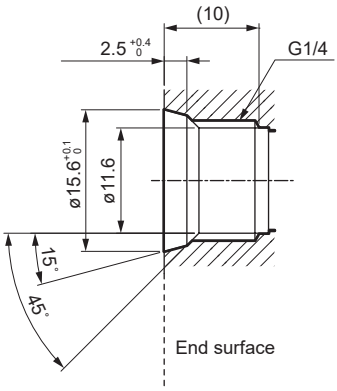
Dimensions (IO-Link) (flow rate range: 50 L/min to 1000 L/min)

Port sizes: Straight Rc1/4, G1/4, NPT1/4

● FSM3−C□□$^{2}_{3}$/BA1/BB1/BC1 (Full scale flow rates: 50, 100, 200 L/min)



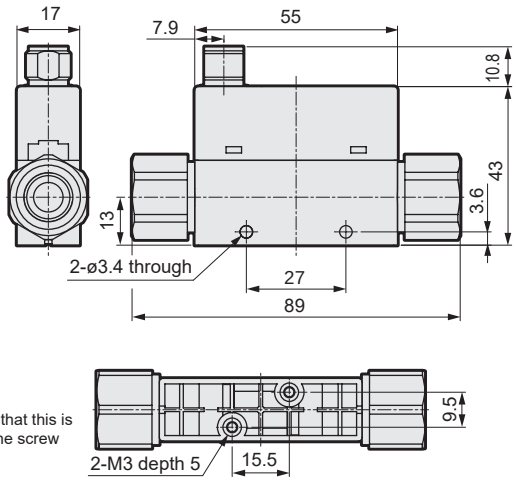
G thread shape (BB)



The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

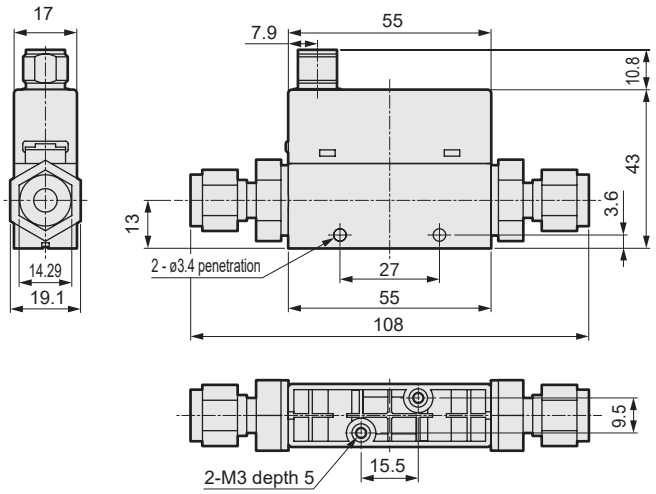
Port sizes: Straight G1/4

● FSM3−C□□$^{2}_{3}$/BF1
(Full scale flow rates: 50, 100, 200 L/min)



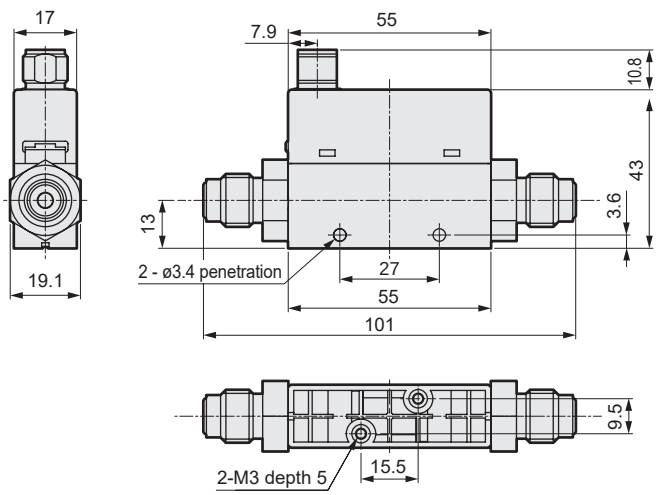
Port sizes: Straight 1/4" double barbed fitting

● FSM3−C□□$^{2}_{3}$/BD1 (Full scale flow rates: 50, 100, 200 L/min)



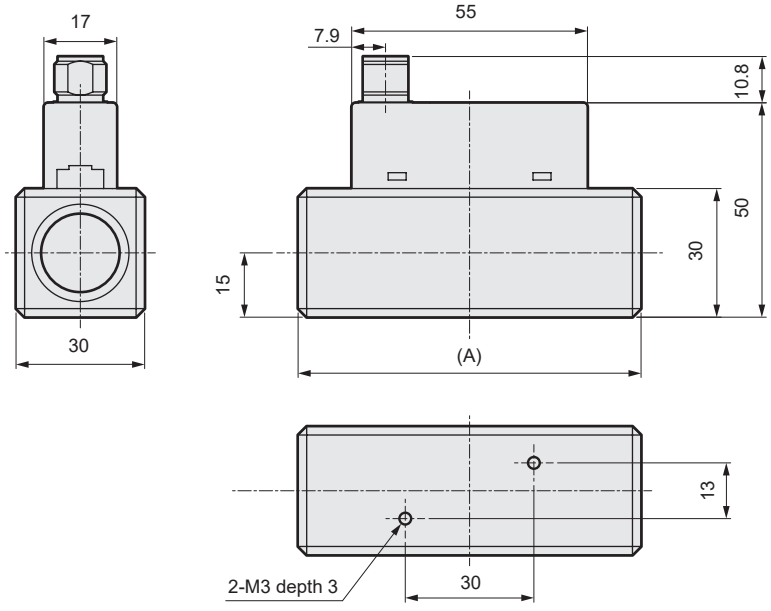
Port size: Straight 1/4" JXR male fitting

● FSM3−C□□$^{2}_{3}$/BE1 (Full scale flow rates: 50, 100, 200 L/min)

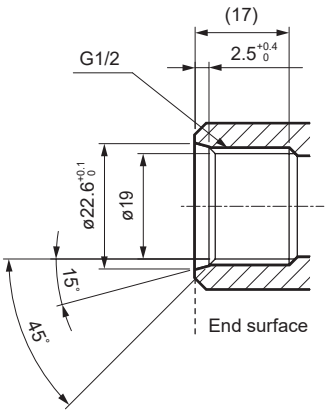


Port sizes: Straight Rc1/2, G1/2, NPT1/2

● FSM3−C□□2/CA1/CF1/CB1/CC1 (Full scale flow rates: 500,1000L/min)



G thread shape (CB)

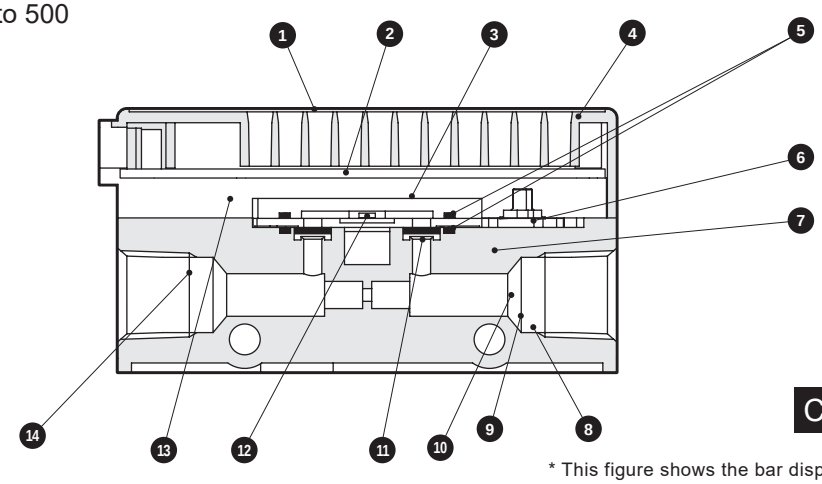


The 15° surface is the sealing surface. Please note that this is not an end face seal. Also, be sure to confirm that the screw depth of the fitting matches before use.

Model No.	Port size	Dimension (A)
FSM3-C□□2CA1	Rc1/2	(80)
FSM3-C□□2CF1	G1/2	(80)
FSM3-C□□2CB1	G1/2	(95.4)
FSM3-C□□2CC1	NPT1/2	(80)

Internal structure

● FSM3−B005 to 500



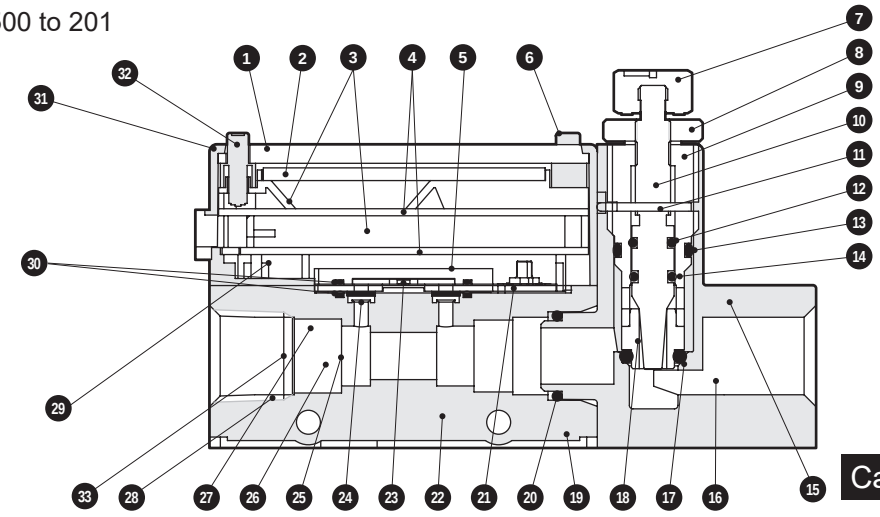
Cannot be disassembled

* This figure shows the bar display.
* The part materials are subject to change without notice.

No.	Part name		Material	No.	Part name		Material
1	Front sheet		PET film	8	O-ring	*	Fluoro rubber
2	Electronic circuit board		Glass epoxy resin	9	Spacer	*	Stainless steel
3	Sensor cover	*	Stainless steel	10	Filter	*	Stainless steel
4	Case		Polyamide resin	11	Filter	*	Stainless steel
5	Gasket	*	Fluoro rubber	12	Sensor chip	*	Semiconductor silicon
6	Sensor board	*	Alumina	13	Circuit board holder		Polyamide resin
7	Sensor body	*	Stainless steel	14	C-snap ring	*	Stainless steel

* For P80 specifications, the component has been cleaned.

● FSM3−L500 to 201



Cannot be disassembled

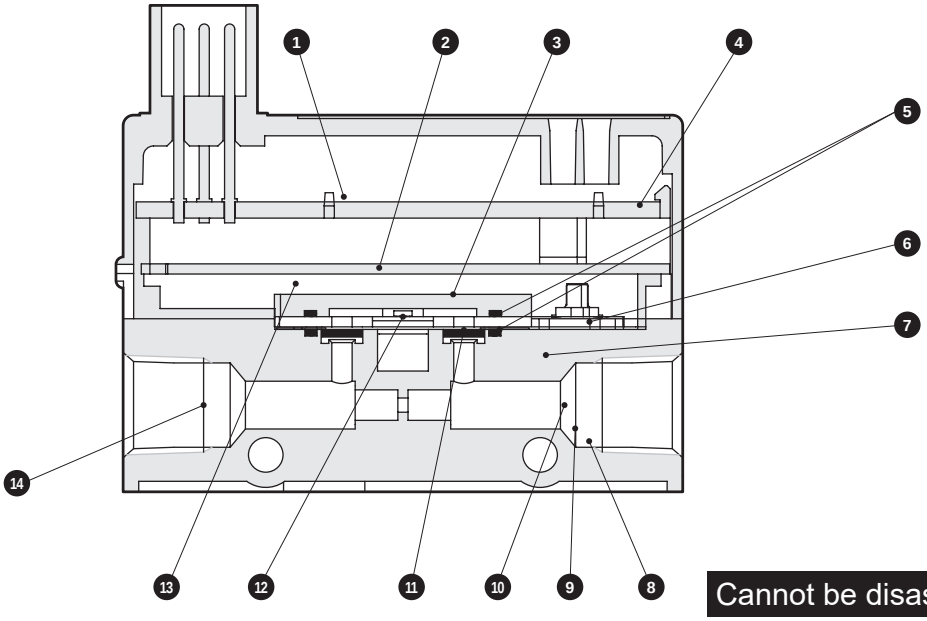
* This figure shows the LCD display with needle valve.
* The part materials are subject to change without notice.

No.	Part name		Material	No.	Part name		Material
1	Liquid crystal cover		Acrylic resin	18	Orifice	*	Tetra fluoro resin
2	Liquid crystal		–	19	Fitting fixing pin		Stainless steel
3	Base spacer		Polycarbonate resin	20	O-ring	*	Fluoro rubber
4	Electronic circuit board		Glass epoxy resin	21	Sensor board	*	Alumina
5	Sensor cover	*	Stainless steel	22	Sensor body	*	Stainless steel
6	Switch		Ethylene/propylene rubber	23	Sensor chip	*	Semiconductor silicon
7	Knob		Polybutylene terephthalate	24	Filter	*	Stainless steel
8	Lock nut		Copper alloy/nickeling	25	Filter	*	Stainless steel
9	Needle guide	*	Stainless steel	26	Spacer	*	Stainless steel
10	Needle	*	Stainless steel	27	O-ring	*	Fluoro rubber
11	Fixing pin		Stainless steel	28	O-ring	*	Fluoro rubber
12	O-ring	*	Fluoro rubber	29	Circuit board holder		Polyamide resin
13	O-ring	*	Fluoro rubber	30	Gasket	*	Fluoro rubber
14	O-ring	*	Fluoro rubber	31	Case		Polyamide resin
15	Needle valve body	*	Stainless steel	32	Switch		Ethylene/Propylene rubber
16	Filter	*	Stainless steel	33	C-snap ring	*	Stainless steel
17	O-ring	*	Fluoro rubber				

* For P80 specifications, the component has been cleaned.

Internal structure

● FSM3−C005 to 500



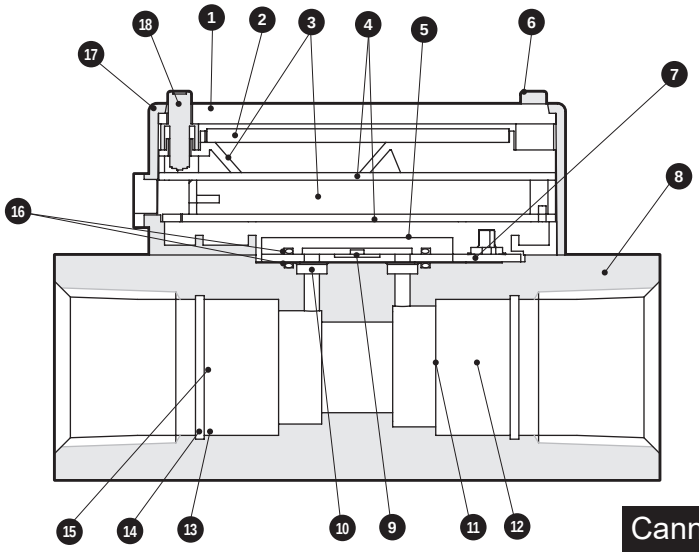
Cannot be disassembled

* This figure shows the IO-Link display.
* The part materials are subject to change without notice.

No.	Part name		Material	No.	Part name		Material
1	Front sheet		PET film	8	O-ring	*	Fluoro rubber
2	Electronic circuit board		Glass epoxy resin	9	Spacer	*	Stainless steel
3	Sensor cover	*	Stainless steel	10	Filter	*	Stainless steel
4	Case		Polyamide resin	11	Filter	*	Stainless steel
5	Gasket	*	Fluoro rubber	12	Sensor chip	*	Semiconductor silicon
6	Sensor board	*	Alumina	13	Circuit board holder		Polyamide resin
7	Sensor body	*	Stainless steel	14	C-snap ring	*	Stainless steel

* For P80 specifications, the component has been cleaned.

● FSM3−L501, 102



Cannot be disassembled

* This figure shows the LCD display.
* The part materials are subject to change without notice.

No.	Part name		Material	No.	Part name		Material
1	Liquid crystal cover		Acrylic resin	10	Filter	*	Stainless steel
2	Liquid crystal		−	11	Filter	*	Stainless steel
3	Base spacer		Polycarbonate resin	12	Spacer	*	Stainless steel
4	Electronic circuit board		Glass epoxy resin	13	O-ring	*	Fluoro rubber
5	Sensor cover	*	Stainless steel	14	C-snap ring	*	Stainless steel
6	Switch		Ethylene/propylene rubber	15	O-ring holder	*	Stainless steel
7	Sensor board	*	Alumina	16	Gasket	*	Fluoro rubber
8	Sensor body	*	Stainless steel	17	Case		Polyamide resin
9	Sensor chip	*	Semiconductor silicon	18	Switch		Ethylene/Propylene rubber

* For P80 specifications, the component has been cleaned.