



Compact flow rate sensor (RAPIFLOW)

FSM2-D Series

Separated display

P4 compliant as standard



Pneumatic, Vacuum and Auxiliary Components
Catalog No. CB-024SA

Separated display specifications

Item				Separated display FSM2-D-[*1][*2]-□-[*3]	
Settable flow rate range	*1	mL	5,10,50,100,500,1000		
		L	2,4,5,10,12,20,25,32,50,100,200,500,1000		
		m ³	1.5		
Operating ambient temperature/humidity				0 to 50°C	
Display				4 digit + 4 digit 2 color LCD	
Input voltage				1 to 5V	
Output	Switch output	*1	N	Output 2 points (NPN open collector output, 50 mA or less, voltage drop 2.4 V or less)	
			P	Output 2 points (PNP open collector output, 50 mA or less, voltage drop 2.4 V or less)	
Analog output	*2	V	1 to 5 V voltage output 1 point (connecting load impedance 50 kΩ or more) *6		
		A	4 to 20 mA current output 1 point (connecting load impedance 0 to 300 Ω)		
Power supply voltage	*2	V	12 to 24 VDC (10.8 to 26.4V)		
		A	24 VDC (21.6 to 26.4V)		
Current consumption		*2	40 mA or less (when 24 VDC is connected, and no load is connected)		
Lead wire				ø3.7, AWG26 or equivalent x 5-conductor (connector), insulator O.D. 1.0	
Functions				Flow rate display, flow rate display peak hold, switch output, analog output	
Degree of protection				IEC standards IP40 or equivalent	
Protection circuit		*3	Power reverse connection protection		
EMC Directive				EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8	
Accessory				1 connector for sensors (e-con), compatible cable AWG 24 to 26, insulated outside diameter 1.0 to 1.2	
Weight (main body only)				Approx. 40 g	
Clean-room specifications		*4	*3	P70	Anti-dust generation

- *1: The flow rate range, flow direction and gas are automatically recognized only when the FSM3 bar display or FSM2 separated display is connected. (Default state) The FSM-H Series, FSM-V Series and WFK3000 Series flow rate ranges are supported, but automatic recognition is not supported. Always set the product's flow rate range, flow direction and gas type before use. The connectable flow rate ranges are shown in "Display by flow rate range" below. The "Gas Type Setting" function of this product is not a "Gas Type Switching" function that switches the sensor characteristics to match the gas type. If a "Gas Type Switching" function is required, use the LCD display type. When the sensor section is changed, the previous flow rate range settings, etc., will still be recorded. Always reset the settings before using.
- *2: Current for when 24 VDC is connected, and no load is connected. Please note that the current consumption changes depending on the load connection status.
- *3: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.
- *4: [P70] Anti-dust generation (product surface is degreased and cleaned before packing. Heat seal into antistatic bags in clean bench (Class 1000 and over).)
- *5: When connecting to the FSM-V Series or WFK3000 Series, the lead wire size is different so a separate compatible sensor connection connector (e-con) will be required. Contact your CKD Sales or dealer. The attached sensor connector (e-con) can be used with the FSM2 Series, FSM3 Series and FSM-H Series.
- *6: 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: When connecting the FSM3 bar display with oxygen specification, the gas display will be "A" (air, N₂), but this does not cause problems during use.

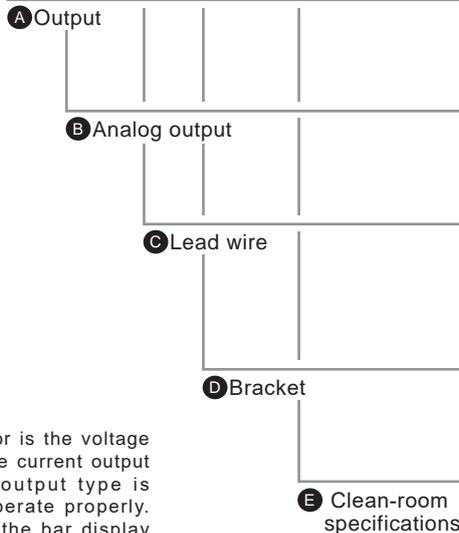
Display for each flow rate range

Flow rate display	Uni-direction	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up	0 up
		500 mL/min	1000 mL/min	2.00 L/min	4.00 L/min	5.00 L/min	10.00 L/min	12.0 L/min	20.0 L/min	25.0 L/min	32.0 L/min	50.0 L/min	100.0 L/min	200 L/min	500 L/min	1000 L/min	1.50 m ³ /min	5.00 mL/min	10.00 mL/min	50.0 mL/min
Bi-direction	-500 to 500 mL/min	-1000 to 1000 mL/min	-2.00 to 2.00 L/min	-	-5.00 to 5.00 L/min	-10.00 to 10.00 L/min	-	-20.0 to 20.0 L/min	-	-	-50.0 to 50.0 L/min	-100.0 to 100.0 L/min	-200 to 200 L/min	-500 to 500 L/min	-1000 to 1000 L/min	-1.50 up 1.50 m ³ /min	-5.00 up 5.00 mL/min	-10.00 to 10.00 mL/min	-50.0 to 50.0 mL/min	-100.0 to 100.0 mL/min
Display resolution	1 mL/min		0.01 L/min			0.1 L/min					1 L/min			0.01 m ³ /min	0.01 mL/min	0.1 mL/min				
Display range	9999999 mL		99999.99 L			999999.9 L					9999999 L			99999.99 m ³	99999.99 mL	999999.9 mL				
Display resolution	1 mL		0.01 L			0.1 L					1 L			0.01 m ³	0.01 mL	0.1 mL				
Integrated pulse output rate	5 mL	10 mL	0.02 L	0.04 L	0.05 L	0.1 L	0.12 L	0.2 L	0.25 L	0.32 L	0.5 L	1 L	2 L	5 L	10 L	15 L	0.05 mL	0.1 mL	0.5 mL	1 mL

- * The corresponding sensor is the voltage output (1-5 V) type. If the current output type or other voltage output type is connected, it will not operate properly.
- *1: The flow rate display is rounded off at approximately ±1% or less (forced zero).
- *2: The integrating flow is a calculated (reference) value. It is reset when the power is turned OFF.

How to order

FSM2 - D - N V - 3 P - P70



CAUTION

The corresponding sensor is the voltage output (1-5 V) type. If the current output type or other voltage output type is connected, it will not operate properly. When using FSM3, use the bar display voltage output.

Code	Description
A Output	
N	Switch output (NPN) 2 points, analog output 1 point
P	Switch output (PNP) 2 points, analog output 1 point
B Analog output	
V	Voltage output (1 to 5 V)
A	Current output (4 to 20 mA)
C Lead wire	
Blank	No
1	1m
3	3m
D Bracket	
Blank	No
P	Panel mounting kit
E Clean-room specifications	
Blank	No
P70	Anti-dust generation

Discrete option model No.

FSM2-EC - P70



Code	Description
A Option	
FSM2-EC	Sensor connector (e-con) 5 pcs. set
FSM3-A	5-conductor lead wire 1 m
FSM3-B	5-conductor lead wire 3 m
FSM3-K	Panel mounting kit
B Clean-room specifications	
Blank	No
P70	Anti-dust generation

Precautions for use (common to FSM3 Series, FSM2-D Series)

WARNING

- Applications outside the specifications, Load current, Voltage, Temperature, Shock, Otherwise, damage and/or misoperations may occur. Therefore, the dimensions are within the specified range for vacuum piping.
- Never use this product in an explosive gas atmosphere. Never use in an explosive gas atmosphere as explosions or fires could result.
- Static
Do not use this product where electrostatic discharge could occur.
Failure to do so may result in breakdown or malfunction of the system.

P4
Series

Pneumatic actuator
Hand/Chuck
Related products
Cylinder
Switch

Vacuum components

Pneumatic valves

Clean air components

Pneumatic auxiliary components
Speed controller
Fitting
Auxiliary valve
Silencer
Tube

Gas generator

Fluid control components

Electric actuator
Motor specification
Motorless specifications