



Compact flow rate sensor RAPIFLOW

FSM2 Series

Separated display



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 5 V		
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 26.4 V)		
			A	24 VDC (21.6 to 26.4 V)		
Current consumption				*2	40 mA or less (when 24 VDC is connected, and no load is connected)	
Lead wire				ø3.7, AWG26 or equivalent × 5-conductor (connector), insulator O.D. ø1.0		
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 supply reverse connection protection	
EMC Directive				EN55011, EN61000-6-2, EN61000-4-2/3/4/6/8		
Accessory				1 sensor connection connector (e-con), conforming cable AWG24 to 26, insulator O.D. ø1.0 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 type are automatically recognized only when the FSM3 bar display type and FSM2 separated display type are connected. (Default state)

The FSM-H Series, FSM-V Series and WFK3000 Series flow rate ranges are supported in addition, but automatic recognition is not. Always set the product's flow rate range, flow direction and gas type before use.

The connectable flow rate ranges are shown in "Display for each 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. The current consumption varies depending on how the load is connected.

*3: This product's protection circuit is effective only for specific mis-connections and a load short-circuit. It does not provide protection against various mis-connections.

*4: [P70] Anti-dust generation (product surface is degreased and cleaned before packing. Heat sealed into antistatic bag in clean bench (Class 1000 or higher).)

*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 nearest CKD sales office or dealer.

The attached sensor connection connector (e-con) can be used with the FSM2 Series, FSM3 Series and FSM-H Series.

*6: The output impedance of the analog output section is approx. 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 gas type display shows "Ai" (air, N2) when a connection is made with FSM3 bar display type oxygen specifications, but it can still be used without any problems.

Display for each flow rate range

Flow rate display	Display range	One way	0 to 500 mL/min	0 to 1000 mL/min	0 to 2.00 L/min	0 to 4.00 L/min	0 to 5.00 L/min	0 to 10.00 L/min	0 to 12.0 L/min	0 to 20.0 L/min	0 to 25.0 L/min	0 to 32.0 L/min	0 to 50.0 L/min	0 to 100.0 L/min	0 to 200 L/min	0 to 500 L/min	0 to 1000 L/min	0 to 1.50 m³/min	0 to 5.00 mL/min	0 to 10.00 mL/min	0 to 50.0 mL/min	0 to 100.0 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 to 1.50 m³/min	-5.00 to 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 m³/min	0.01 mL/min	0.1 mL/min		
	Display range		9999999 mL			99999.99 L			999999.9 L						9999999 L			99999.99 m³	99999.99 mL	999999.9 mL		
	Display resolution		1 mL	0.01 L				0.1 L						1 L			0.01 m³	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 (1 to 5 V) type. If the current output or other voltage output is connected, it will not operate properly.

*1: The flow rate display is rounded off at approximately ±1% or less (forced zero).

*2: The accumulated 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

A Output

B Analog output

C Lead wire

D Bracket

E Clean-room specifications



CAUTION

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

Discrete option model No.

FSM2-EC - P70

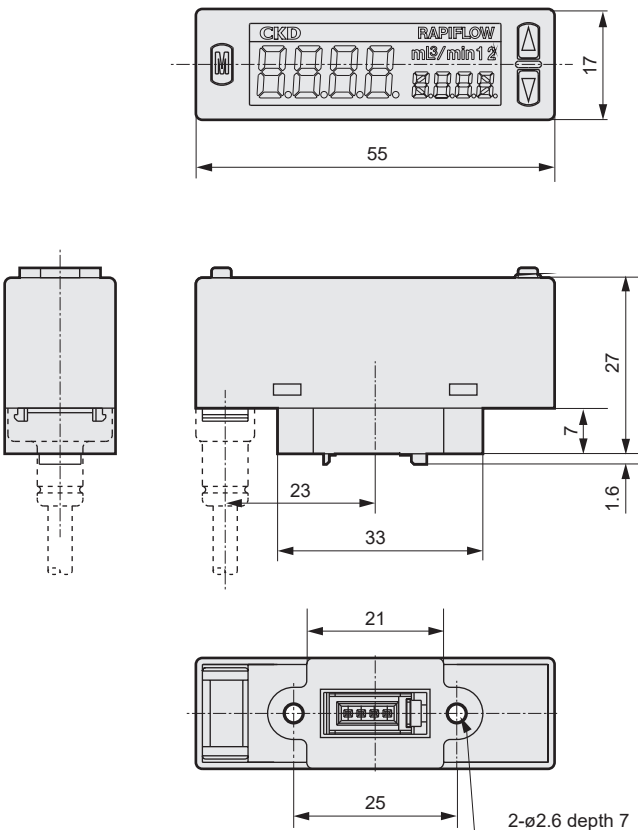
A Option

B Clean-room specifications

Code	Description
A Option	
FSM2-EC	Sensor connection connector (e-con) 5-pc 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	None
P70	Anti-dust generation

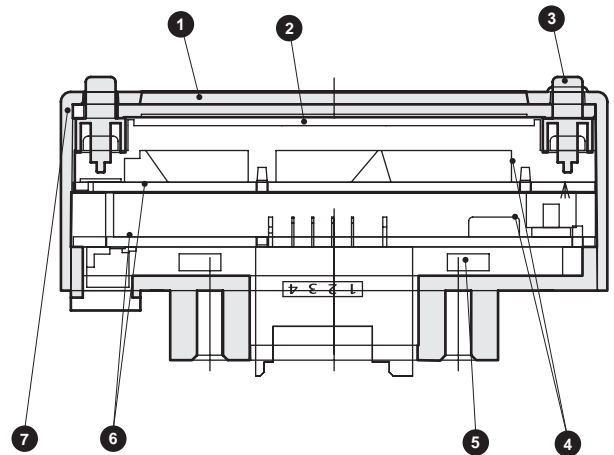
Code	Description
A Output	
N	Switch output (NPN) 2 points, analog output 1 point
P	Switch output (PNP) 2 points, analog output 1 point
B Analog output	
V	Voltage output (1-5 V)
A	Current output (4 to 20 mA)
C Lead wire	
Blank	None
1	1 m
3	3 m
D Bracket	
Blank	None
P	Panel mounting kit
E Clean-room specifications	
Blank	None
P70	Anti-dust generation

Dimensions



Internal structure and parts list

● FSM2-D



Cannot be disassembled

Main parts list

* The part materials are subject to change without notice.

No.	Part name	Material
1	Liquid crystal cover	Acrylic resin
2	Liquid crystal	-
3	Switch	Ethylene/propylene rubber
4	Base spacer	Polycarbonate resin
5	Back surface cover	Polyamide resin
6	Electronic circuit board	-
7	Case	ABS Resin