



Principle characteristics

Hot principle, gas mass flowmeter, display direction can be reversed 180°, easy to set and watch color crystal display, cumulative flow data at a glance instant monitoring

Technical specification

Display accuracy $\pm 3\%$ F.S.

Repeatability $\pm 1\%$ F.S.

Electronic display of instantaneous flow

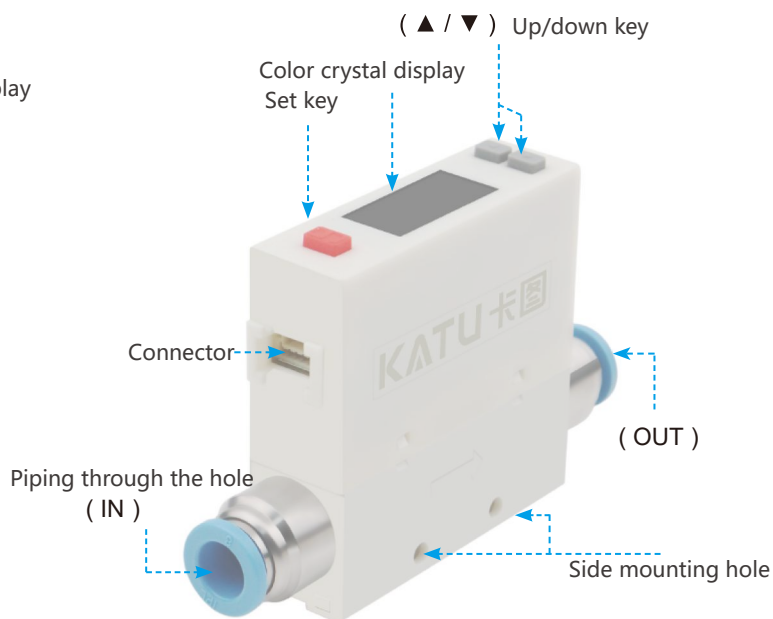
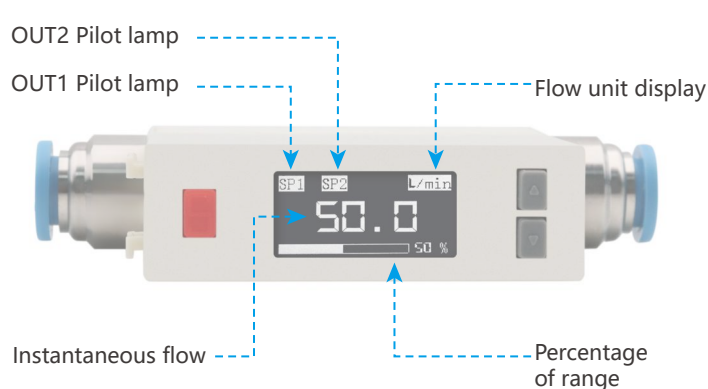
Cumulative flow

Switch output PNP/NPN output

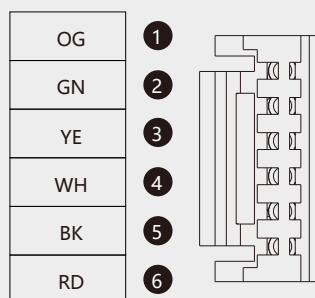
Analog output

Frequency pulse output

Panel description



Wiring diagram



Two switches + one analog (voltage output 1-5V)

color	stitch	Instructions
RD	6	power supply (+)
OG	1	power supply (-)
BK	5 (OUT1)	SP1 switch PNP (Factory default) SP1 switch NPN
WH	4 (OUT2)	SP2 switch PNP (Factory default) SP2 switch NPN
YE	3 (OUT3)	/
GN	2 (OUT4)	Analog voltage output: 1-5V

Two switches + one analog (current output 4-20mA)

color	stitch	Instructions
RD	6	power supply (+)
OG	1	power supply (-)
BK	5 (OUT1)	SP1 switch PNP (Factory default) SP1 switch NPN
WH	4 (OUT2)	SP2 switch PNP (Factory default) SP2 switch NPN
YE	3 (OUT3)	/
GN	2 (OUT4)	Analog voltage output: 4-20mA

Two switches + RS485

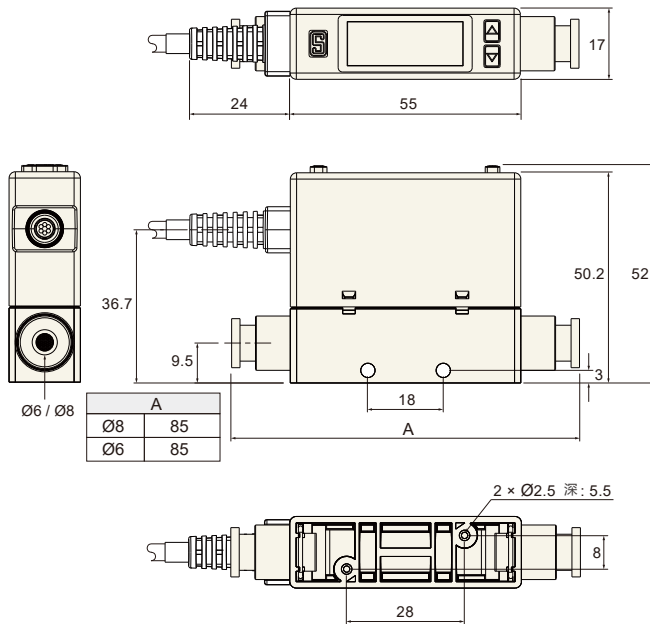
color	stitch	Instructions
RD	6	power supply (+)
OG	1	power supply (-)
BK	5	RS485(A)
WH	4	RS485(B)
YE	3 (OUT1)	SP1 switch PNP (Factory default) SP1 switch NPN
GN	2 (OUT2)	SP2 switch PNP (Factory default) SP2 switch NPN

Technical parameter

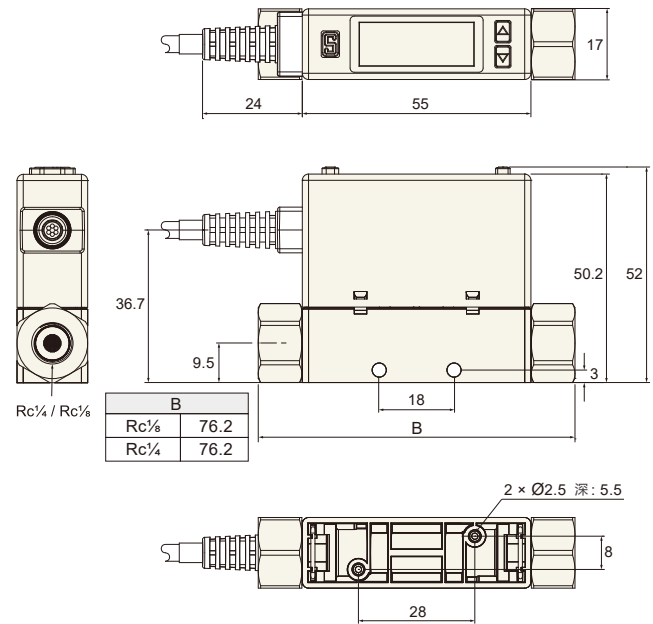
Model number				01	02	03	04	05	06	07
Applicable gas				Dry air, nitrogen (N2), non-corrosive, non-flammable						
Sensing element		Rated flow range		0 ~ 500 mL/min	0 ~ 1000 mL/min	0 ~ 5 L/min	0 ~ 10 L/min	0 ~ 50 L/min	0 ~ 100 L/min	0 ~ 200 L/min
		Detection direction		unidirectional						
display	Instantaneous flow	Display range		0 ~ 525 mL/min	0 ~ 1050 mL/min	0 ~ 5.25 L/min	0 ~ 10.50 L/min	0 ~ 52.5 L/min	0 ~ 105.0 L/min	0 ~ 210 L/min
		Display range	LPM	1 mL/min	1 mL/min	0.01 L/min	0.01 L/min	0.1 L/min	0.1 L/min	1 L/min
		Minimum unit	CFM ※1	0.01 ft3/min	0.01 ft3/min	0.1 ft3/min	0.1 ft3/min	1 ft3/min	1 ft3/min	1 ft3/min
	Cumulative flow	Display range		99999999 mL	99999999 mL	999999.99 L	999999.99 L	9999999.9 L	9999999.9 L	99999999 L
		Display minimum units * 1		1 mL	1 mL	0.01 L	0.01 L	0.1 L	0.1 L	1 L
				0.01 ft3	0.01 ft3	0.1 ft3	0.1 ft3	1 ft3	1 ft3	1 ft3
		Accuracy guarantee range		2 ~ 100 % F.S.						
		Display accuracy		±3% F.S. ± 1 digit ※2						
		Analog output accuracy		±5 % F.S. ※2						
		repeatability		±1% F.S. ± 1 digit ※3						
precision		Linear form		± 3 % F.S. ※3						
		Temperature characteristic		± 2 % F.S. (15 ~ 35 °C) ; ± 5 % F.S. (0 ~ 15 °C , 35 ~ 50 °C) (※3Compare)						
		Pressure characteristic		± 5 % F.S. ± 1 digit ※4						
				2 NPN open collector output Maximum load current: 125 mA Maximum supply voltage: 24 V DC Internal voltage drop: ≤ 1.5 V			2 PNP open collector output Maximum load current: 125 mA Maximum supply voltage: 24 V DC Internal voltage drop: ≤ 1.5 V			
Switching output	Reaction time			800 ms (50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 1500 ms Can be Selected)						
	Output mode			Hysteresis mode, window mode, cumulative flow pulse output mode						
	Return difference			tunable						
	Output short-circuit protection			yes						
	Cumulative pulse output ※1			5 mL/Pulse 0.02 ft3/Pulse	10 mL/Pulse 0.04 ft3/Pulse	0.05 L/Pulse 0.2 ft3/Pulse	0.1 L/Pulse 0.4 ft3/Pulse	0.5 L/Pulse 2 ft3/Pulse	1 L/Pulse 4 ft3/Pulse	2 L/Pulse 7 ft3/Pulse
Analog output	Voltage output			Output voltage range: 1 ~ 5 V						
				Output impedance: 1 KΩ						
	Current output			Output current range : 4 ~ 20 mA						
				Load impedance : ≤ 300 Ω						
	Reaction time			≤ 100 ms						
Communication interface				RS485 ※5						
Power source		Supply voltage		12 ~ 24 V DC ± 10%, ripple peak ≤ 10%						
		No-load current		≤ 50 mA						
Environmental requirement	Service pressure range			-0.09 ~ 0.8 MPa						
	Pressure resistance			1 MPa						
	Class of protection			IP40						
	Medium temperature			0 ~ 50 °C (no water dew and no ice)						
	temperature			Action: 0 ~ 50 °C, storage: -10 ~ 60 °C (no water dew and no ice)						
	humidness			Operation and preservation: 35 ~ 85% R.H. (waterless dew)						
	Insulation impedance			≥ 50 MΩ (500 V DC, between leads and plastic housing)						
	Withstand voltage			1000 V AC 1 min (between leads and plastic housing)						
	Vibration resistance			The amplitude is 1.5 mm or 10 G, 10 Hz ~ 55 Hz ~ 10 Hz every 1 minute, 2 hours in each direction X, Y and Z						
	Impact resistance			100 m/s2 (10 G), measured 3 times in X, Y and Z directions						
EMC				IEC 61000-6-2, IEC 61000-6-4						
Wire specification				Ø4 oil-proof PVC - 26 AWG (0.15 mm2) - 6 core						
Weight (including 2 m of wire)				Approx. 109.3g (Ø6 connector); Approx. 112.7g (Ø8 connector); Approx. 118 g (Rc¼ connector); Approx. 128.5g (Rc½ connector)						

Size drawing (mm)

■ Joint aperture : $\varnothing 6, \varnothing 8$

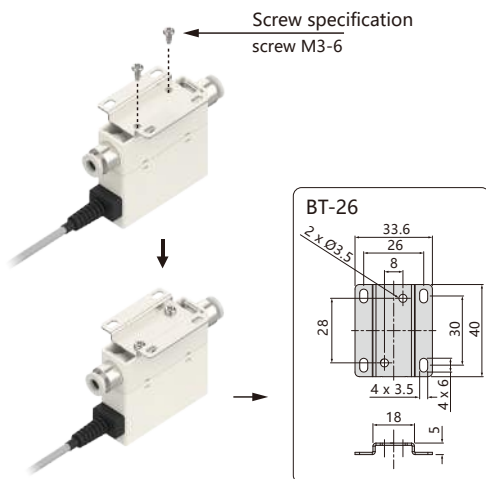


■ Joint aperture : $Rc\frac{1}{8}, Rc\frac{1}{4}$

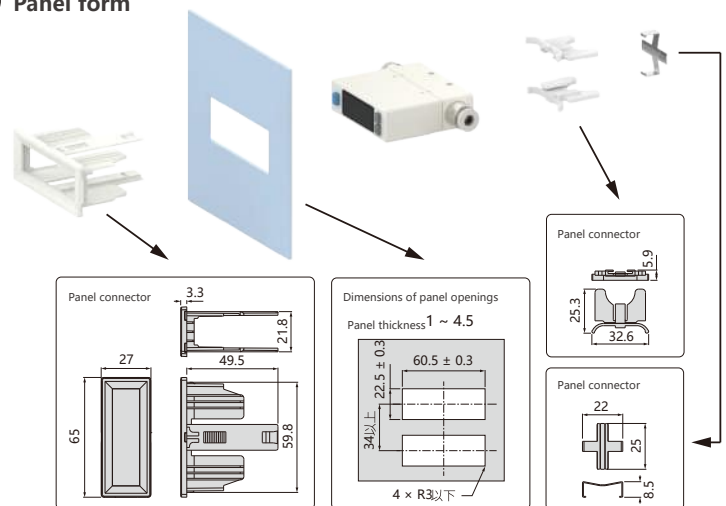


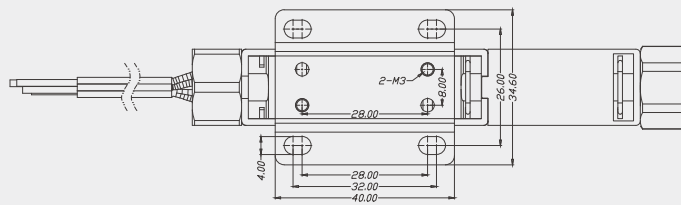
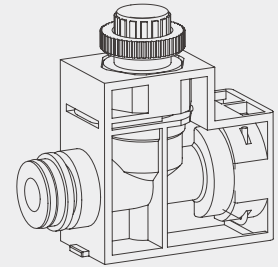
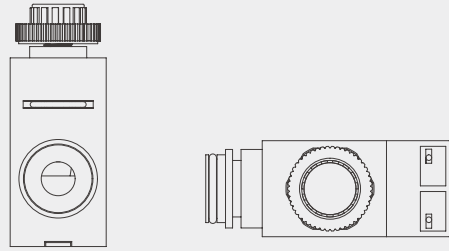
Mounting accessories

1 Fixed bracket

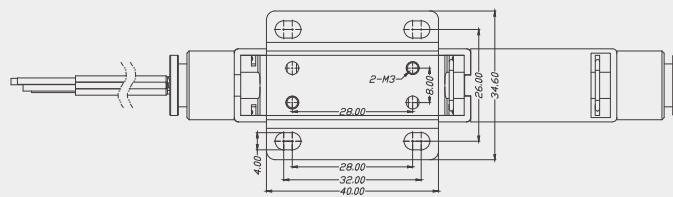
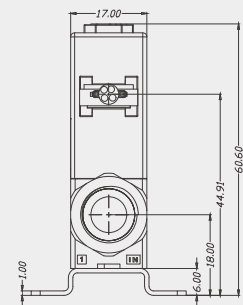


2 Panel form

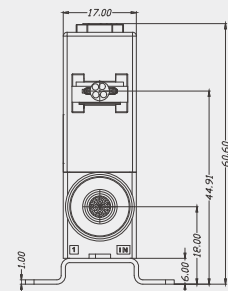


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Technical drawing of the 4pin connection plug and internal thread connection. The drawing shows a side view of the device with dimensions: 89.00, 111.00, 55.00, 18.00, 9.00, 29.50, and 33.40. Labels include '4pin Connection plug', 'Regulating valve spinning cap', and 'Internal thread connection'.



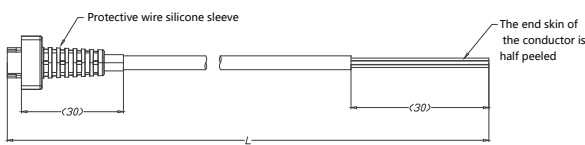
Technical drawing showing the 4pin connection plug and quick connector assembly. The drawing includes a side view of the plug and a top view of the quick connector. The 4pin connection plug is shown with a 4pin connection plug and a quick connector. The quick connector is shown with a 4pin connection plug and a quick connector. The drawing includes dimensions for the plug and connector, such as 18.00, 53.00, 89.00, 119.00, 22.50, and 33.40. The drawing also includes a label for the 4pin connection plug and a label for the quick connector.



Selection list

FM312-	01	SV	D6	-	-	expatiate
FM312-						FM312 Gas flow sensor
	01					Flow range: 500 mL/min
	02					Flow range: 1000 mL/min
	03					Flow range: 5 L/min
	04					Flow range: 10 L/min
	05					Flow range: 50 L/min
	06					Flow range: 100 L/min
	07					Flow range: 200 L/min
		SV				Output signal: 2 switches + analog 1 ~ 5 V
		SA				Output signal: 2 switches + analog 4 ~ 20 mA
		SR				Output signal: 2 switches + RS485
			D6			Nozzle diameter: Ø6mm quick connector, flow range ≤50L/min
			D8			Nozzle diameter: Ø8mm quick connector, flow range 100/200L/min
			R18			Nozzle diameter: Rc $\frac{1}{8}$ pipe tooth connector, flow range ≤50L/min
			R14			Nozzle diameter: Rc $\frac{1}{4}$ pipe tooth joint, flow range 100/200L/min
				-		optional
				T		BT-26: Fixed bracket
				M		PA-G: panel connector
					-	Unregulated valve
					F	With regulating valve

Optional accessories - Electrical accessories

name	Dimensions drawing (unit: mm)	material	Model number
Two meter line with six pin buckle plug (FM312)		PVC	XH6PC02G