



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

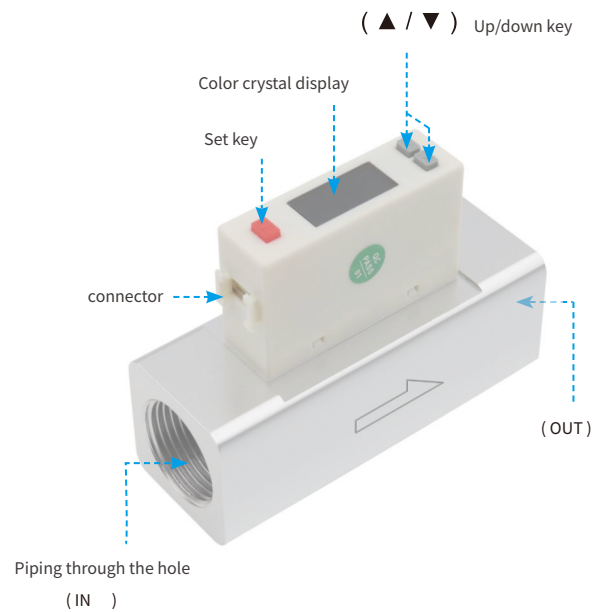
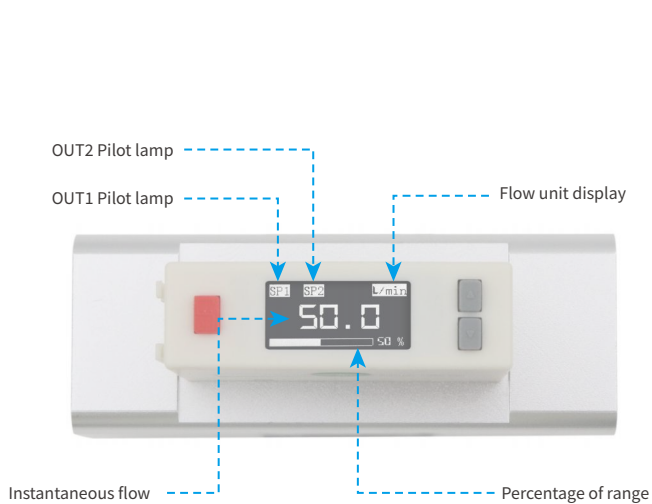
Cumulative flow

Switch output PNP/NPN output

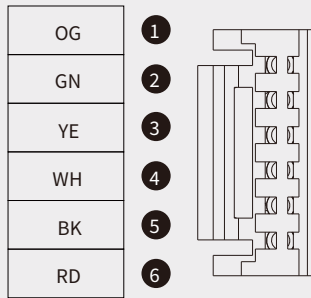
Analog output

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	
Applicable gas				Dry air, nitrogen (N2), non-corrosive, non-flammable					
Sensing element		Rated flow range		2 ~ 500 L/min		5 ~ 1000 L/min		10 ~ 2000 L/min	
		Detection direction		unidirectional					
Display	Instantaneous flow	Display range		0 ~ 525 L/min		0 ~ 1050 L/min		0 ~ 2100 L/min	
		Display min unit	LPM	1 L/min					
			CFM	0.1 ft3/min					
	Cumulative flow	Display range		99999999 L					
		Display min unit	1 L						
			1 ft3						
accuracy		Accuracy guarantee range		2 ~ 100 % F.S.					
		Display accuracy		± 3 % F.S. ±1 digit ※1					
		Analog output accuracy		± 5 % F.S. ※1					
		repeatability		± 1 % F.S. ±1 digit (± 2 % F.S. at 50 ms) * 2					
		straightness		± 3 % F.S. ※2					
		Temperature characteristic		± 5 % F.S. (※2 Compare)					
		Pressure characteristic		± 5 % F.S. ±1 digit ※3					
				2 NPN open collector output			2 PNP open collector output		
				Max load current: 125 mA Max supply voltage: 28 V DC Internal voltage drop: ≤1.5 V			Max load current: 125 mA Max supply voltage: 24 V DC Internal voltage drop: ≤1.5 V		
Switch output is adjustable	Reaction time			Adjustable filtering damping					
	Output mode			Differential mode, window comparison mode, cumulative flow output mode, cumulative flow pulse output mode					
	Accept an assignment			tunable					
	Output short-circuit protection			yes					
	Cumulative pulse output is adjustable			(Range/6000) L/Pulse or set the pulse coefficient - adjustable					
Linear analog output	Voltage output			Output voltage range: 1 ~ 5 V					
				Output impedance: 1 KΩ					
	Current output			Output current range: 4 ~ 20 mA					
				Load impedance: ≤300Ω					
	Reaction time			≤100 ms					
External input				No voltage input, ≤0.4V, ≥30ms					
Communication interface				RS485 ※4					
power supply		Voltage supply		12 ~ 24 V DC ±10%, ripple peak ≤10%					
		Consumption current		≤50 mA					
Environmental requirement	Service pressure range			0 ~ 1.0 MPa					
	Pressure resistance			1.5 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 freezing condition)					
	humidness			Operation and preservation: 35 ~ 85% R.H. (waterless dew)					
	Insulation impedance			≥2 M Ω (50 V DC, between leads and plastic housing)					
	Withstand voltage			250 V AC 1 min (between lead and plastic case)					
	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					
	EM C			IEC 61000-6-2, IEC 61000-6-4					
Wire specification				Ø4 Oil resistant PVC-26 AWG (0.15 mm2) -6 cores					
Weight (including 2 m of wire)				About 281.7 g (500/1000 L); About 344 g (2000 L)					

※1: The standard is the inlet end pressure of 600 kPa, the outlet end of 1 atmospheric pressure release, the temperature condition is 25 °C

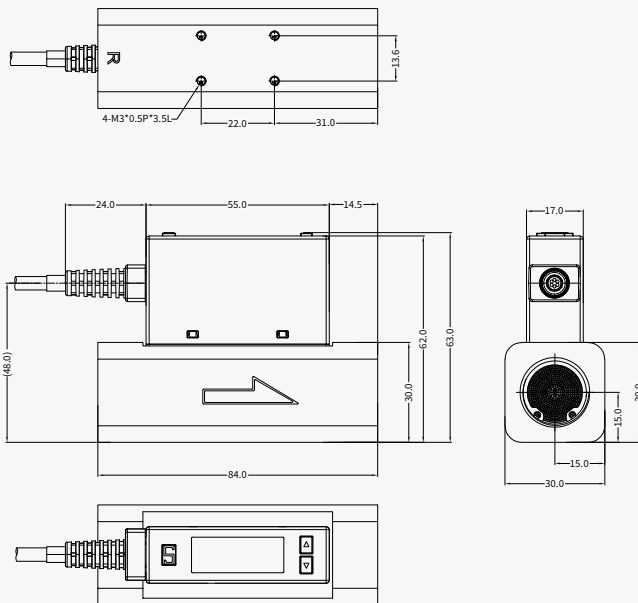
※2: The standard is 1 atmosphere pressure release at the outlet and 25 °C temperature condition

※3: 0 ~ 1.0MPa, outlet at 1 atmospheric pressure release, temperature condition is 25 °C

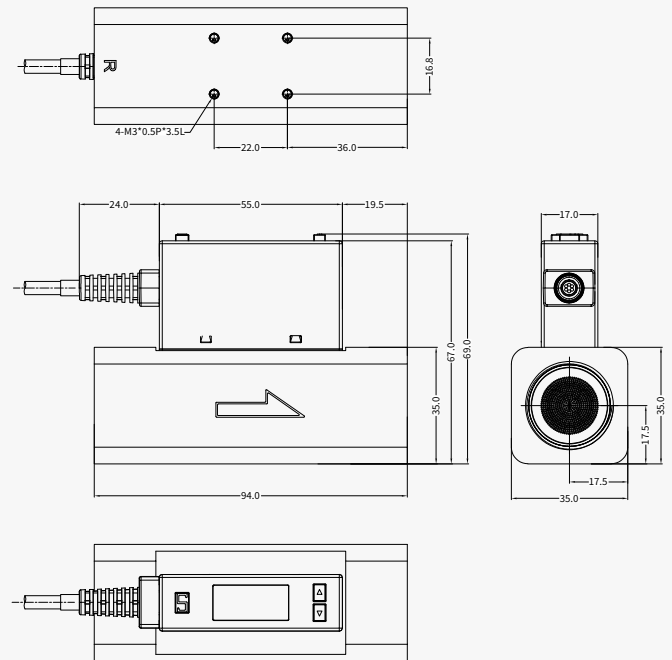
※4: Only output type 02, 04 can have this setting function

Size drawing (mm)

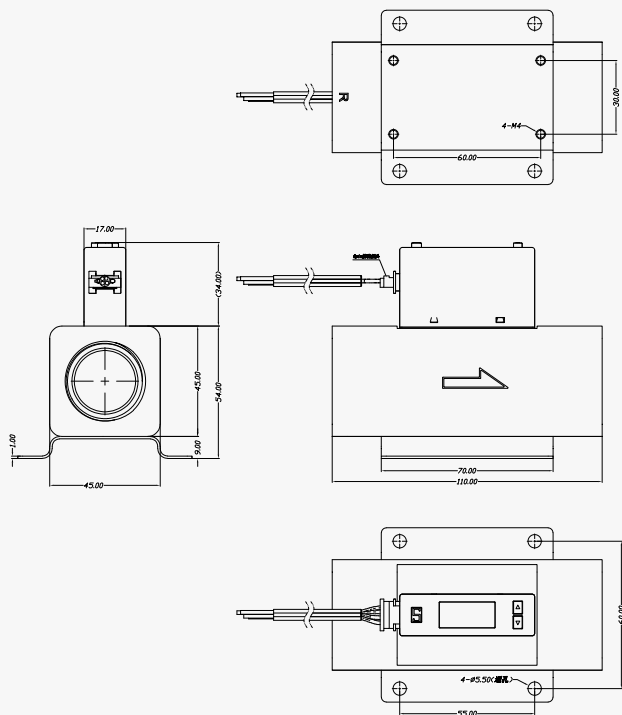
Joint aperture : Rc $\frac{1}{2}$, G $\frac{1}{2}$



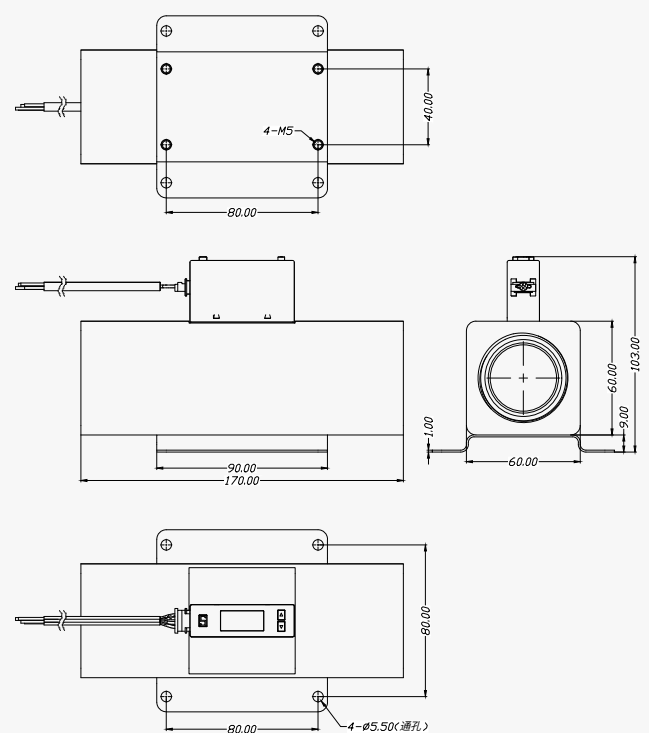
Joint aperture : Rc $\frac{3}{4}$, G $\frac{3}{4}$



3000L/min

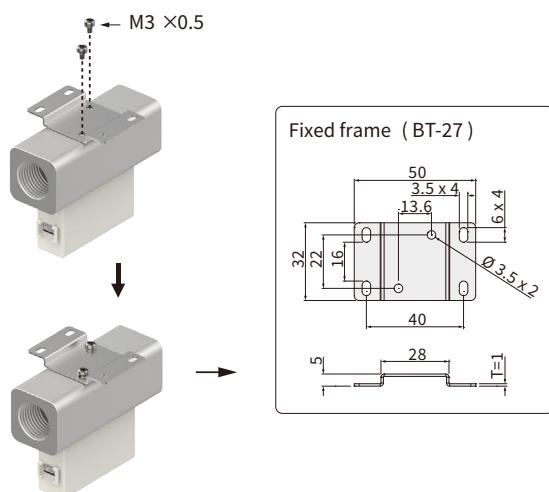


6000L/min

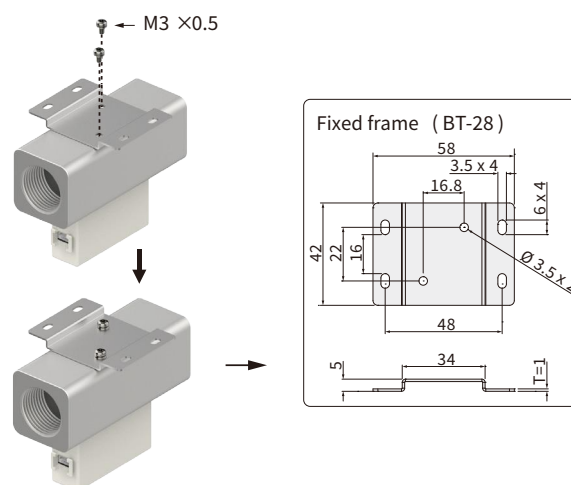


Mounting accessories

■ Fixed frame BT-27 (flow range $\leq 1000\text{L/min}$)



■ Fixed frame BT-28 (flow range $\leq 2000\text{L/min}$)



Selection list

FM 313-	01	SV	R12K	-	expatiate
FM 313-					FM 313 Gas flow sensor
	01				Flow range: 500 L/min
	02				Flow range: 1000 L/min
	03				Flow range: 2000 L/min
	04				Flow range: 3000 L/min
	05				Flow range: 6000 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
			R12K		Nozzle diameter: Rc $\frac{1}{2}$ pipe tooth wire connector, flow range $\leq 1000\text{L/min}$
			G12K		Nozzle diameter: G $\frac{1}{2}$ pipe tooth wire connector, flow range $\leq 1000\text{L/min}$
			R34K		Nozzle diameter: Rc - inner wire connector, flow range $\leq 2000\text{L/min}$
			G34K		Nozzle diameter: G - tube tooth wire connector, flow range $\leq 2000\text{L/min}$
			G1K		Nozzle diameter: G1 tube tooth wire connector, flow range $\leq 3000\text{L/min}$
			R1K		Nozzle diameter: R1 inner wire connector, flow range $\leq 3000\text{L/min}$
			G112K		Nozzle diameter: G1- $\frac{1}{2}$ pipe tooth wire connector, flow range $\leq 6000\text{L/min}$
			-		optional
			BT-27		BT-27: fixed frame (suitable for flow range $\leq 1000\text{L/min}$)
			BT-28		BT-28: fixed frame (suitable for flow range $\leq 2000\text{L/min}$)
			BT-29		BT-29: fixed frame (suitable for flow range $\leq 3000\text{L/min}$)
			BT-30		BT-30: fixed frame (suitable for flow range $\leq 6000\text{L/min}$)