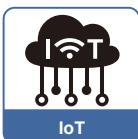
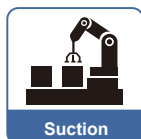


KF02 SERIES Digital Flow Sensor

Features

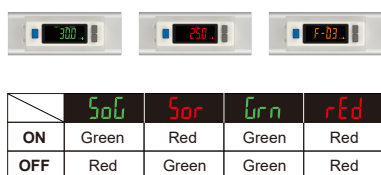
- Design for large flow
- Display can be vertically inverted. To set and watch monitor easily.
- 8 digit 7 segment LCD display. Accumulated flow rate display at a glance.
- Real-time monitoring
- 200 : 1 ratio covers a wider flow range

RS485 MODBUS CONTROL

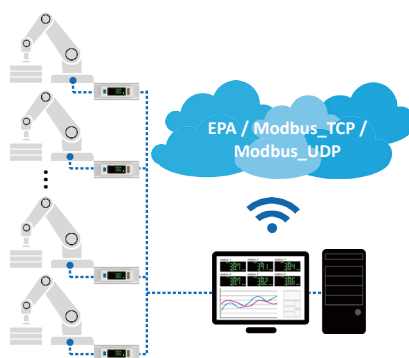


Features Highlight

1 3-color LED display



2 Real-time monitoring



3 High Performance

- High Precision

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

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

- Multiple Output Function

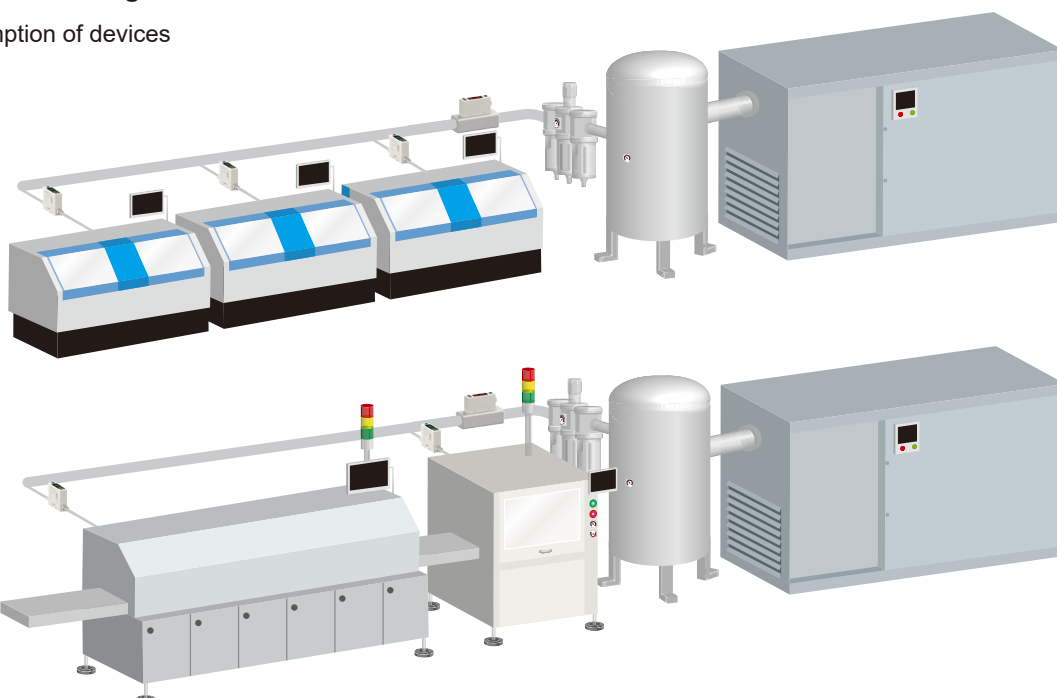
Digital Display	Instantaneous flow value Accumulated flow value
Switch Output	NPN output PNP output
Analog output	Voltage output 1~5 V Current output 4~20 mA
Accumulated Pulse Output	50ms pulse output

4 Air Consumption Monitoring

- Monitor air consumption of devices



+



Specifications

Model				501	102	202
Fluid				Dry air, N ₂ , Non-corrosive / Non-flammable gas		
Sensor Element	Measured Flow Rate Range			2 ~ 500 L/min	5 ~ 1000 L/min	10 ~ 2000 L/min
	Flow Direction			Unidirection		
Display	Instant Flow Rate	Display Range		4 digital (Flow) / 8 digital (Accumulated Flow), 7 segment LCD display (Red / Green / Orange)		
		0 ~ 525 L/min		0 ~ 1050 L/min		0 ~ 2100 L/min
		Minimum Setting Scale	LPM	1 L/min		
			CFM	1 ft ³ /min		
	Accumulated Flow	Display Range		99999999 L		
		Minimum Setting Scale		1 L		
1 ft ³						
Accuracy	Guaranteed Range			2 ~ 100 % F.S.		
	Indicator Accuracy			± 3 % F.S. ± 1 digit ※1		
	Analog Output Accuracy			± 5 % F.S. ※1		
	Repeatability			± 1 % F.S. ± 1 digit (± 2 % F.S. when response time is set to 50 ms) ※2		
	Linearity			± 3 % F.S. ※2		
	Temp. Characteristic			± 5 % F.S. (compare with ※2)		
	Pressure Characteristic			± 5 % F.S. ± 1 digit ※3		
Switch Output				2 NPN : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 28 V DC Voltage Drop : ≤ 1.5 V		2 PNP : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 24 V DC Voltage Drop : ≤ 1.5 V
	Response Time			800 ms (50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 1500 ms selectable)		
	Output Mode			Hysteresis Mode, Window Comparator Mode, Accumulated Output, Accumulated Pulse Output		
	Hysteresis			Adjustable		
	Output Short Circuit Proterction			Yes		
	Accumulated Pulse Output	5 L/Pulse			10 L/Pulse	10 L/Pulse
20 ft ³ /Pulse			40 ft ³ /Pulse	40 ft ³ /Pulse		
Analog Output	Voltage Output			Voltage Output Range : 1 ~ 5 V Output Impedance : 1 KΩ		
	Current Output			Current Output Range : 4 ~ 20 mA Load Impedance : ≤ 300 Ω		
	Response Time			≤ 100 ms		
External Input				Non-voltage input, ≤ 0.4 V, ≥ 30 ms		
Communication Interface				RS485 ※4		
Power	Power Supply Voltage			12 ~ 24 V DC ± 10 %, Ripple (P-P) ≤ 10 %		
	Current Consumption			≤ 50 mA		
Environment	Working Pressure Range			0 ~ 1.0 MPa		
	Withstand Pressure			1.5 MPa		
	Enclosure			IP40		
	Working Fluid Temp.			0 ~ 50 °C (No condensation or freezing)		
	Ambient Temp. Range			Operation : 0 ~ 50 °C ; Storage : -10 ~ 60 °C (No condensation or freezing)		
	Ambient Humidity Range			Operation / Storage : 35 ~ 85 % R.H. (No condensation)		
	Insulation Resistance			≥ 2 MΩ (50 V DC, between case and lead wire)		
	Withstand Voltage			250 V AC in 1-min (between case and lead wire)		
	Vibration			Total amplitude 1.5 mm or 10 G, 10 Hz ~ 55 Hz ~ 10 Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock			100 m/s ² (10 G), 3 times each in direction of X, Y and Z		
	EMC			IEC 61000-6-2, IEC 61000-6-4		
Lead Wire				Ø4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm ²) - 6 cores		
Weight (without 2 Meter Lead Wire)				Approx. 281.7 g (500 / 1000 L) ; Approx. 344 g (2000 L)		

NOTE

※1 : CONDITION : Inlet Pressure : 600 kPa, Outlet Pressure : 1 atmospheric pressure, 25 °C

※2 : CONDITION : Outlet Pressure : 1 atmospheric pressure, 25 °C

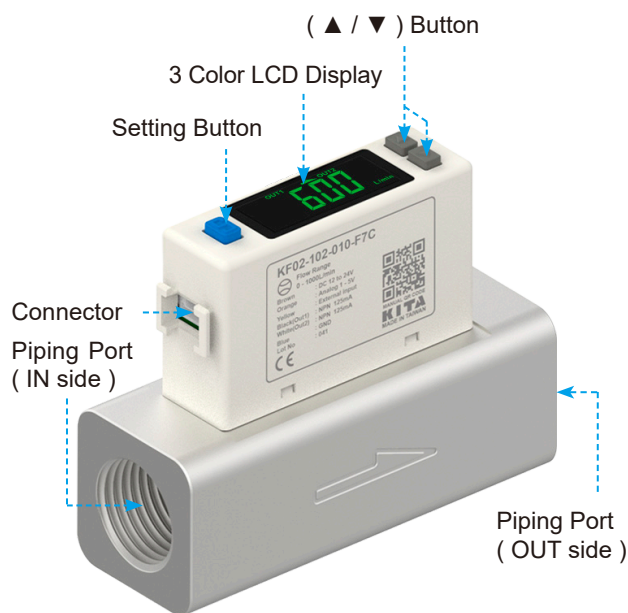
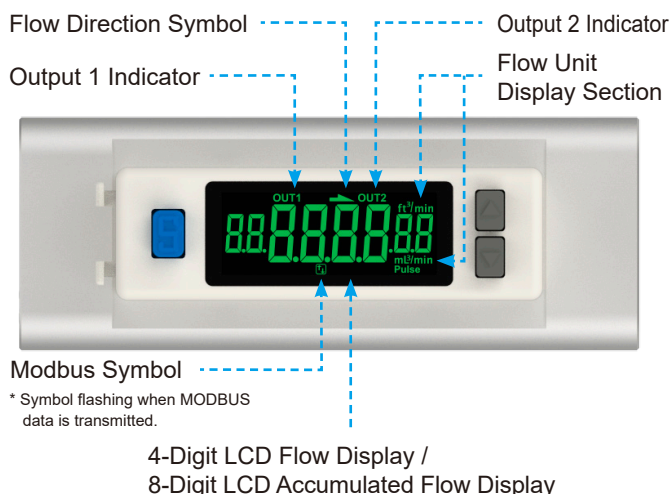
※3 : 0 ~ 1.0 MPa, Outlet Pressure : 1 atmospheric pressure, 25 °C

※4 : This function only available for Output Specification -02 and -04.

KF02 SERIES

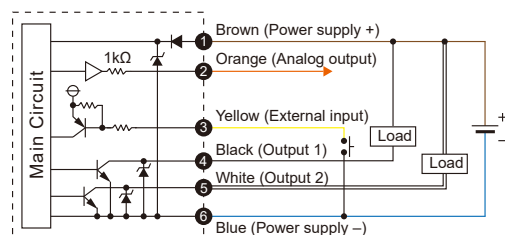
Digital Flow Sensor

Panel Description

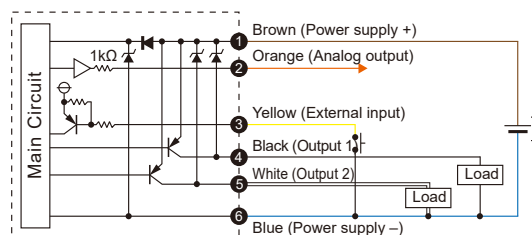


Output Circuit Wiring Diagrams

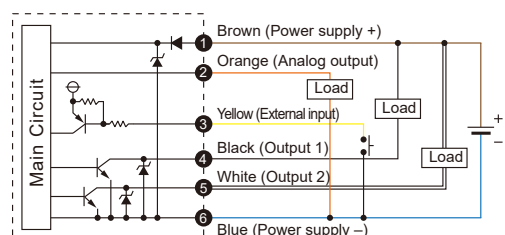
NPN Output / Analog Voltage Output / External Input



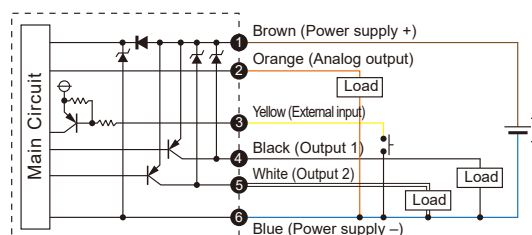
PNP Output / Analog Voltage Output / External Input



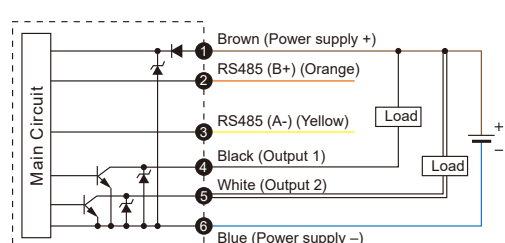
NPN Output / Analog Current Output / External Input



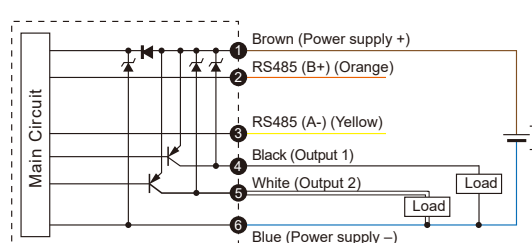
PNP Output / Analog Current Output / External Input



NPN Output / RS485 MODBUS Mode



PNP Output / RS485 MODBUS Mode



Pin No.	Line color	Content
1	Brown	Power supply (12 ~ 24 V DC)
2	Orange	Analog voltage output : 1 ~ 5 V Analog current output : 4 ~ 20 mA
3	Yellow	RS485 (B+)
4	Black	External input
5	White	RS485 (A-)
6	Blue	Output 1 (Max. load current : 125 mA)
		Output 2 (Max. load current : 125 mA)
		0 V (GND)

* Procedure to wiring RS485 products : To prevent product damage due to short circuit , MUST do RS485 line connection BEFORE power line connection.

Ordering Information

K F 0 2 - 5 0 1 - 0 1 0 - F 7 C

Flow Rate Range

501 : 500 L/min
102 : 1000 L/min
202 : 2000 L/min

Output Specifications

010 : 2 NPN output + Analog output 1 ~ 5 V
011 : 2 NPN output + Analog output 4 ~ 20 mA
02 : 2 NPN output + RS485
030 : 2 PNP output + Analog output 1 ~ 5 V
031 : 2 PNP output + Analog output 4 ~ 20 mA
04 : 2 PNP output + RS485

Port Size

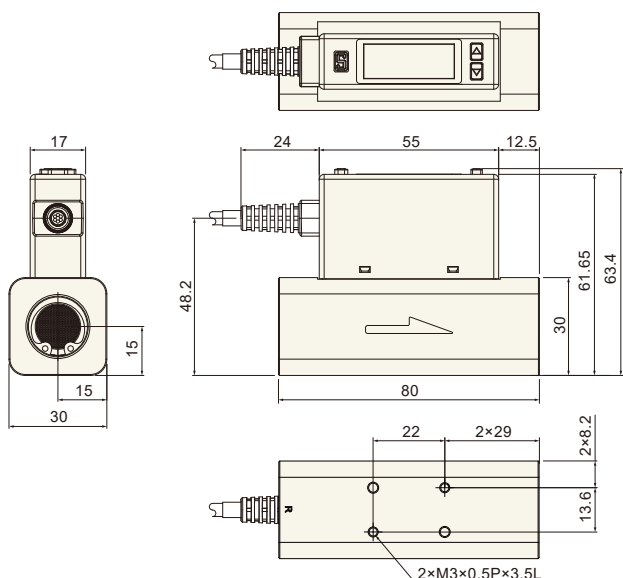
F7C : Rc $\frac{1}{2}$, for Flow Rate Range 501/102.
F9C : G $\frac{1}{2}$, for Flow Rate Range 501/102.
F10C : Rc $\frac{3}{4}$, for Flow Rate Range 202.
F12C : G $\frac{3}{4}$, for Flow Rate Range 202.

Optional Parts

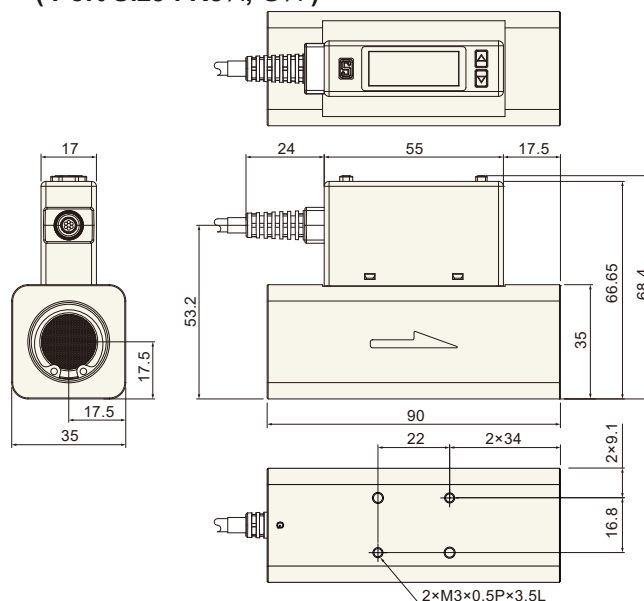
BT-27 : Mounting bracket
BT-28 : Mounting bracket

Dimensions

Flow Rate Range 501, 102 (Port Size : Rc $\frac{1}{2}$, G $\frac{1}{2}$)

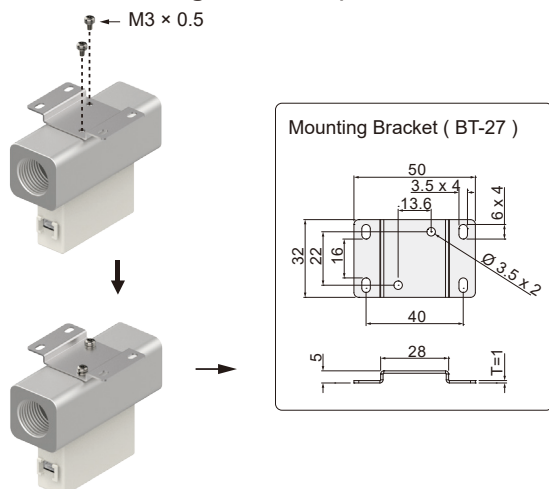


Flow Rate Range 202 (Port Size : Rc $\frac{3}{4}$, G $\frac{3}{4}$)

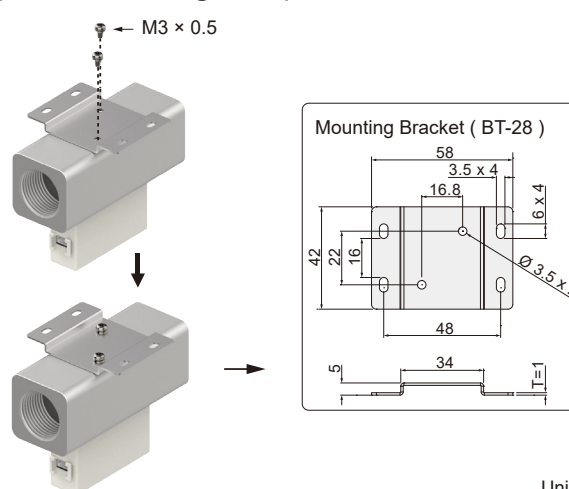


Optional Parts Dimensions

Mounting Bracket : BT-27 (Flow Rate Range 501, 102)



Mounting Bracket : BT-28 (Flow Rate Range 202)



Unit : mm