

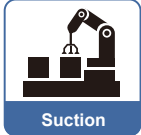
KFP02 SERIES

Digital Flow and Pressure Sensor

Features

- Design for large flow
- Flow and pressure dual sensor
- Flow and pressure 4 digit, 7 segment dual LCD display.
7 segment 8 digit 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

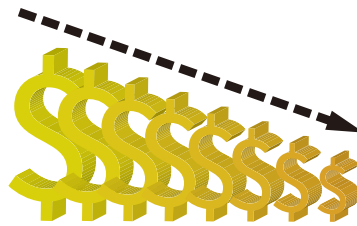
1 2-in-1 Design

- Pressure and flow rate simultaneous monitoring



2 Cost Reduction

- KFP series significantly reduces costs comparing with conventional product



3 High Performance

- High Precision

	Pressure	Flow
Indicator accuracy	± 2 % F.S.	± 3 % F.S.
Repeatability	± 0.2 % F.S.	± 1 % F.S.

- Multiple Output Function

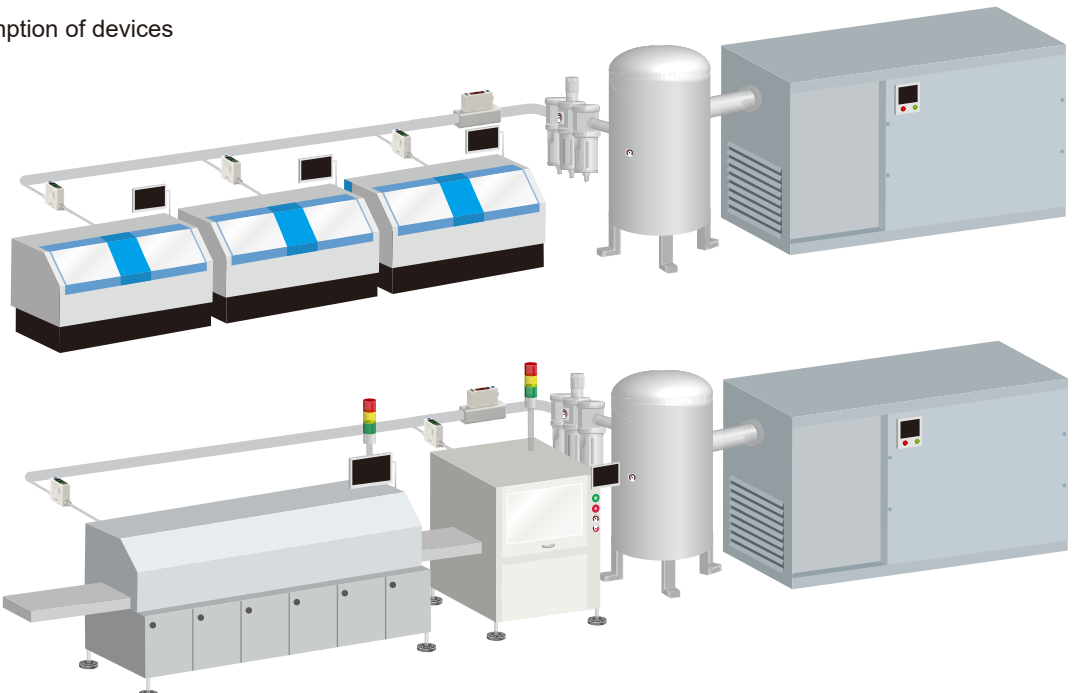
Digital Display	Instantaneous flow value Accumulated flow value Pressure value
Switch Output	NPN output PNP output
Analog output	Voltage output 1~5 V Current output 4~20 mA
Accumulated Pulse Output	50ms pulse output

4 Air Consumption Monitoring

- Monitor air consumption of devices



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Specifications

Model		501	102	202
Fluid		Dry air, N ₂ , Non-corrosive / Non-flammable gas		
Sensor Element	Flow	Measured Flow Rate Range	2 ~ 500 L/min	5 ~ 1000 L/min
	Pressure	Flow Direction	Unidirection	
Rated Pressure Range		-90 ~ 1000 kPa		
Display		4 digital × 4 digital, 7 segment LCD display (Red / Green / Orange)		
Instant Flow Rate	Display Range	0 ~ 525 L/min	0 ~ 1050 L/min	0 ~ 2100 L/min
	Minimum Setting Scale	LPM	1 L/min	
Accumulated Flow	Display Range	99999999 L		
	Minimum Setting Scale	CFM	0.1 ft ³ /min	
Pressure Display	Display Range	-100 ~ 1000 kPa		
	Minimum Setting Scale	kPa	1	
		kgf/cm ²	0.01	
		bar	0.01	
psi	0.1			
Accuracy	Flow	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	
	Pressure	Temp. Characteristic	± 5 % F.S. (compare with ※2)	
		Pressure Characteristic	± 5 % F.S. ± 1 digit ※3	
		Guaranteed Range	0 ~ 100 % F.S.	
		Indicator Accuracy	± 2 % F.S. ± 1 digit ※4	
		Analog Output Accuracy	± 2.5 % F.S. ※4	
Switch Output	Response Time	Flow	800 ms (50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 1500 ms selectable)	
		Pressure	2.5 ms (25 ms, 100 ms, 250 ms, 500 ms, 1000 ms, 1500 ms selectable)	
	Output Mode	Flow	Hysteresis Mode, Window Comparator Mode, Accumulated Output, Accumulated Pulse Output	
		Pressure	One Point Set Mode, Hysteresis Mode, Window Comparator Mode	
Hysteresis	Adjustable			
Output Short Circuit Protection	Yes			
Accumulated Pulse Output	Flow	5 L/Pulse	10 L/Pulse	10 L/Pulse
	Pressure	20 ft ³ /Pulse	40 ft ³ /Pulse	40 ft ³ /Pulse
Analog Output	Voltage Output	Voltage Output Range : 1 ~ 5 V ※5 Output Impedance : 1 KΩ		
	Current Output	Current Output Range : 4 ~ 20 mA ※5 Load Impedance : ≤ 300 Ω		
	Response Time	Pressure : ≤ 50 ms ; Flow : ≤ 100 ms		
External Input	Non-voltage input, ≤ 0.4 V, ≥ 30 ms			
Communication Interface	RS485 ※6			
Power	Power Supply Voltage	12 ~ 24 V DC ± 10 %, Ripple (P-P) ≤ 10 %		
	Current Consumption	≤ 50 mA		
Environment	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 : Outlet flow rate = 0 L/min, 25 °C

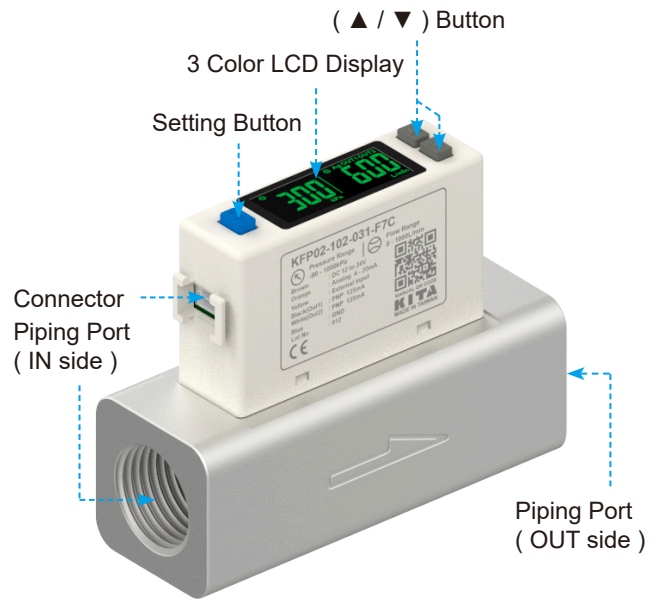
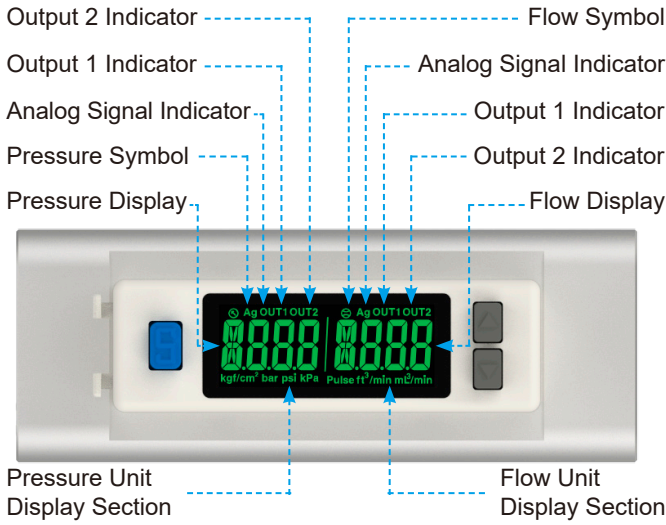
※5 : PWM output, corresponding to pressure sensor 0 ~ 1000 kPa

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

KFP02 SERIES

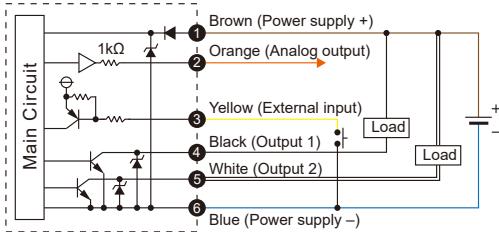
Digital Flow and Pressure Sensor

Panel Description

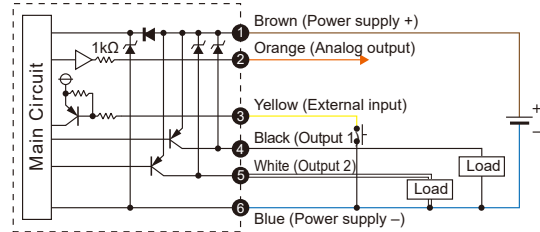


Output Circuit Wiring Diagrams

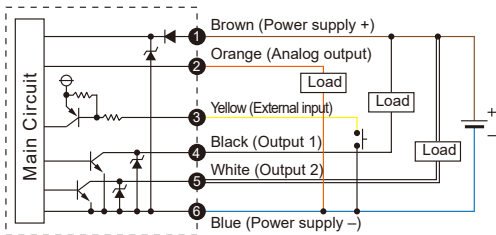
NPN Output / Analog Voltage Output / External Input



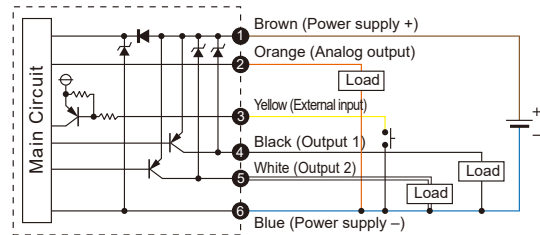
PNP Output / Analog Voltage Output / External Input



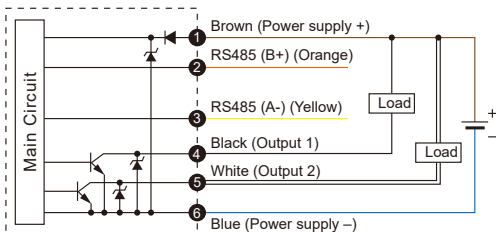
NPN Output / Analog Current Output / External Input



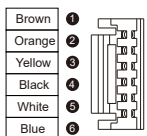
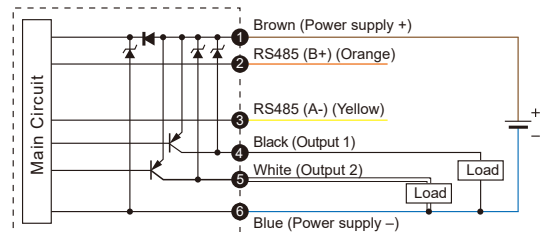
PNP Output / Analog Current Output / External Input



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 RS485 (B+)
3	Yellow	External input RS485 (A-)
4	Black	Output 1 (Max. load current : 125 mA)
5	White	Output 2 (Max. load current : 125 mA)
6	Blue	0 V (GND)

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

Ordering Information

K F P 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

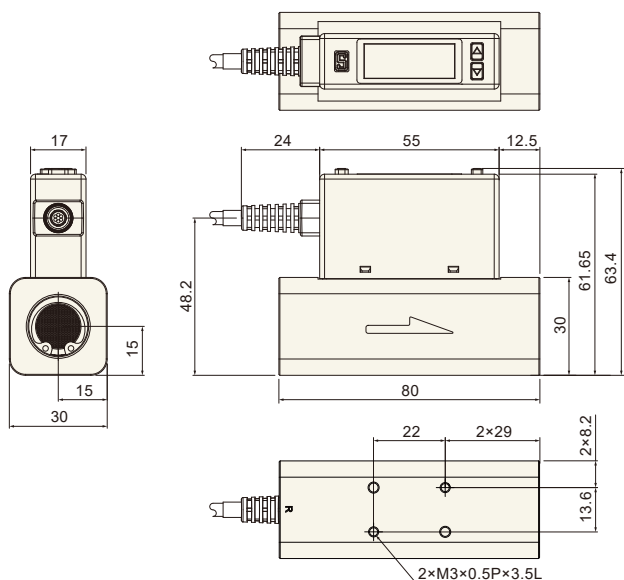
F7C : Rc½, for Flow Rate Range 501/102.
F9C : G½, for Flow Rate Range 501/102.
F10C : Rc¾, for Flow Rate Range 202.
F12C : G¾, for Flow Rate Range 202.

Optional Parts

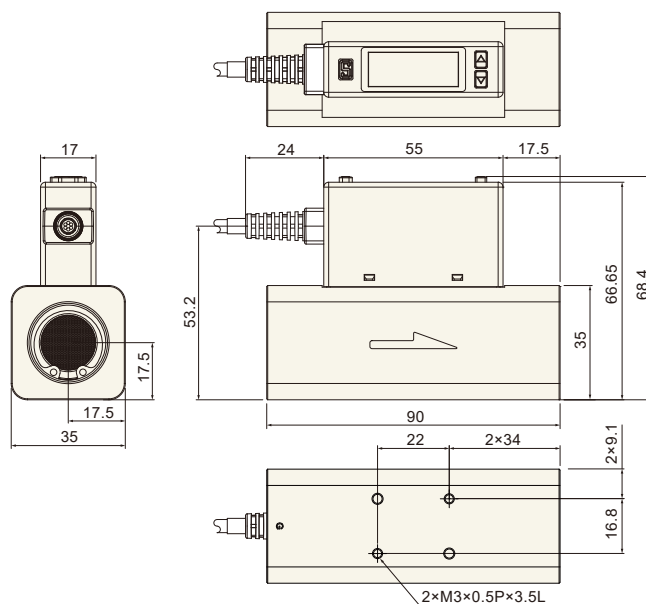
BT-27 : Mounting bracket
BT-28 : Mounting bracket

Dimensions

Flow Rate Range 501, 102 (Port Size : Rc½, G½)

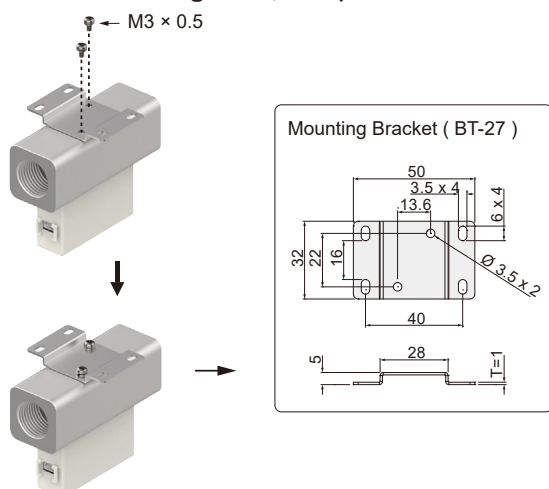


Flow Rate Range 202 (Port Size : Rc¾, G¾)



Optional Parts Dimensions

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



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

