

MFP01 / 02 series

FLOW & PRESSURE SENSOR



MFP01 user manual



MFP02 user manual



Selection table



Feature

- Flow and pressure 4 digit, 7 segment dual LCD display.
- 8 digit accumulated flow rate display.
- Real-time monitoring.
- RS485 Modbus control.

Symbol



MFP01 Specification

Model			005	010	050	100	500	101	201	
Sensor element	Flow	Measured flow rate 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	
		Flow direction	Unidirection							
	Pressure	Rated pressure range	-90 ~ 800 kPa							
Display	Display		4 digital × 4 digital, 7 segment LCD display (Red / Green / Orange)							
	Instant flow rate	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	
		Min. setting scale	LPM	1 mL/min		0.01 L/min		0.1 L/min		1 L/min
			CFM *1	0.01 ft³/min		0.1 ft³/min		1 ft³/min		
	Accumulated Flow	Display range	99999999 mL		999999.99 L		9999999.9 L		99999999 L	
		Min. Setting Scale *1	1 mL		0.01 L		0.1 L		1 L	
			0.01 ft³		0.1 ft³		1 ft³			
Switch output			5 mL/Pulse	10 mL/Pulse	0.05 L/Pulse	0.1 L/Pulse	0.5 L/Pulse	1 L/Pulse	2 L/Pulse	
Accumulated pulse output *1			0.02 ft³/Pulse	0.04 ft³/Pulse	0.2 ft³/Pulse	0.4 ft³/Pulse	2 ft³/Pulse	4 ft³/Pulse	7 ft³/Pulse	
Port Size	R6, F1C		●	●	●	●	●			
	R8, F4C							●	●	
Weight (with 2 meter lead wire)			Approx. 109.3 g (ø6 port) ; Approx. 112.7 g (ø8 port) ; Approx. 118 g (Rc1/4" port) ; Approx. 128.5 g (Rc1/8" port)							

*1. When the display unit is CFM, ft³, the actual flow is the display value×10⁻².

MFP02 Specification

Model				501	102	202	
Sensor element	Flow	Measured flow rate range		2 ~ 500 L/min	5 ~ 1000 L/min	10 ~ 2000 L/min	
		Flow direction		Unidirection			
	Pressure	Rated pressure range		-90 ~ 1000 kPa			
Display	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	
		Min. setting scale	LPM	1 L/min			
			CFM	0.1 ft³/min			
	Accumulated Flow	Display range		99999999 L			
		Min. Setting Scale	1 L				
			1 ft³				
Switch output		5 L/Pulse		10 L/Pulse	10 L/Pulse		
Accumulated pulse output *1		20 ft³/Pulse		40 ft³/Pulse	40 ft³/Pulse		
Port Size	Rc1/2, F7C / G1/2, F9C		●	●			
	Rc3/4, F10C / G3/4, F12C				●		
Weight (without 2 meter lead wire)			Approx. 281.7 g (500 / 1000 L) ; Approx. 344 g (2000 L)				

(Continued)

MFP01 / 02 Specifications

FLOW & PRESSURE SENSOR



MFP01 / 02 Specification

Model		MFP01	MFP02
Fluid		Dry air, N ₂ , Non-corrosive / Non-flammable gas	
Display	Display range	-100 ~ 1000 kPa	
	Pressure Display	1	
	Min. Setting Scale	0.01	
		0.01 / 0.1	
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	± 1 % F.S. ± 1 digit (± 2 % F.S. when response time is set to 50 ms) *2
	Linearity	± 3 % F.S. *2	
	Temp. characteristic	± 2 % F.S. (15 ~ 35 °C); ± 5 % F.S. (0 ~ 15 °C, 35 ~ 50 °C) (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	
	Repeatability	± 0.2 % F.S. ± 1 digit *4	
	Linearity	± 1 % F.S. *4	
	Temp. characteristic	± 2 % F.S. (compare with *4)	
Switch output	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 protection	Yes	
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		RS-485 *6,7	
Power	Power supply voltage	12 ~ 24 V DC ± 10 % , Ripple (P-P) ≤ 10 %	
	Current consumption	≤ 50 mA	
Environment	Withstand Pressure	1000 kPa	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	≥ 50 MΩ (500 V DC, between case and lead wire)	≥ 2 MΩ (500 V DC, between case and lead wire)
	Withstand Voltage	1000 V AC in 1-min (between case and lead wire)	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	

*1. Condition: Inlet Pressure: MFP01: 300 kPa, MFP02: 600 kPa , Outlet Pressure: 1 atmospheric pressure, 25 °C

*2. Condition: Outlet Pressure: 1 atmospheric pressure, 25 °C

*3. MFP01: -90 ~ 800 kPa, MFP02: 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.

*7. 4 data reading per time.

MFP01 / 02 Output circuit wiring graph

FLOW & PRESSURE SENSOR

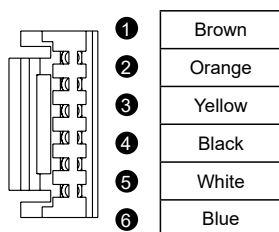


Output circuit wiring graph

Model	MFP01/02-□-010	MFP01/02-□-011	MFP01/02-□-02
Connect diagram			
Output method	NPN output / Analog voltage output / External input	NPN output / Analog current output / External input	NPN output / RS-485 MODBUS mode

Model	MFP01/02-□-030	MFP01/02-□-031	MFP01/02-□-04
Connect diagram			
Output method	PNP output / Analog voltage output / External input	PNP output / Analog current output / External input	PNP output / RS-485 MODBUS mode

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



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)
⑦	White	Output 2 (Max. load current: 125 mA)
⑧	Blue	0 V (GND)

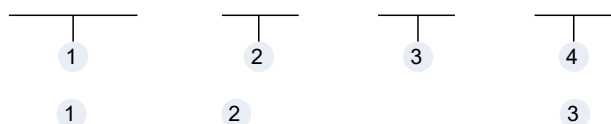
MFP01 / 02 Order example

FLOW & PRESSURE SENSOR



Order example

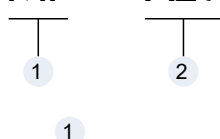
MFP02 – 501 – 010 – F7C



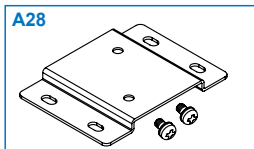
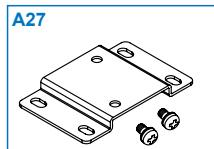
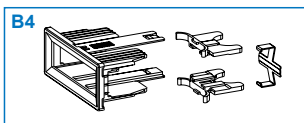
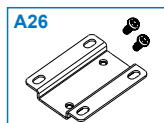
MODEL	FLOW RATE RANGE	OUTPUT METHOD	PORT SIZE
MFP01	005: 500 (ml/min)	010: 2 NPN output + 1 Analog output (1~5V) 011: 2 NPN output + 1 Analog output (4~20mA) 02 : 2 NPN output + RS485 030: 2 PNP output + 1 Analog output (1~5V) 031: 2 PNP output + 1 Analog output (4~20mA) 04 : 2 PNP output + RS485	R6: ø6 mm
	010: 1000 (ml/min)		F1C: Rc1/8", with internal threads
	050: 5 (l/min)		R8: ø8 mm
	100: 10 (l/min)		F4C: Rc1/4", with internal threads
MFP02	101: 100 (l/min)		F7C: Rc1/2"
	201: 200 (l/min)		F9C: G1/2"
	501: 500 (l/min)		F10C: Rc3/4"
	102: 1000 (l/min)		F12C: G3/4"
	202: 2000 (l/min)		

Mounting accessories

MP – A27

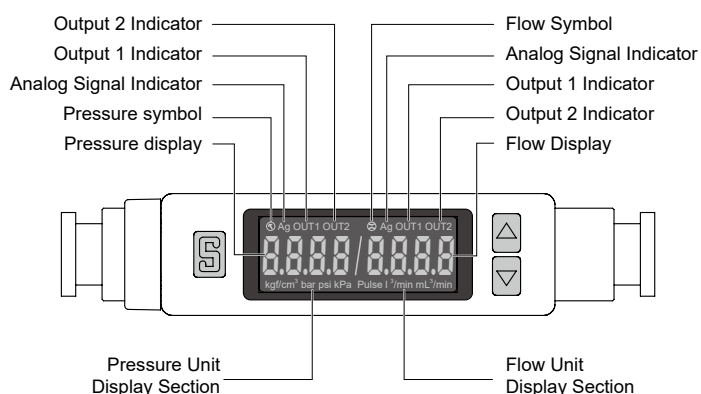


MODEL	OPTION PARTS
MFP01	A26: Mounting bracket B4: Panel adapter C4: Panel adapter + Front protective lid
MFP02	A27: Mounting bracket, for 501, 102 A28: Mounting bracket, for 202

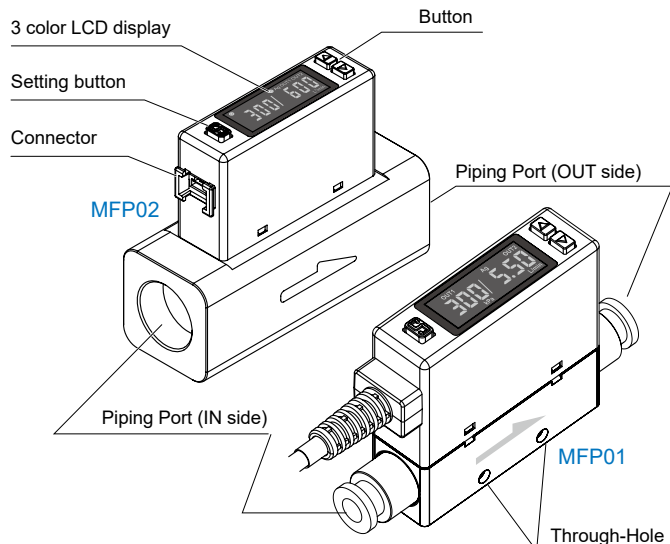


Name and functions of individual parts

Panel description



Body description



MFP01 Dimensions

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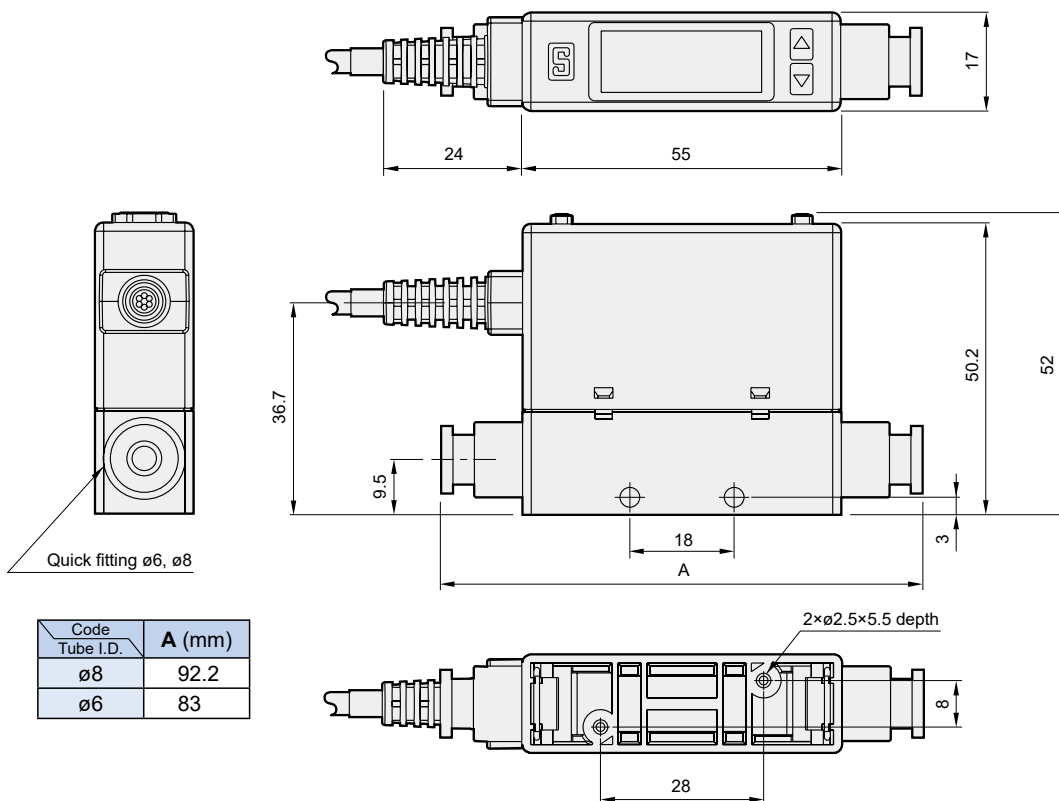


Mindman

Port size

R6 (ø6)

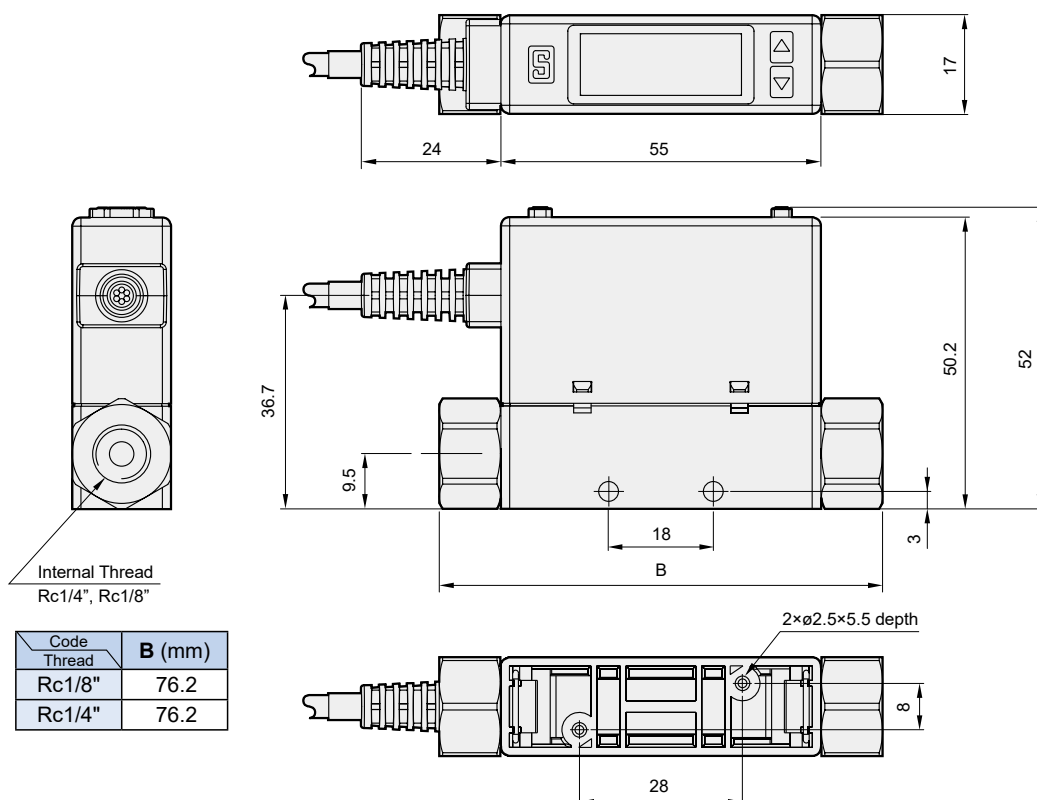
R8 (ø8)



Port size

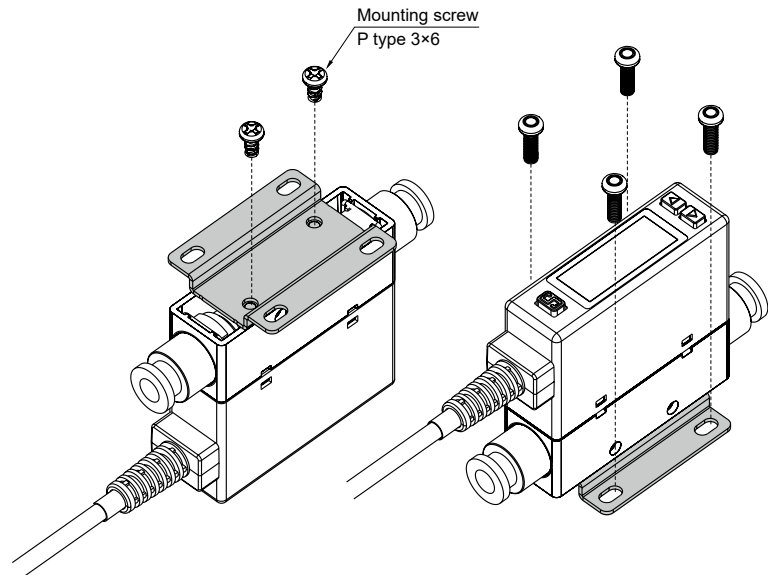
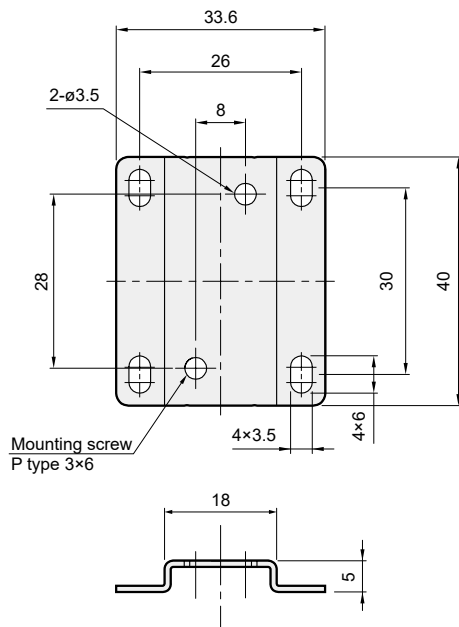
F1C (Rc1/8")

F4C (Rc1/4")



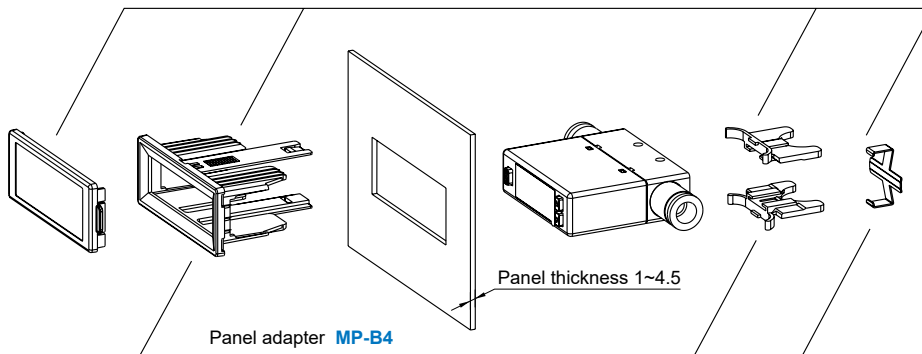
Mounting bracket

MP-A26

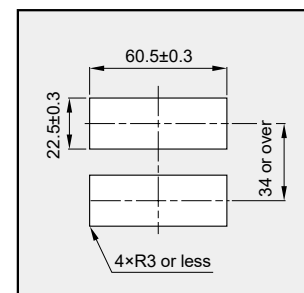


Panel type

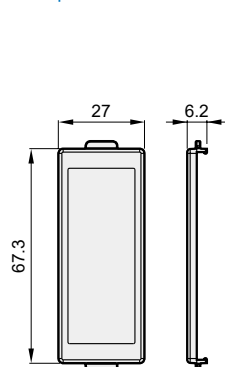
Front protective lid + Panel adapter MP-C4



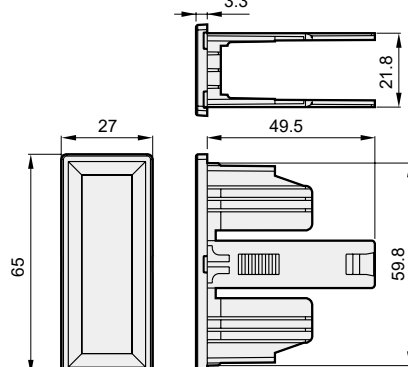
Panel cut dimensions



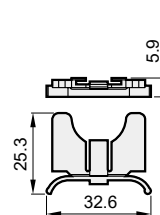
Front protective lid



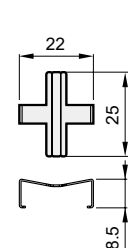
Panel adapter



Panel adapter



Panel adapter



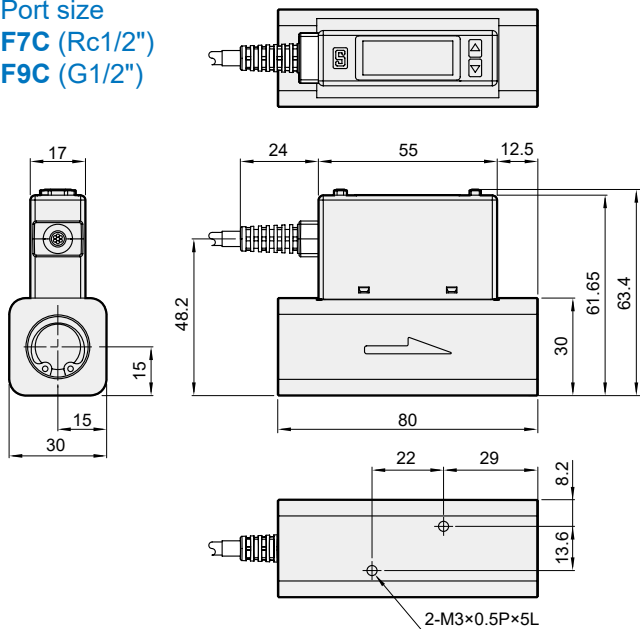
MFP02 Dimensions

FLOW & PRESSURE SENSOR

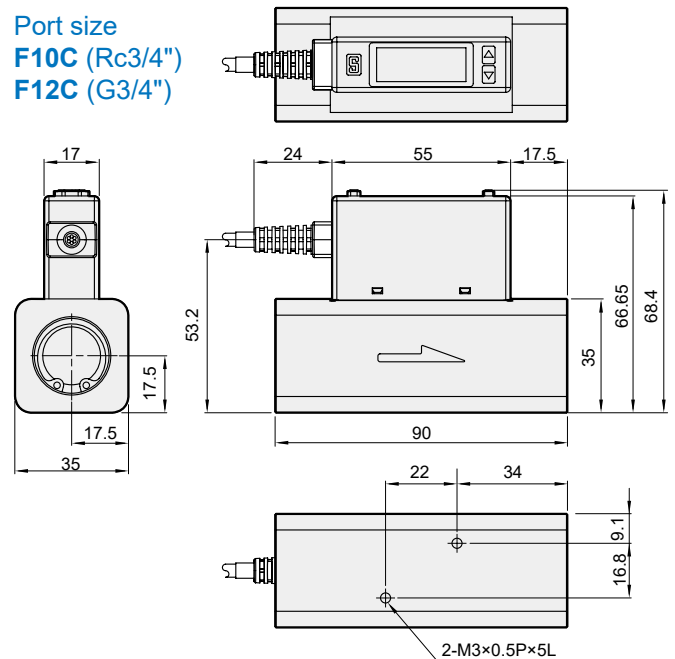


Dimensions

Port size
F7C (Rc1/2")
F9C (G1/2")

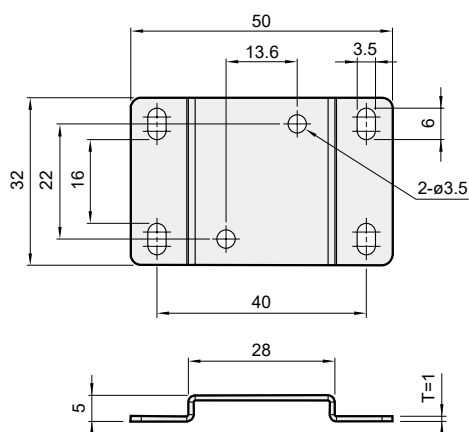
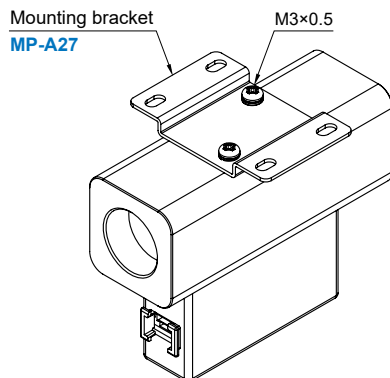


Port size
F10C (Rc3/4")
F12C (G3/4")



Mounting bracket

MP-A27



MP-A28

