

MFP01 / 02 series

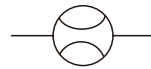
FLOW & PRESSURE SENSOR



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		4 digital × 4 digital, 7 segment LCD display (Red / Green / Orange)									
Display	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 ft ³ /min		0.1 ft ³ /min		1 ft ³ /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 ft ³		0.1 ft ³		1 ft ³				
Switch output	Accumulated pulse output *1		5 mL/Pulse	10 mL/Pulse	0.05 L/Pulse	0.1 L/Pulse	0.5 L/Pulse	1 L/Pulse	2 L/Pulse		
			0.02 ft ³ /Pulse	0.04 ft ³ /Pulse	0.2 ft ³ /Pulse	0.4 ft ³ /Pulse	2 ft ³ /Pulse	4 ft ³ /Pulse	7 ft ³ /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		4 digital × 4 digital, 7 segment LCD display (Red / Green / Orange)					
Display	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 ft ³ /min				
Accumulated Flow	Display range		99999999 L				
	Min. Setting Scale		1 L				
			1 ft ³				
Switch output	Accumulated pulse output *1		5 L/Pulse	10 L/Pulse	10 L/Pulse		
			20 ft ³ /Pulse	40 ft ³ /Pulse	40 ft ³ /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	Pressure Display	-100 ~ 1000 kPa		
	Display range	-100 ~ 1000 kPa		
	Min. Setting Scale	1 kPa		
		0.01 kgf/cm ²		
		0.01 / 0.1 bar / psi		
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	
		Linearity	± 3 % F.S. *2	
	Pressure	Temp. characteristic	± 2 % F.S. (15 ~ 35 °C); ± 5 % F.S. (0 ~ 15 °C, 35 ~ 50 °C) (compare with *2)	± 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	
	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	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			
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

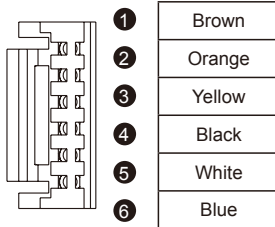
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Output circuit wiring graph

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

MFP01 / 02 Order example

FLOW & PRESSURE SENSOR



Order example

MFP02 – 501 – 010 – F7C

1

2

3

4

1

2

3

4

MODEL	FLOW RATE RANGE	OUTPUT METHOD	PORT SIZE
MFP01	005: 500 (ml/min) 010: 1000 (ml/min) 050: 5 (l/min) 100: 10 (l/min) 500: 50 (l/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 F1C: Rc1/8", with internal threads
	101: 100 (l/min) 201: 200 (l/min)		R8: ø8 mm F4C: Rc1/4", with internal threads
MFP02	501: 500 (l/min) 102: 1000 (l/min)		F7C: Rc1/2" F9C: G1/2"
	202: 2000 (l/min)		F10C: Rc3/4" F12C: G3/4"

Mounting accessories

MP – A27

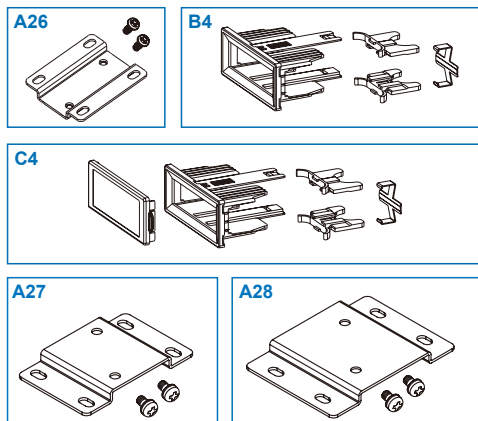
1

2

1

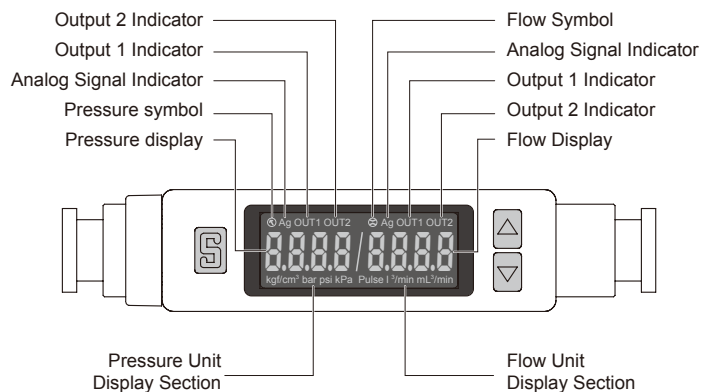
2

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

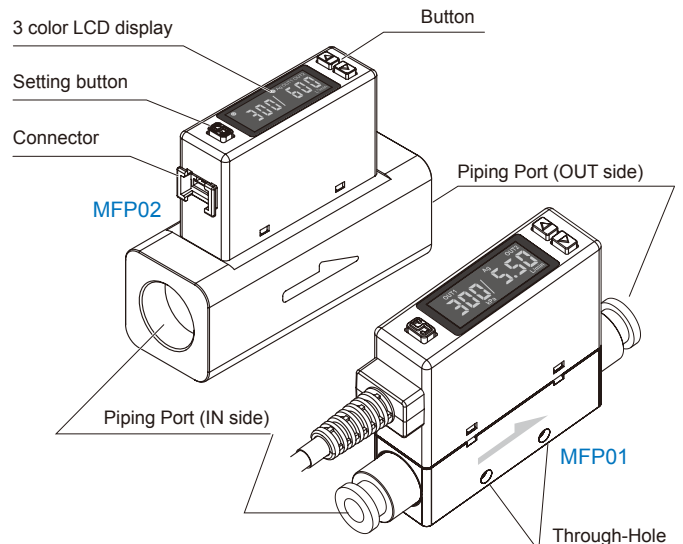


Name and functions of individual parts

Panel description



Body description



MFP01 Dimensions

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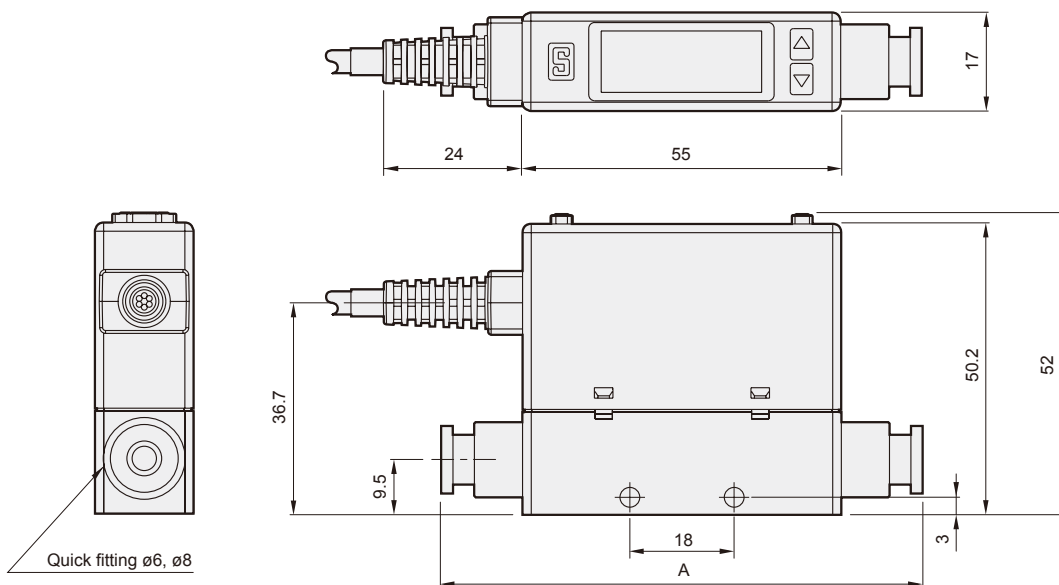


Mindman

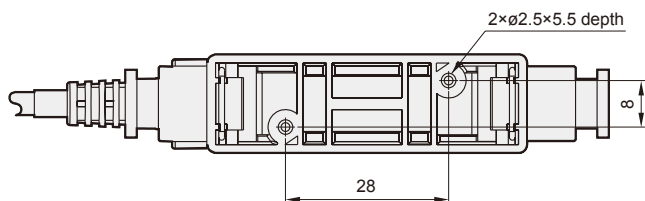
Port size

R6 (ø6)

R8 (ø8)



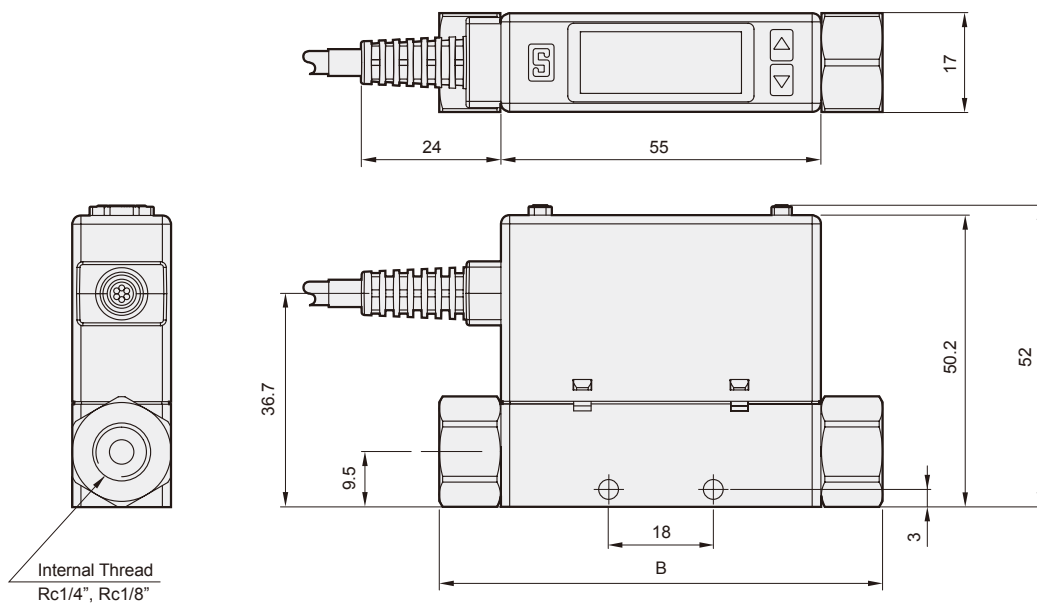
Code Tube I.D.	A (mm)
ø8	92.2
ø6	83



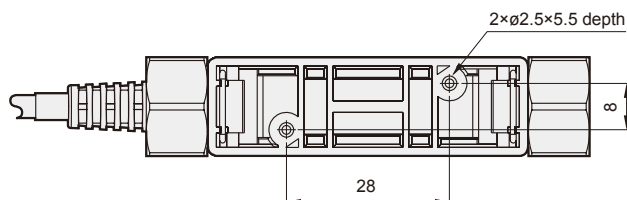
Port size

F1C (Rc1/8")

F4C (Rc1/4")

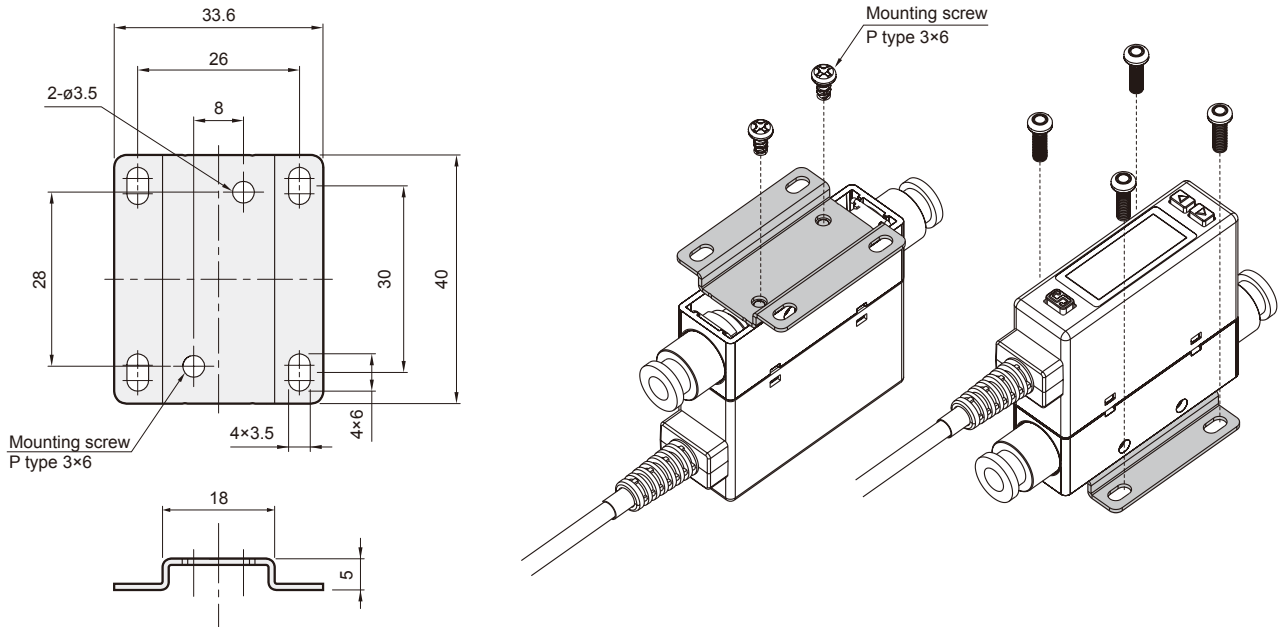


Code Thread	B (mm)
Rc1/8"	76.2
Rc1/4"	76.2



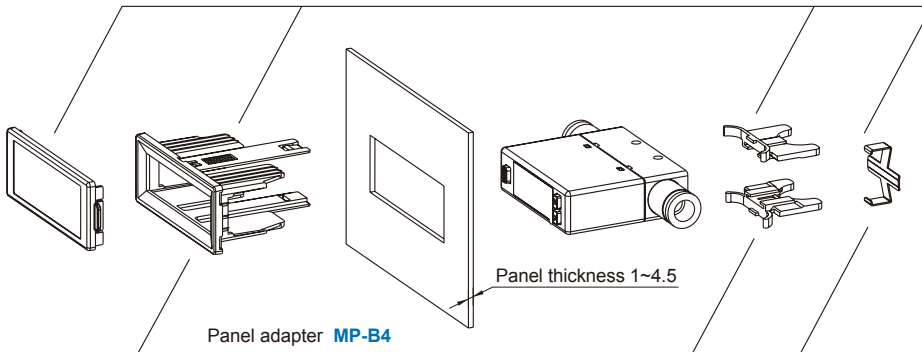
Mounting bracket

MP-A26

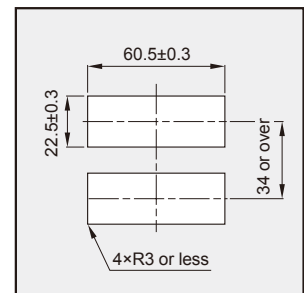


Panel type

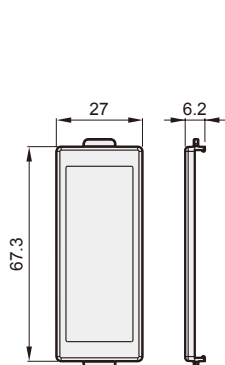
Front protective lid + Panel adapter MP-C4



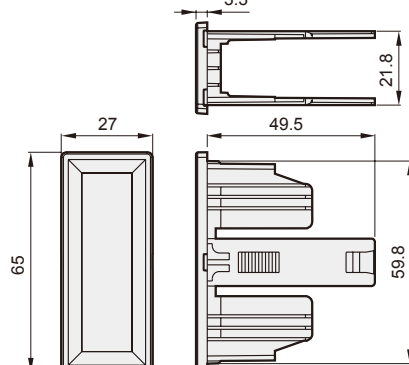
Panel cut dimensions



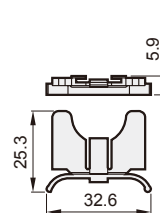
Front protective lid



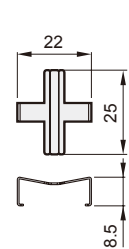
Panel adapter



Panel adapter



Panel adapter



MFP02 Dimensions

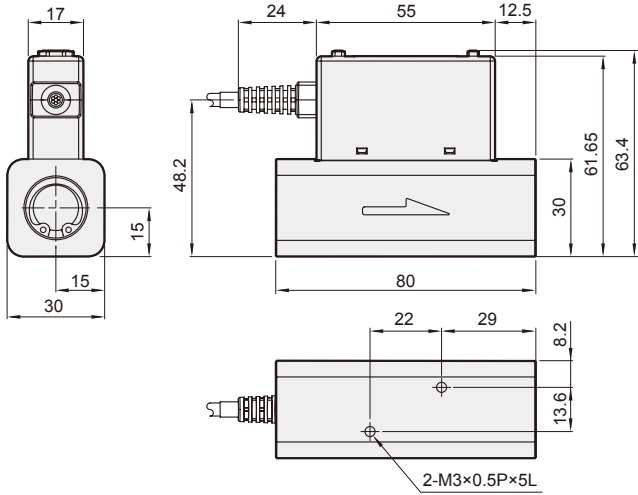
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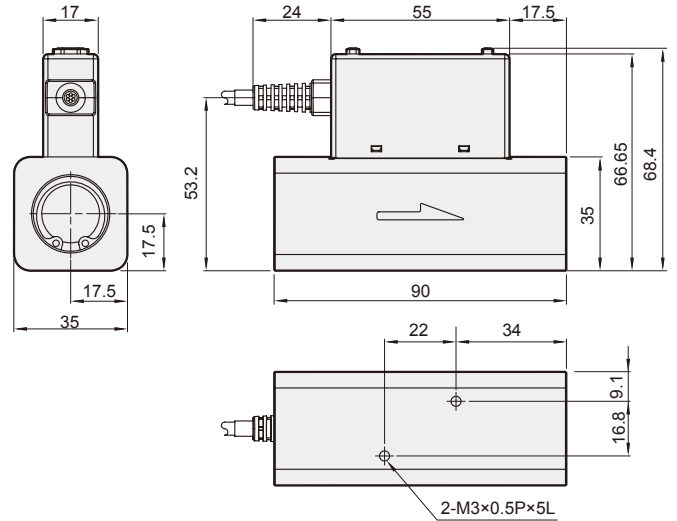
Mindman

Dimensions

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

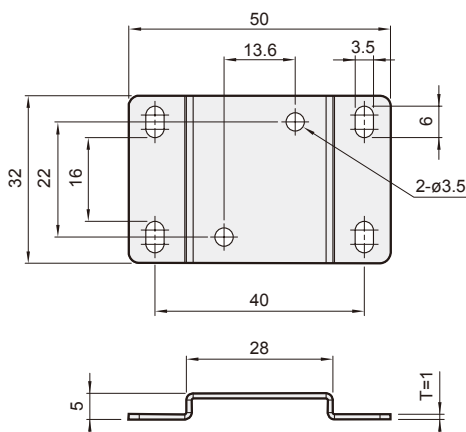
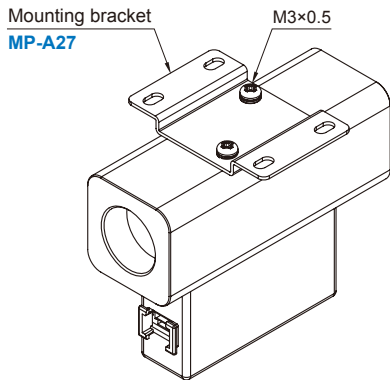


Port size
F10C (Rc3/4")
F12C (G3/4")



Mounting bracket

MP-A27



MP-A28

