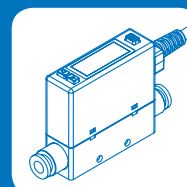
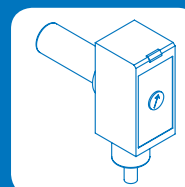
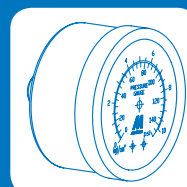
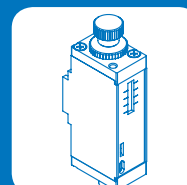
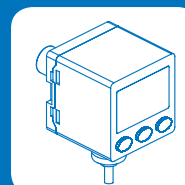
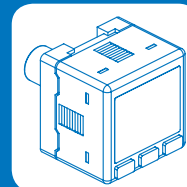
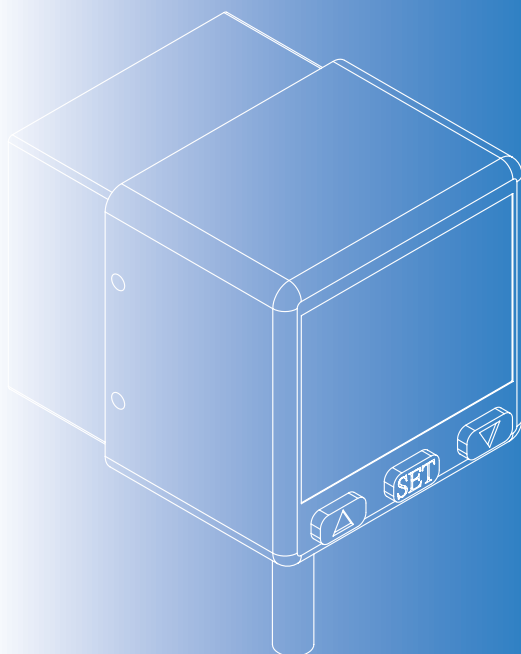


PRESSURE SWITCH



Selector Table5-2

PNEUMATIC PRESSURE SWITCH

MP*

MP1	5-6
MP10	5-8
MP30	5-11
MP41	5-13
MP43	5-19
MP45	5-23
MP47	5-27
MP50	5-31
MP70 New	5-35
MPS	5-39

DIGITAL PRESSURE GAUGE

MP23	5-40
MPG-60	5-42

PRESSURE GAUGE

PG

PG	5-44
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DIGITAL FLOW SENSOR

MF*

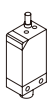
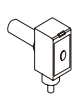
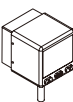
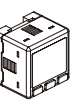
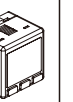
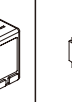
MF01 New	5-45
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FLOW & PRESSURE SENSOR

MFP01 New	5-50
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- Standard type ① Standard type (for MP41) ② Extra purchase (T8 bracket: Rc1/4 + Fitting: R1/4 → Rc1/8)
③ Extra purchase (Gauge adapter set) ④ Extra purchase (Gauge adapter set + Fitting: R1/8 → Rc1/4)

Selector table

Model		Pneumatic pressure switch		High precision digital pressure switch							Pneumatic pressure switch
		MP1	MP10-F1	MP30	MP41	MP43	MP45	MP47	MP50	MP70	MPS
Pictures											
Model	Port size	R1/8	R1/8	R1/8	—	R1/8	R1/8	R1/8	R1/4	R1/8	R1/8
MACP200	Rc1/8					●	●	●		●	
MACP300*	Rc1/8	②	②	②		●	●	●		●	②
MACP302	—	②	②	②	①	③	③	③	④	③	②
MACP400	Rc1/4								●		
MACP401	—	②	②	②	①	③	③	③	④	③	●
MACP402	Rc1/4								●		
MACP403	—	②	②	②	①	③	③	③	④	③	●
MACP501	—	②	②	②	①	③	③	③	④	③	②
MAcc300	Rc1/8					●	●	●		●	
MACT200	Rc1/8					●	●	●		●	
MACT300*	Rc1/8	②	②	②		●	●	●		●	②
MACT302	—	②	②	②	①	③	③	③		③	②
MACT400	Rc1/4								●		
MACT401	—	②	②	②	①	③	③	③	④	③	●
MACT402	Rc1/4								●		
MACT403	—	②	②	②	①	③	③	③	④	③	●
MACT501	—	②	②	②	①	③	③	③	④	③	②
MAFR200	Rc1/8					●	●	●		●	
MAFR300*	Rc1/8					●	●	●		●	
MAFR302	—	②	②	②	①	③	③	③		③	②
MAFR400	Rc1/4								●		
MAFR401	—				①	③	③	③		③	
MAFR402	Rc1/4								●		
MAFR403	—				①	③	③	③		③	
MAFR501	—				①	③	③	③		③	
MAR200	Rc1/8					●	●	●		●	
MAR201	Rc1/8					●	●	●		●	
MAR300	Rc1/8					●	●	●		●	
MAR301	Rc1/8					●	●	●		●	
MAR302	—	②	②	②	①	③	③	③		③	②
MAR400	Rc1/4								●		
MAR401	—				①	③	③	③		③	
MAR402	Rc1/4								●		
MAR403	—				①	③	③	③		③	
MAR501	—				①	③	③	③		③	

* 300L specification is the same as the 300 series.

- Standard type ③ Extra purchase (Gauge adapter set)
○ Male thread type (Code: M1, M2, N1, N2)

Model		Digital pressure gauge		Pressure gauge
		MP23	MPG-60	PG
Pictures				
Model	Port size	R1/8	R1/8	—
MACP200	Rc1/8	○	●	●
MACP300*	Rc1/8	○	●	●
MACP302	—	○	③	③
MACP400	Rc1/4	○	—	●
MACP401	—	○	③	③
MACP402	Rc1/4	○	—	—
MACP403	—	○	③	③
MACP501	—	○	③	③
MAcc300	Rc1/8	○	●	●
MACT200	Rc1/8	○	●	●
MACT300*	Rc1/8	○	●	●
MACT302	—	○	③	③
MACT400	Rc1/4	○	—	●
MACT401	—	○	③	③
MACT402	Rc1/4	○	—	—
MACT403	—	○	③	③
MACT501	—	○	③	③
MAFR200	Rc1/8	○	●	●
MAFR300*	Rc1/8	○	●	●
MAFR302	—	○	③	③
MAFR400	Rc1/4	○	—	●
MAFR401	—	○	③	③
MAFR402	Rc1/4	○	—	—
MAFR403	—	○	③	③
MAFR501	—	○	③	③
MAR200	Rc1/8	○	●	●
MAR201	Rc1/8	○	●	●
MAR300	Rc1/8	○	●	●
MAR301	Rc1/8	○	●	●
MAR302	—	○	③	③
MAR400	Rc1/4	○	—	●
MAR401	—	○	③	③
MAR402	Rc1/4	○	—	—
MAR403	—	○	③	③
MAR501	—	○	③	③

* 300L specification is the same as the 300 series.

Order example of male thread type

MP23 — Standard order example — M1

MODEL
MP23

PORT SIZE
M1: R1/8 male thread
M2: NPT1/8 male thread
N1: R1/4 male thread
N2: NPT1/4 male thread

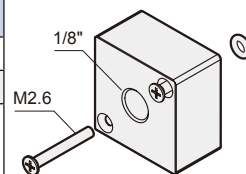
Order example of gauge adapter set

A — MAR302 — □

MODEL
MAR302
MAR401

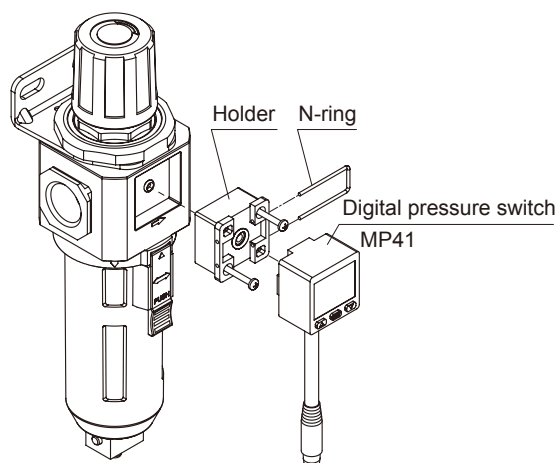
PORT THREAD
Blank: Rc thread
NPT: NPT thread

Order example	Applicable model
A—MAR302—□	MAR302, MAFR302
A—MAR401—□	MAR401, MAFR401
A—MAR302—□ (With 302 shared)	MAR401-W, MAFR401-W MAR403, MAFR403 MAR501, MAFR501

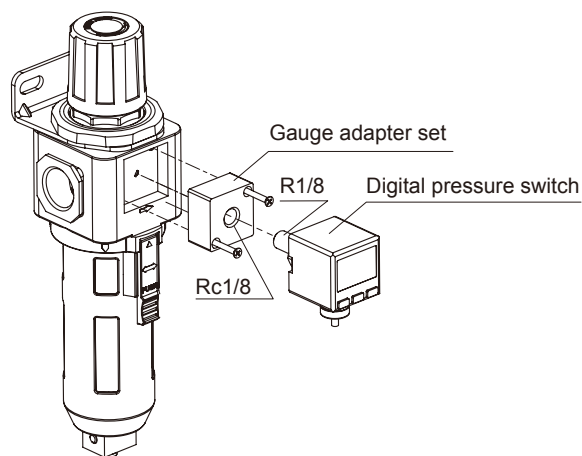


* Recommended tightening torque is between 1.5 to 2.5 Nm for the female thread (1/8") and 0.3 to 0.5Nm for the screws(M2.6).

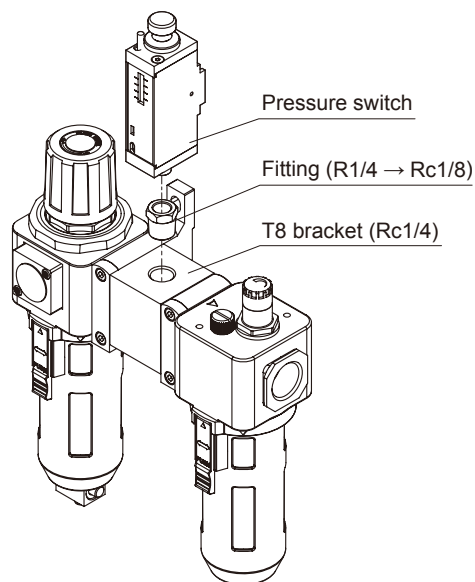
1 Standard type (for MP41)



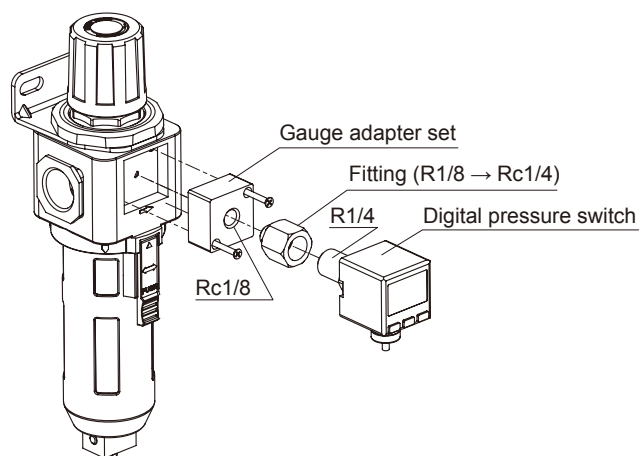
3 Extra purchase (Gauge adapter set)



2 Extra purchase (T8 bracket + Fitting)

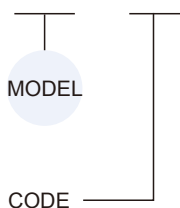


4 Extra purchase (Gauge adapter set + Fitting)



Mounting accessories (Option)

MP — A1



Model		High precision digital pressure switch								Digital pressure gauge		Digital flow sensor	
Code		MP10	MP30	MP41	MP43	MP45	MP47	MP50	MP70	MP23	MPG-60	MF01	MFP01
A1	Mounting bracket					●				●			
A2	Mounting bracket									●			
A5	Mounting bracket										●		
A6	Mounting bracket										●		
A10	Mounting bracket					●		●					
A11	Mounting bracket					●		●					
A12	Mounting bracket				●				●				
A13	Mounting bracket				●				●				
A17	Mounting bracket					●							
A22	Mounting bracket						●						
A23	Mounting bracket						●						
A26	Mounting bracket											●	●
B1	Panel adapter									●			
B2	Panel adapter				●		●		●		●		
B3	Panel adapter					●		●					
C1	Panel adapter + Front protective lid									●			
C2	Panel adapter + Front protective lid				●		●		●		●		
C3	Panel adapter + Front protective lid					●		●					
D1	M8,4 Pin female connector (M84R-W0085-2M)		●	●						●			
D2	M8,3 Pin female connector (M83R-W0114-2M)	●											
E1	I-0360 Snubber (for pressure port F1&F3)							●					
E2	I-0379 Snubber (for pressure port F2)							●					

MP1 series

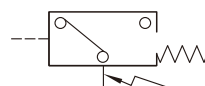
PNEUMATIC PRESSURE SWITCH



Features

- High Repeatability : $\leq \pm 1\%$ F.S.
- Quick response : 5ms.
- Hysteresis adjustable.
- Low cost.

Symbol



Specification

Model		MP1-1 (Vacuum)	MP1-2 (Low pressure)	MP1-3 (Positive)
Operating /Setting pressure range		-101 to 0 kPa	0 to 100 kPa	0 to 1 MPa
Allowable pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive/ Non-flammable gas		
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Response time		5ms or less		
Repeatability		±1% F.S.		
Current consumption		1 NPN or 1 PNP output: 21mA max., 2 NPN output: 35mA max.		
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : −20 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/ Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50M Ω min. (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	980m/s ² (100G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±3% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size		R1/8",M5; NPT1/8",M5; G1/8",M5		
Lead wire		Oil-resistance cable (0.18mm ²)		
Weight		Approx. 50 g (with 1M lead wire)		

Output specification

Model	MP1-□-01	MP1-□-02	MP1-□-03
Connect diagram			
Output method	NPN open collector 30V 80mA	PNP open collector 80mA	NPN open collector 30V 80mA
Hysteresis	1~10% of setting pressure (Adjustable)		3% F.S. or less (Fixed)
Setting points	1Point		2Point
Operation indicating lamp	Light at ON (Red)		Light at ON (out1 Red, out2 Green)
Hysteresis adjustable (Output hysteresis "H" is user adjustable)	1~10% of setting pressure (Adjustable)		Hys. $\leq 3\%$ F.S.

MP1 Order example

PNEUMATIC PRESSURE SWITCH



(4,3) Solenoid Valve

(2) Solenoid Valve

Plot & Mechanical Valve

Air Unit

Pressure Switch

Compressed Air Dryer

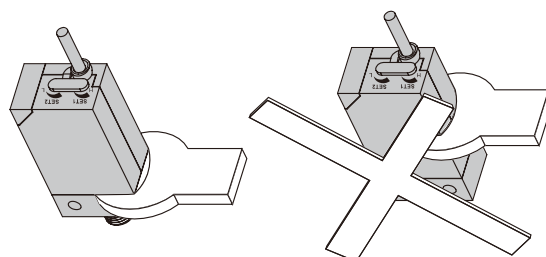
Auxiliary Equipment

PISCO®

PLC Control System

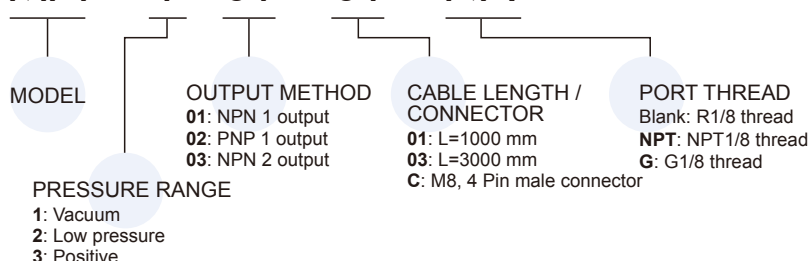
Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.

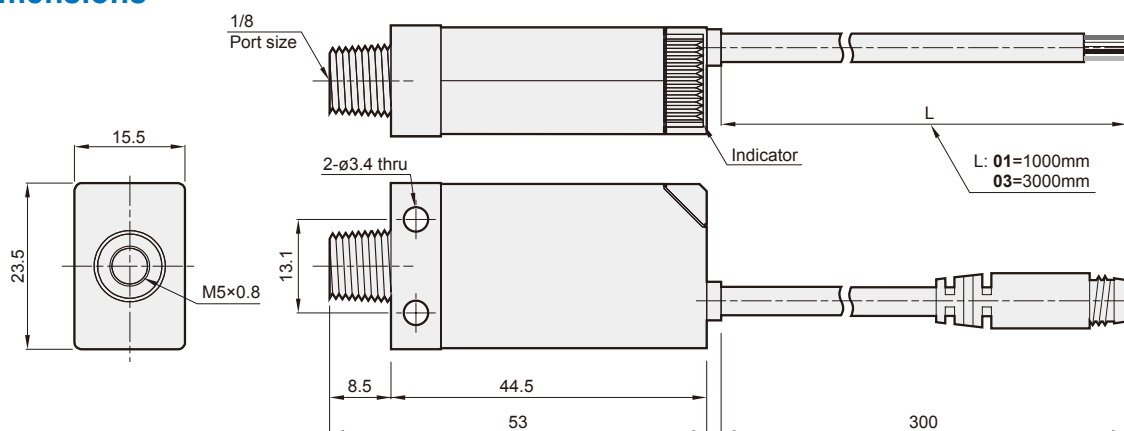


Order example

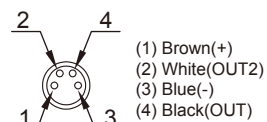
MP1 — 1 — 01 — 01 — NPT



Dimensions



QD Pinout



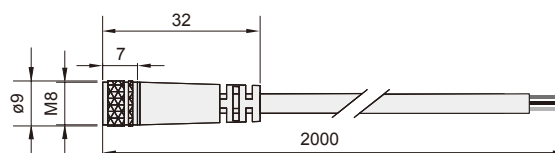
Mounting accessories (Option)

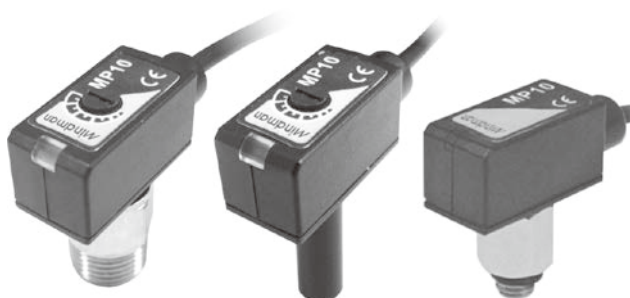
MP — D1



MP-D1

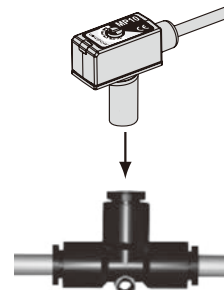
M8, 4 Pin female connector





Features

- Simple installation, plug-in port or thread-in fitting.
- Compact size: 26×10×10.4 mm.
- Setting pressure range.
 - Switch: Vacuum (0~ -101.3 kPa)
 - Positive (0~0.6 MPa)
 - Analog: Compound (-100~100 kPa)
 - Compound (-101~500 kPa)
 - Low (0~100 kPa)
 - Vacuum (0~-101.3 kPa)
 - Positive (0~1.0 MPa)
- Low cost.



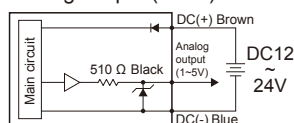
Specification

Model	MP10C	MP10L	MP10V	MP10R	MP10P	MP10V	MP10P	MP10A	MP10B
Output method	01					02 / 04		—	
Type	Analog					Switch		—	
Setting pressure range	-100~100 kPa	0~100 kPa	-101.3 ~0 kPa	-101~500 kPa	0~1.0 MPa	-101.3~0 kPa	0~0.6 MPa	-0.1~0.6 MPa	
Withstand pressure	0.2 MPa			1.5 MPa		0.6 MPa	1.5 MPa	1.5 MPa	
Fluid	Filtered air, Non-corrosive / Non-flammable gas								
Power supply voltage	12 to 24V DC (5% ripple voltage)					10.8 to 30V DC (include ripple voltage)		12 to 24V DC±10% Ripple(P-P) 10% or less	
Load / Leak current	—					80mA max. (Load)		5~40mA / ≤ 1mA	
Internal voltage drop	—					≤ 0.8V		≤ 5V	
Current consumption	10mA max.							—	
Analog output	1~5V ± 1% F.S. / Linearity ± 0.5% F.S.					—		—	
Sensor type	—					NPN or PNP		Present press. ≥ Set press.: ON	Present press. ≥ Set press.: OFF
Output short circuit protection	—					Yes		None	
Setting method	—					Adjusting by VR			
Response time	—					Approx. 1ms			
Repeatability	—					±1% F.S.			
Hysteresis	—					≤ 3% F.S. max.		≤ 4% F.S.	
Indicator	—					Red LED turns ON			
Enclosure	IP 40								
Temperature characteristic	≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C					≤±3% F.S. of detected pressure (25°C) at temp. Range of 0~50°C			
Ambient temp. range	Operation: 0 ~ 50°C, storage: -20 ~70°C (No condensation or freezing)					Operation: 0 ~ 60°C, storage: -20 ~70°C (No condensation or freezing)			
Ambient humidity range	Operation / Storage: 35~85% RH (No condensation)								
Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z								
Shock	980m/s ² (100G),3 times each in direction of X, Y and Z								
Port size	ø4mm. ø6mm, R1/8, NPT1/8, G1/8, M5								
Lead wire	Oil-resistance cable, 3 wires (0.18mm ²), ø2.6mm							Oil-resistance cable, 2 wires (0.18mm ²), ø2.6mm	
Weight	Approx. 50 g (with 3 meter lead wire)								

Circuit wiring diagram

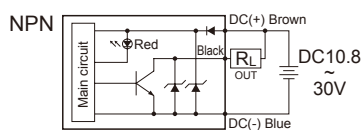
MP10□-01

Analog Output (1~5V)

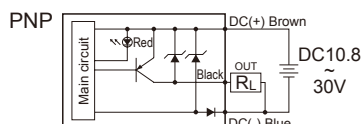


MP10□-02/04

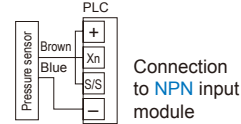
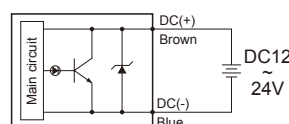
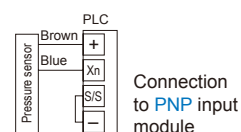
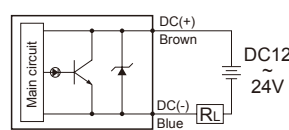
NPN



PNP



MP10A / MP10B



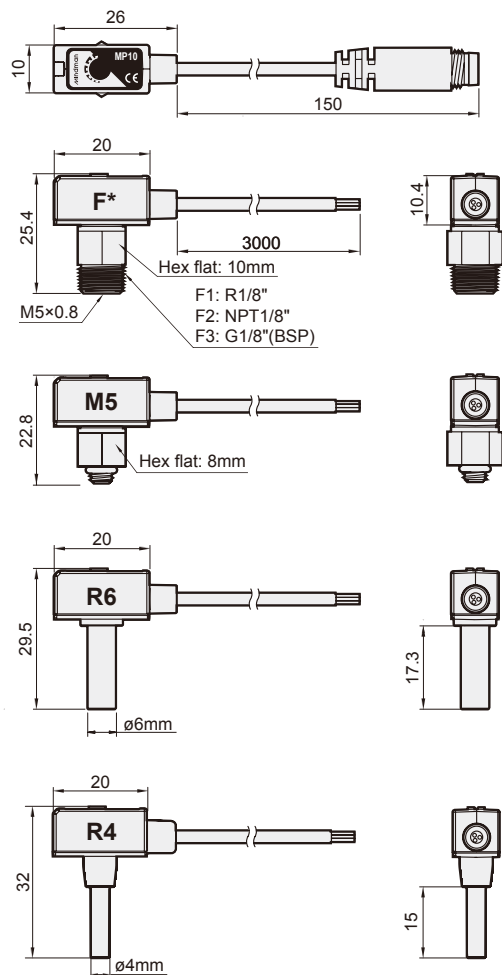
MP10 Dimensions

PNEUMATIC PRESSURE SWITCH



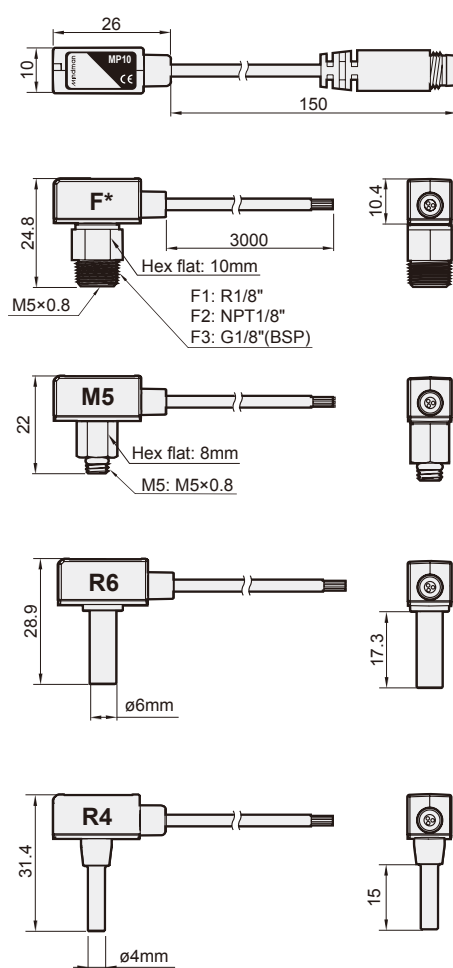
Dimensions

MP10□-02/04 / MA10A / MA10B



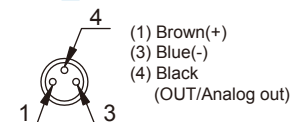
MP10□-01

Unit: mm

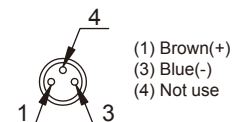


QD Pinout

MP10□-02/04

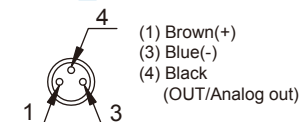


MP10A/B



QD Pinout

MP10□-01



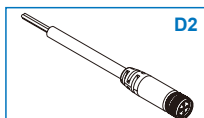
Mounting accessories (Option)

MP — D2

MODEL

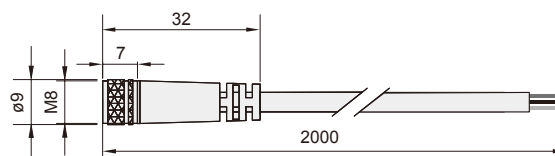
OPTION PARTS

D2: M8, 3 Pin female connector (M83R-W0114-2M)



MP-D2

M8, 3 Pin female connector





Features

- Pressure range: Compound -100.0~100 kPa
Positive 0~1 MPa
Vacuum 0~-101.3 kPa.
- 2 switch output & one analog output.
- Hysteresis adjustable.
- High accuracy and Resolution.
- Low cost.

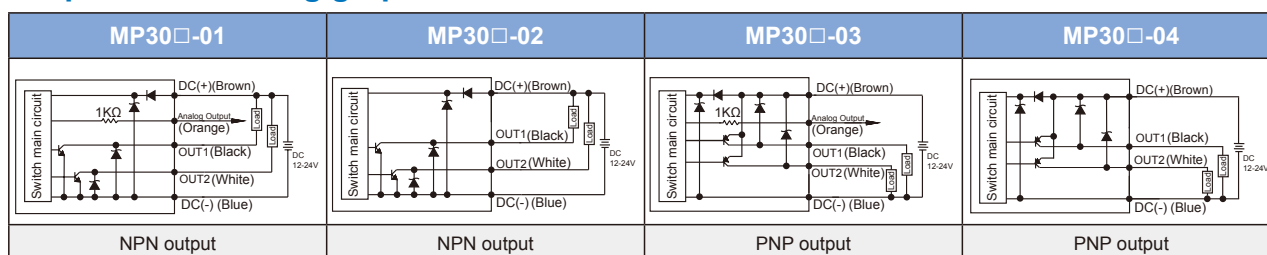
Specification

Model		MP30C (Compound)	MP30V (Vacuum)	MP30P (Positive)
Rated pressure range		−100.0~100.0 kPa	−101.3 ~0.0 kPa	0.0 ~ 1.0 MPa
Operating / Setting pressure range		−100.0~100.0 kPa	−101.3~10.0 kPa	−0.1 ~ 1.0 MPa
Allowable pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa	0.1	—	
	MPa	—	0.001	
	kgf/cm ² , bar	0.001	0.01	
	psi	0.01	0.1	
	InHg	0.1	—	
	mmHg	1	—	
	mmH ₂ O	0.1	—	
Power supply voltage		12 to 24V DC±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 60mA		
Switch output		NPN or PNP open collector 2 outputs Max. load current : 100mA Max. supply voltage: NPN, 30V DC; PNP, 24V DC Residual voltage : ≤1V		
Repeatability (Switch output)		±± 0.2% F.S. ±1digit		
Hysteresis	Hysteresis mode	Adjustable		
	Window comparator mode	Fixed (3 digits)		
Response time		≤2.5ms (chattering-proof function: 24ms, 192ms and 768ms selections)		
Output short circuit protection		Yes		
7 segment LED display		3 1/2 digit LED display (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Indicator		Green LED (OUT1), Red LED (OUT2)		
Analog output *(Only type MP30□-01, MP30□-03)		Output voltage: 1 to 5V±5% F.S. (within rated pressure range) Linearity: ±1% F.S.	Output voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S.	
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage: −20 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	980m/s ² (100G), 3 times each in direction of X, Y and Z		

Specification

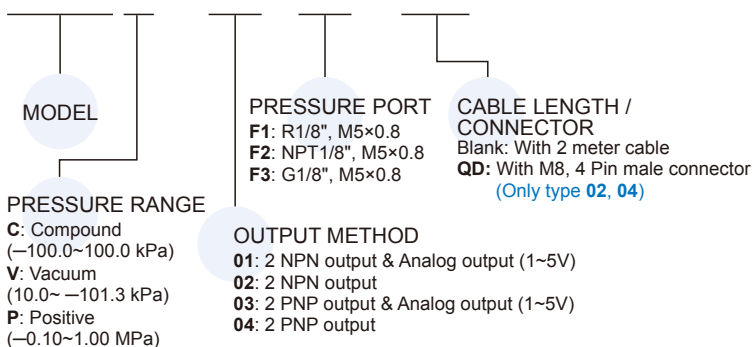
Model	MP30C (Compound)	MP30V (Vacuum)	MP30P (Positive)
Temperature characteristic	±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	F1: R1/8", M5×0.8; F2: NPT1/8", M5×0.8; F3: G1/8", M5×0.8		
Lead wire	Oil-resistance cable (0.15mm ²)		
Weight	Approx. 67 g (with 2 meter lead wire), Approx. 35 g (with M8 4Pin male connector)		

Output circuit wiring graph



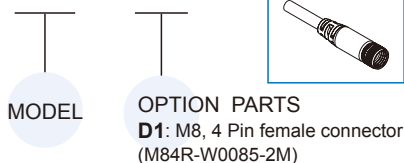
Order example

MP30C — 01 — F1 — QD



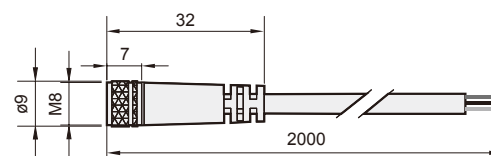
Mounting accessories (Option)

MP — D1

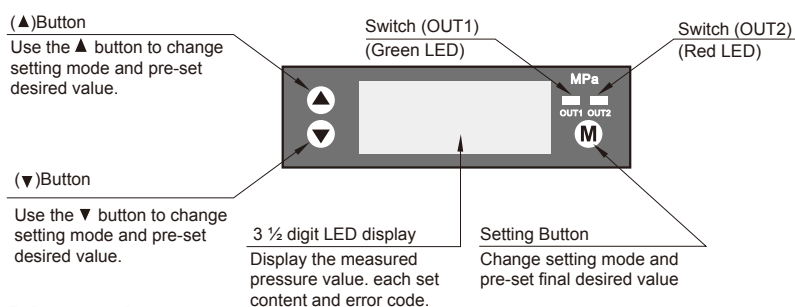


MP-D1

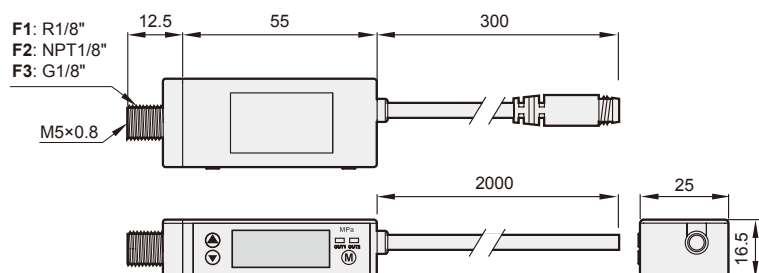
M8, 4 Pin female connector



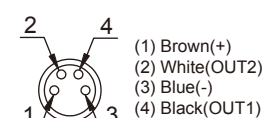
Panel instructions



Dimensions



QD Pinout





Features

- Hysteresis adjustable.
- High accuracy and Resolution.
- Low cost.
- Pressure unit selectable: kPa, MPa, kgf/cm², bar, psi, inHg, mmHg.

Specification

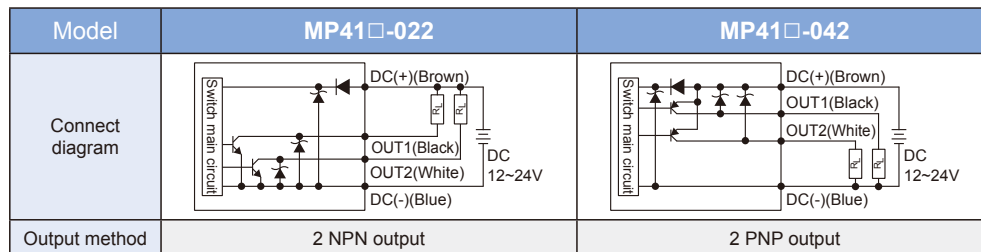
Model		MP41C (Compound)	MP41P (Positive)
Rated pressure range		— 100.0 ~ 100.0 kPa	0.0 ~ 1.0 MPa
Setting pressure range		— 101.0 ~ 101.0 kPa	— 0.1 ~ 1.0 MPa
Withstand pressure		300 kPa	1.5 MPa
Fluid		Air, Non-corrosive gases, incombustible gases	
Set pressure resolution	kPa / MPa	0.1 / —	— / 0.001
	kgf/cm ² / bar	0.001	0.01
	psi	0.01	0.1
	inHg / mmHg	0.1 / 1	—
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less	
Current consumption		≤ 40mA (With no load)	
Switch output	Output type	2 NPN or 2 PNP open collector	
	Max. load current	125mA	
	Max. supply voltage	30V DC (at NPN output), 24V DC (at PNP output)	
	Residual voltage	≤1.5V	
Response time		Chattering-proof function: 50ms, 250ms, 500ms, 1000ms, 2000ms, 3000ms selections	
Output short circuit protection		Yes	
Display	LCD display	Two color(Red/Green) main & unit display, Orange sub-display (Sampling rate: 5 times/1sec.)	
	Switch ON Indicator	Orange (1 & 2 Indicator) OUT1 OUT2	
	Updates time	Adjustable	
	Indicator accuracy	≤±2% F.S. ±1 digit (ambient temperature: 25 ± 3°C)	
Repeatability (Switch output)		≤± 0.2% F.S. ±1digit	
Environment	Enclosure	IP40	
	Ambient temp. range	Operation: 0 ~ 50°C, storage : — 10 ~ 60°C (No condensation or freezing)	
	Ambient humidity range	35 ~ 85% RH (No condensation)	
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)	
	Insulation resistance	50M Ω min. (at 500V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-150Hz-10Hz scan for 1 minute, two hours each direction of X,Y and Z	
	Shock	100m/s ² (10G), 3 times each in direction of X,Y and Z	
Temperature characteristic		≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C	
Lead wire		Oil-resistance cable (0.15mm ²)	
Weight		Approx. 65 g (with 2 meter lead wire), Approx. 30g (with male connector)	

MP41 Order example

HIGH PRECISION DIGITAL PRESSURE SWITCH

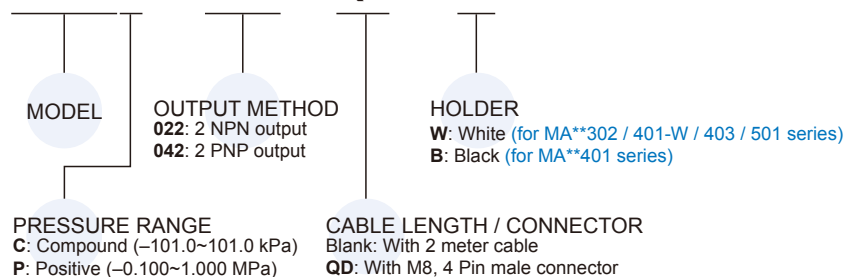


Output circuit wiring graph



Order example

MP41P – 022 – QD – W



QD Pinout



Mounting accessories (Option)

MP – D1

MODEL

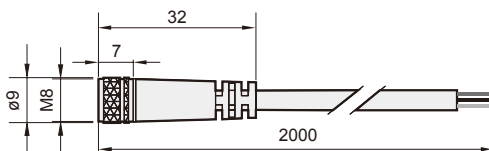
OPTION PARTS

D1: M8, 4 Pin female connector (M84R-W0085-2M)

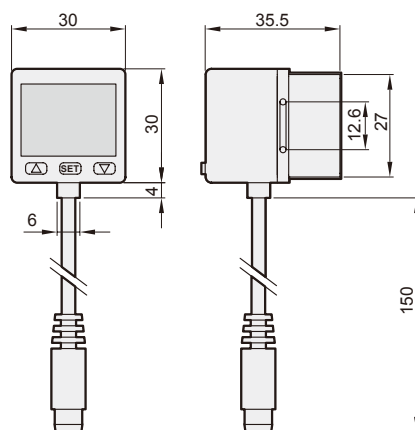


MP-D1

M8, 4 Pin female connector



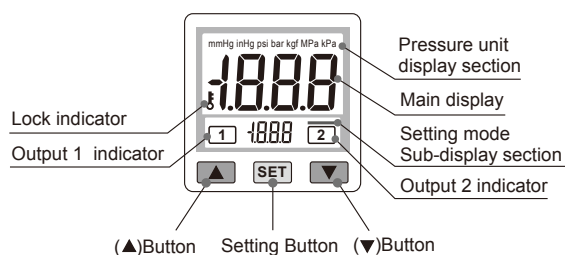
Dimensions



Applicable model

Series	302 / 403 / 501	401
F.R.L.Unit	MACP302 / 403 / 501	MACP401
F.R.L.Unit	MACT302 / 403 / 501	MACT401
F.R.Unit	MAFR302 / 403 / 501	MAFR401
R. Unit	MAR302 / 403 / 501	MAR401
F.R.Unit	—	MAFRF401
F.R.Unit	—	MATFR401

Panel instructions

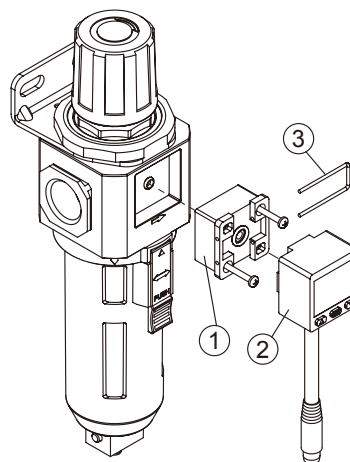


MP41 With MA**302

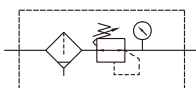
HIGH PRECISION DIGITAL PRESSURE SWITCH



Mounting procedures



Symbol



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR302 — 8A — □□ — E1 — □ — G

MODEL

MACP302
MACT302
MAFR302
MAR302

BORE SIZE

8A: 1/4
10A: 3/8
15A: 1/2

PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

FILTER ELEMENT

Blank: 5μm
40u: 40μm

PORT THREAD

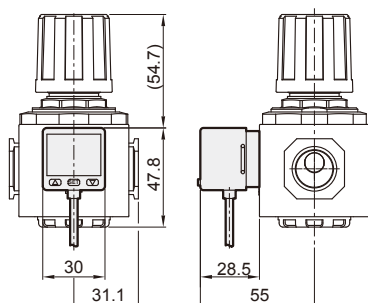
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option) ACCESSORIES

Bowl	Drain valve (*)
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* Not applicable to MAR302

MAR302

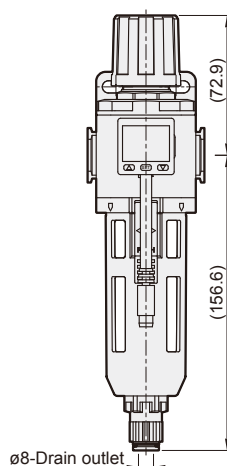


MAFR302

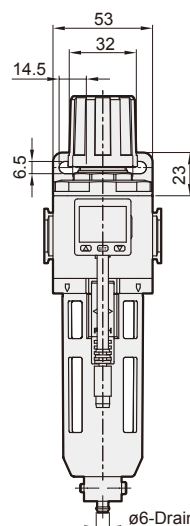
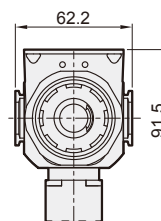
MAFR302-D

Auto drain valve

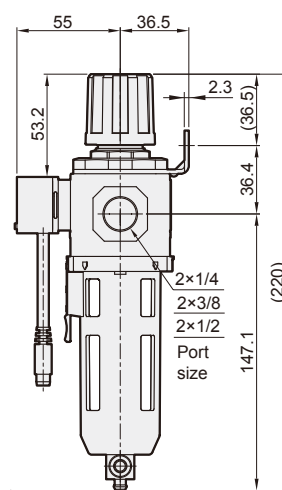
Operating pressure range
0.15~1 MPa



ø8-Drain outlet



ø6-Drain outlet



MP41 With MA**401

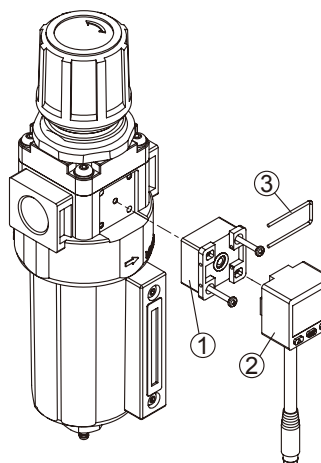
HIGH PRECISION DIGITAL PRESSURE SWITCH



Mindman

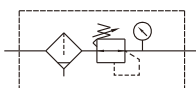


Mounting procedures



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Symbol



Order example

MAFR401 — 8A — □ — □ — E1 — □ — G

MODEL
MACP401
MACT401
MAFR401
MAR401

EXTERIOR
COLOR
Blank: Black & Silver
W: Gray & white

PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

FILTER
ELEMENT
Blank: 40μm
5u: 5μm

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

BORE SIZE (Option) ACCESSORIES

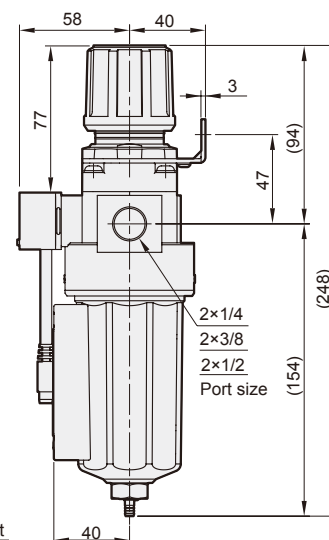
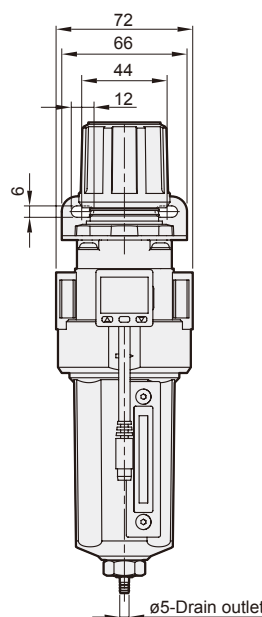
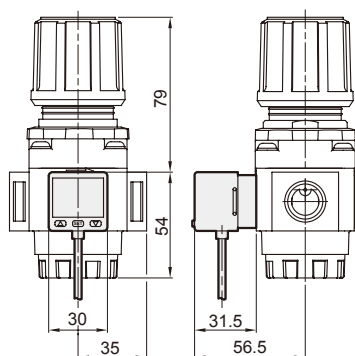
8A: 1/4
10A: 3/8
15A: 1/2

Bowl	Drain valve (*)
Blank: Metal bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* Not applicable to MAR401

MAFR401

MAR401



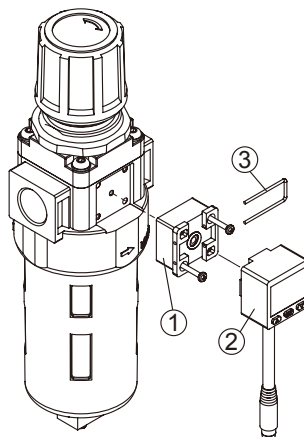
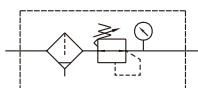
MP41 With MA**403

HIGH PRECISION DIGITAL PRESSURE SWITCH



Mounting procedures

Symbol



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR403 — 8A — □ — E1 — □ — G

MODEL
MACP403
MACT403
MAFR403
MAR403

BORE SIZE
8A: 1/4
10A: 3/8
15A: 1/2

PRESSURE SWITCH
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

(*) FILTER
ELEMENT
Blank: 40µm
5u: 5µm

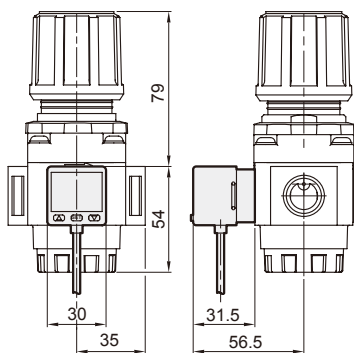
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option) ACCESSORIES

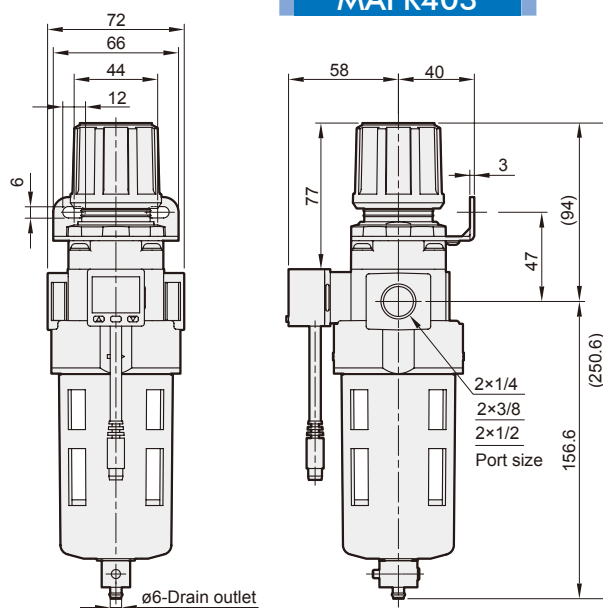
Bowl	Drain valve (*)
Blank: PC bowl N: Nylon bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* Not applicable to MAR403

MAR403



MAFR403



MP41 With MA**501

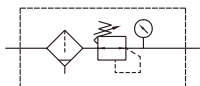
HIGH PRECISION DIGITAL PRESSURE SWITCH



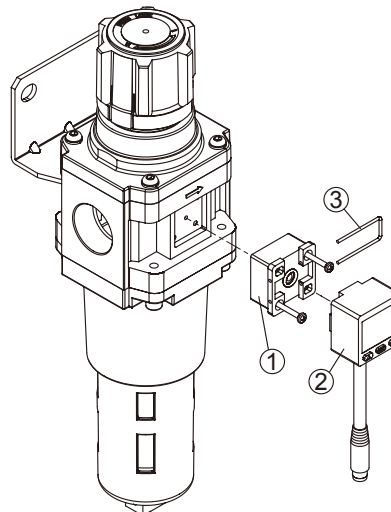
Mindman



Symbol



Mounting procedures



1. Fix the holder.
2. Assembly the digital pressure switch.
3. Button the n-ring.

Order example

MAFR501 — 8A — □□ — E1 — G

MODEL

MACP501
MACT501
MAFR501
MAR501

BORE SIZE

20A: 3/4
25A: 1

(Option) ACCESSORIES

Bowl	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Semi-auto drain D: Auto drain valve (FMRF300) * Not applicable to MAR501

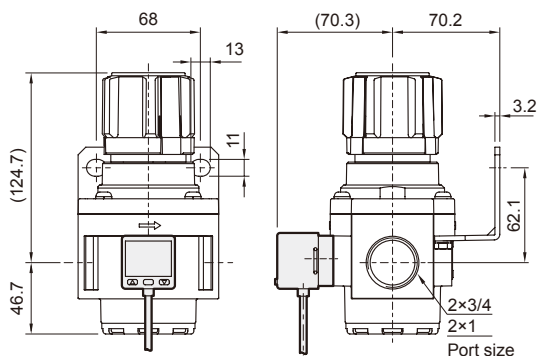
PRESSURE SWITCH

E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

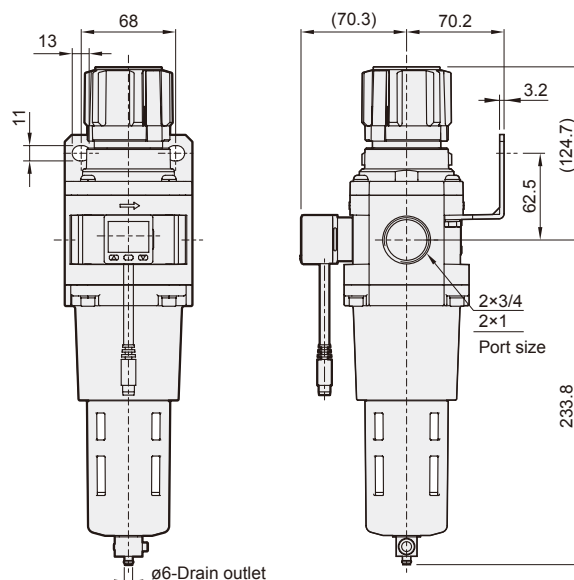
PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread

MAR501

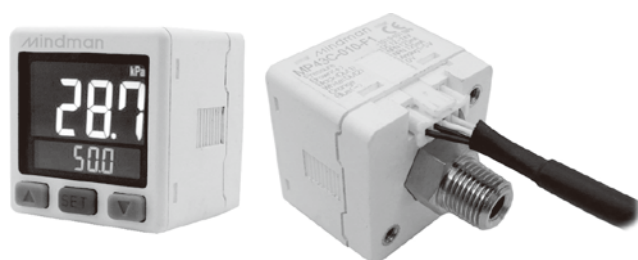


MAFR501



MP43 series

HIGH PRECISION DIGITAL PRESSURE SWITCH



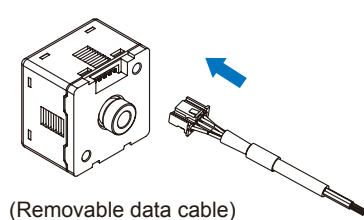
Features

- 3 color digital LCD display.
- Copy function.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, mmHg, inHg.
- Dual LCD display allow setting value to be displayed.
- Key lock indicator.
- Power saving mode.

Features highlight

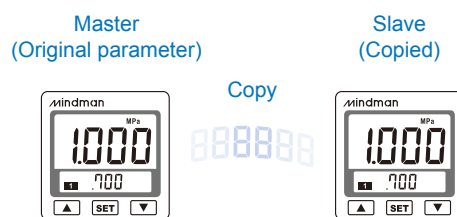
Quick installation

- Save installation time.
- Easy removal.



Copy setting

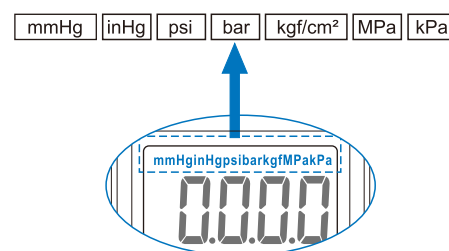
- Reduce setting time.
- Avoid setting errors.



Can copy the setting value from master to slave sensor.

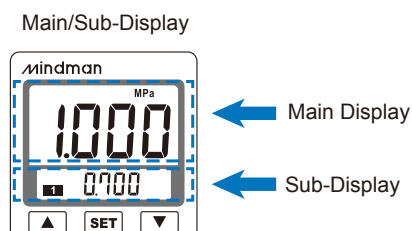
Easy unit identification

- Conversion unit is on display and easy to read.



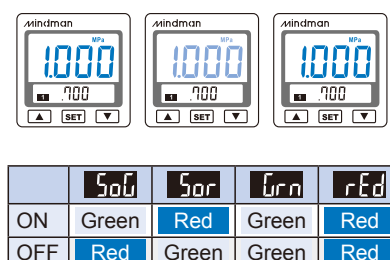
Setting Value Easy Indication

- User can easily observe the setting value from sub-display.



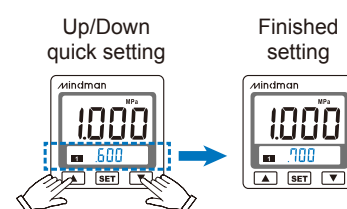
2-Color Main display

- User programmable color mode, for different setting conditions.



OPS Quick Setting

- Sub-display allows changing the parameter directly, reduce setting step by 3/4.



Specification

Model		MP43C (Compound)	MP43V (Vacuum)	MP43P (Positive)
Rated pressure range		−100.0~100.0 kPa	−101.3 ~0.0 kPa	0 ~ 1.0 MPa
Set pressure range		−101.0~101.0 kPa	−101.3 ~ 10.0 kPa	−0.1 ~ 1.0 MPa
Withstand pressure		300 kPa		1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa / MPa	0.1 / —		— / 0.001
	kgf/cm ² / bar	0.001		0.01
	psi	0.01		0.1
	mmHg	1		—
	InHg	0.1		—
Power supply voltage		12 to 24V DC ± 10%, Ripple (P-P) 10% or less		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤1.5V PNP: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V		
Repeatability (Switch output)		± 0.2% F.S. ±1digit		
Hysteresis Hysteresis mode / Window comparator mode		Adjustable(*1)		
Response time		≤2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
7 segment LCD display		2 color(Red/Green) main & unit display, Orange sub-dispaly (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2		
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V ±2.5%F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		
Analog output (Current Output) (*3)		Output Current: 4 to 20mA ±2.5%F.S. (within rated pressure range); Linearity: ±1% F.S. Max. load impedance: 300Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω		
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : −10~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50M Ω (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±2.5% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size		F1: R1/8, M5×0.8; F2: NPT1/8, #10~32UNF; F3: G1/8, M5×0.8		
Lead wire		Oil-resistance cable (0.15mm ²)		
Weight		Approx. 80g (with 2 meter lead wire)		

*1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.

*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.

*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

MP43 Dimensions

HIGH PRECISION DIGITAL PRESSURE SWITCH



Output circuit wiring graph

Model	MP43□-010	MP43□-011	MP43□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function
Model	MP43□-030	MP43□-031	MP43□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

Order example

MP43C — 010 — F1

MODEL

PRESSURE PORT
F1: R1/8, M5×0.8
F2: NPT1/8, #10-32UNF
F3: G1/8, M5×0.8

PRESSURE RANGE
C: Compound (−101.0~101.0 kPa)
V: Vacuum (−101.3~10.0 kPa)
P: Positive (−0.1~1.0 MPa)

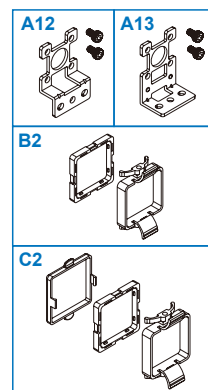
OUTPUT METHOD
010: 2 NPN output + 1 Analog output (1~5V)
011: 2 NPN output + 1 Analog output (4~20mA)
02 : 2 NPN output + Copy function
030: 2 PNP output + 1 Analog output (1~5V)
031: 2 PNP output + 1 Analog output (4~20mA)
04 : 2 PNP output + Copy function

Mounting accessories (Option)

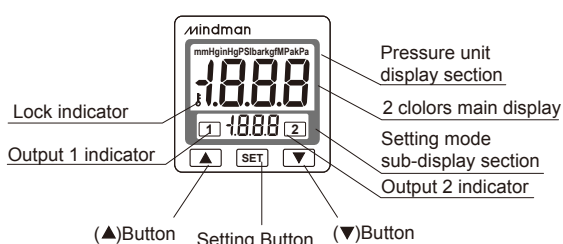
MP — A12

MODEL

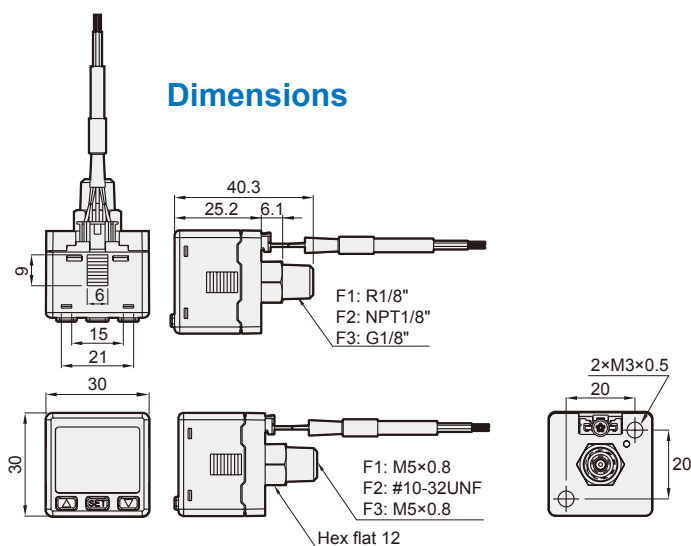
OPTION PARTS
A12: Mounting bracket
A13: Mounting bracket
B2: Panel adapter
C2: Panel adapter + Front protective lid



Panel instructions

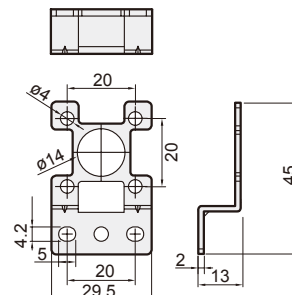
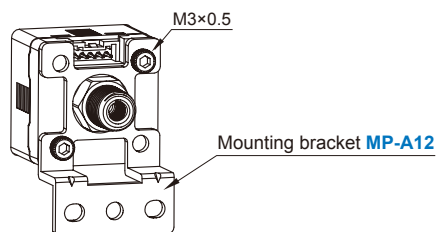


Dimensions

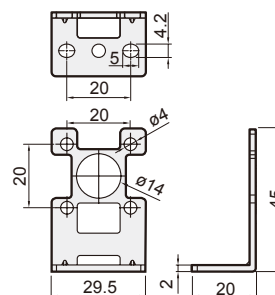
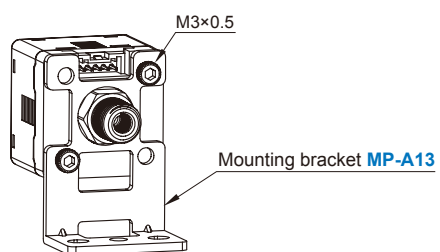


Mounting bracket

MP-A12

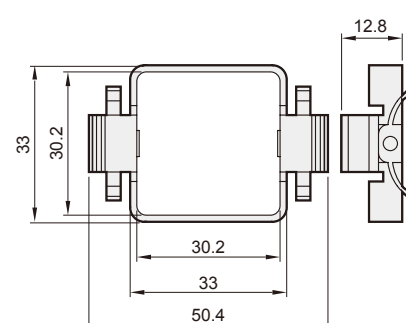
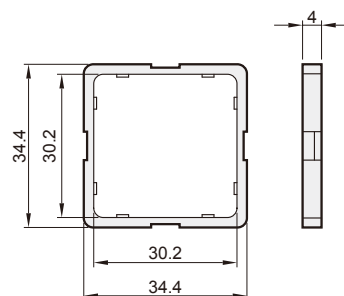
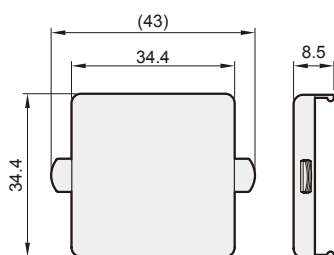
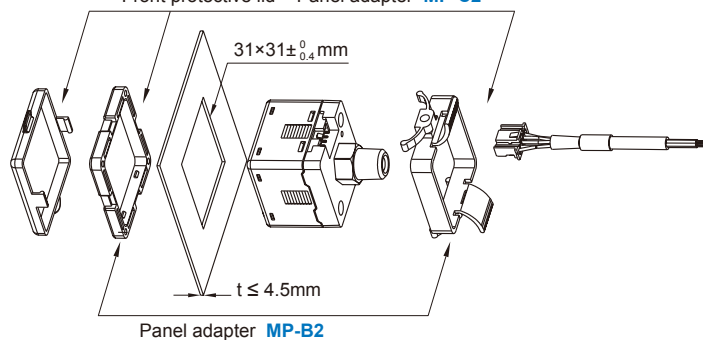


MP-A13



Panel type

Front protective lid + Panel adapter MP-C2





Features

- IP65
- Copy setting.
- 2 NPN / PNP open collector + analog output (1~5V or 4~20mA).
- 2-color digital LCD display..
- Repeatability $\pm 0.2\%$ F.S. ± 1 digit.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, inHg.

Specification

Model		MP45P (Positive)	MP45V (Vacuum)	MP45C (Compound)
Rated pressure range		0 ~ 1.0 MPa	— 101.3 ~ 0.0 kPa	— 100.0~100.0 kPa
Setting pressure range		— 0.1 ~ 1.0 MPa	— 101.3 ~ 10.0 kPa	— 101.0~101.0 kPa
Withstand pressure		1.5 MPa	300 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa, MPa	— / 0.001	0.1 / —	
	kgf/cm ² / bar	0.01	0.001	
	psi	0.1	0.01	
	InHg	—	0.1	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less (UL class 2)		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤ 1.5V	NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V	
Repeatability (Switch output)		± 0.2% F.S. ±1 digit		
Hysteresis	Hysteresis mode / Window comparator mode	Adjustable (*1)		
Response time		≤2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
LCD display		3 ½ digit, 7 segment (Red/Green)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2		
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		
Analog output (Voltage Output) (*3)		Output Current: 4 to 20mA ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Max. load impedance: 250Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω		
Environment	Enclosure	IP65		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : —10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s ² (10G),3 times each in direction of X, Y and Z		

(Continued)

Specification

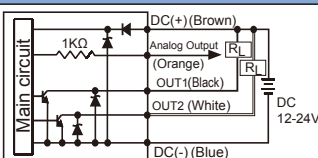
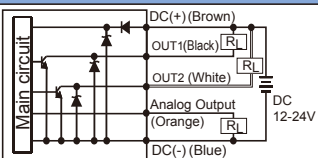
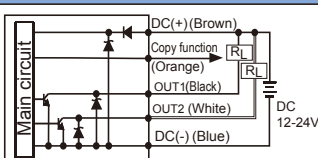
Model	MP45P (Positive)	MP45V (Vacuum)	MP45C (Compound)
Temperature characteristic	$\pm 2\%$ F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Port size	F1(C):R1/8, M5; F2(C):NPT1/8, #10~32UNF; F3(C):G1/8(BSPP), M5		
Lead wire	Oil-resistance cable (0.15mm ²)		
Weight	Port F1~F3 approx. 86g; Port F1C~F3C approx. 114g (with 2 meter lead wire)		

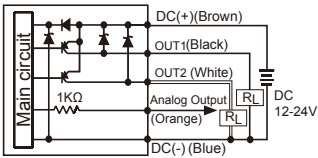
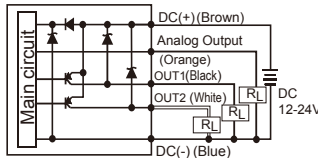
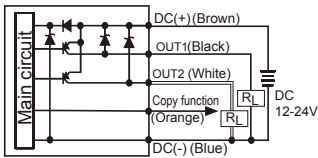
*1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.

*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.

*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

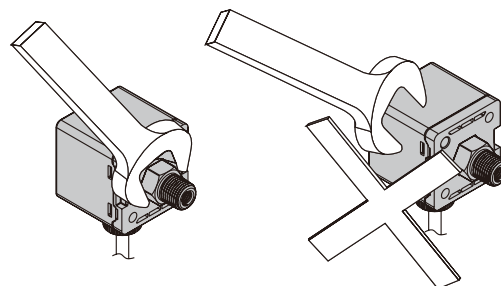
Output circuit wiring graph

Model	MP45□-010	MP45□-011	MP45□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function

Model	MP45□-030	MP45□-031	MP45□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

Installation precautions

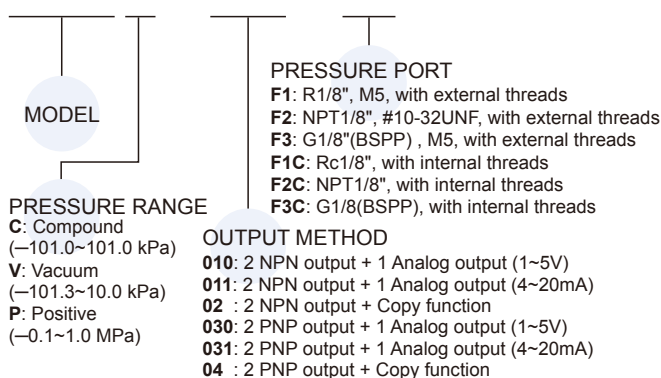
- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.



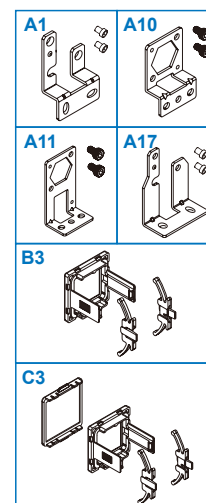
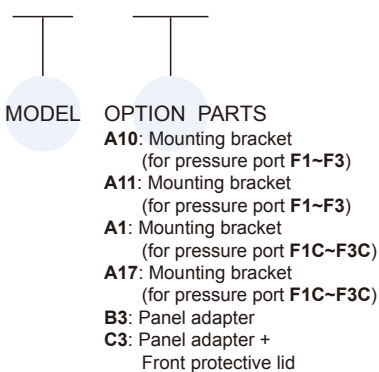
Mounting accessories (Option)

Order example

MP45C — 010 — F1



MP — A10

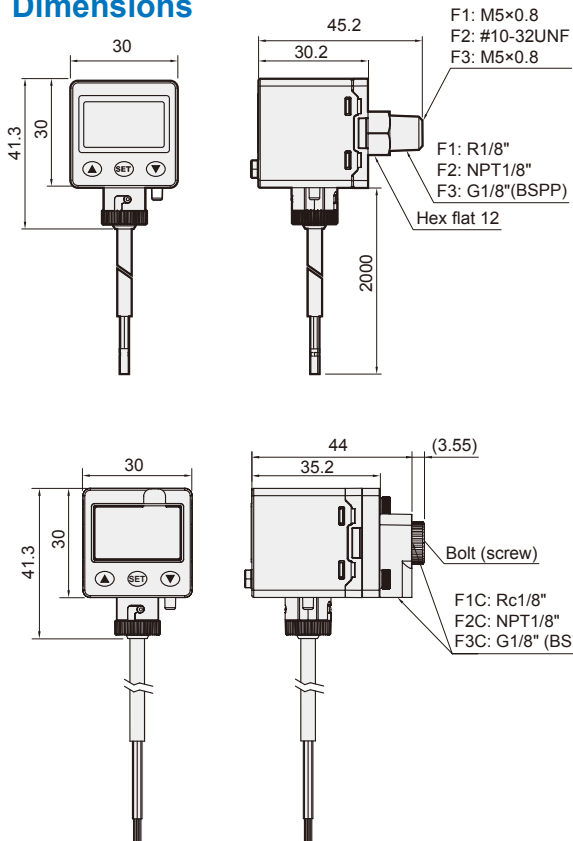


MP45 Dimensions

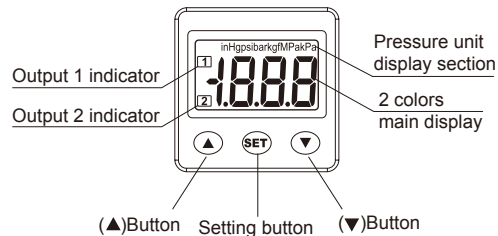
HIGH PRECISION DIGITAL PRESSURE SWITCH



Dimensions

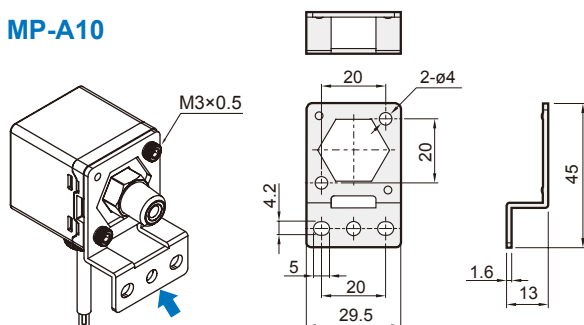


Panel instructions

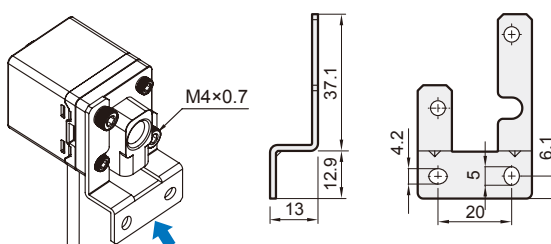


Mounting bracket

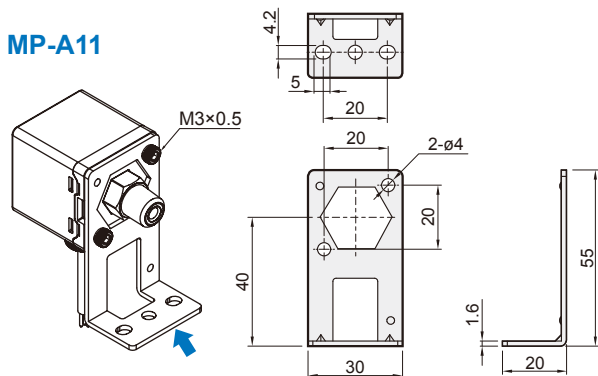
MP-A10



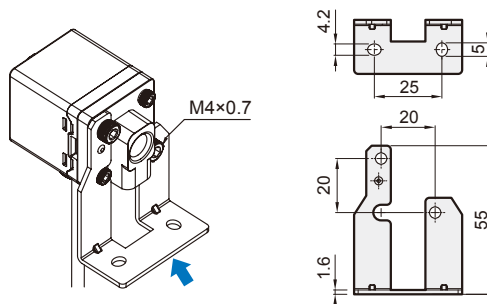
MP-A1



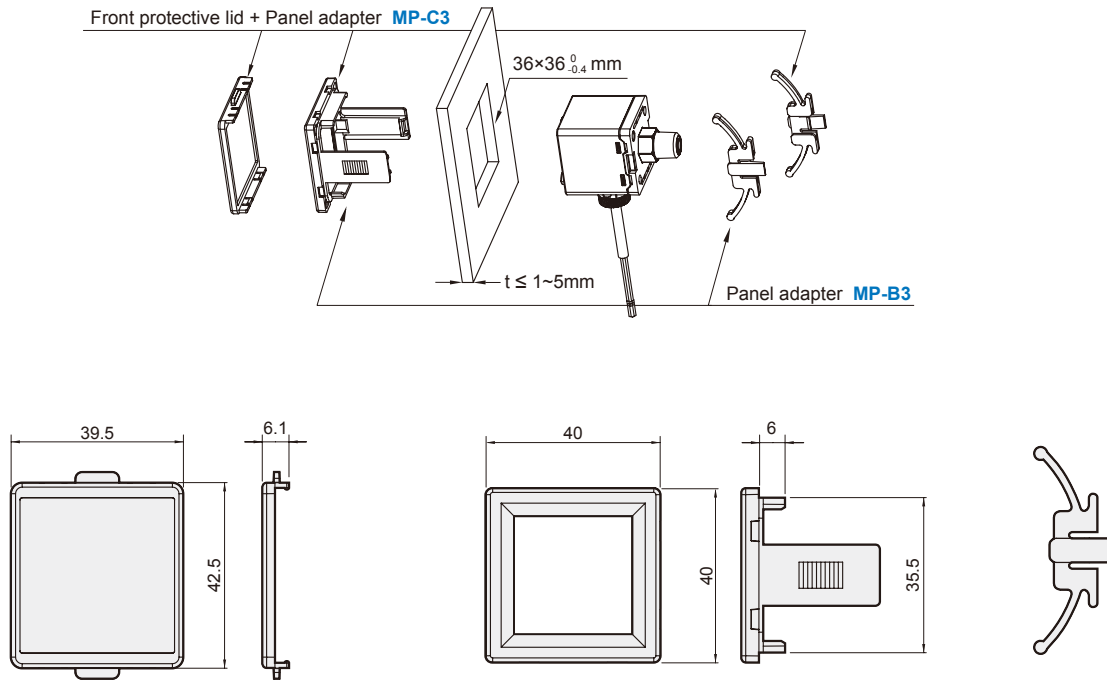
MP-A11



MP-A17

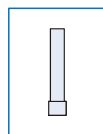
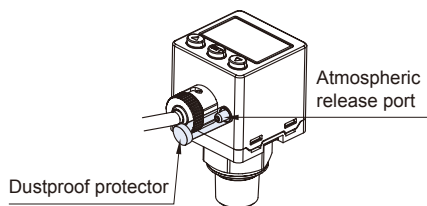


Panel type



Accessory

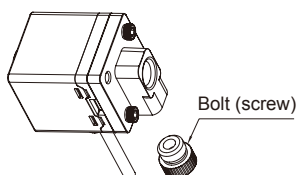
IP65 protector



Caution

This device must be installed to maintain IP 65 (Dust and splash proof) enclosure rating.

Accessory for pressure port F1C ~ F3C



1. This product has two inlet pressure ports, select the one most convenient for installation.
2. Please plug the unused inlet port with supplied port plug. Use seal tape to prevent pressure leak.

MP47 series

HIGH PRECISION DIGITAL PRESSURE SWITCH



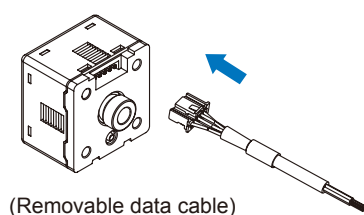
Features

- 3-color digital LCD display.
- Main/Sub-Display, 4 digits 7 segment LCD display.
- Programmable pressure unit : kPa 、 MPa 、 kgf/cm² 、 bar 、 psi 、 inHg 、 mmHg.
- Dual LCD display allows setting value to be displayed.
- Key lock indicator.
- Power-save mode.
- Fine adjustment mode.

Features highlight

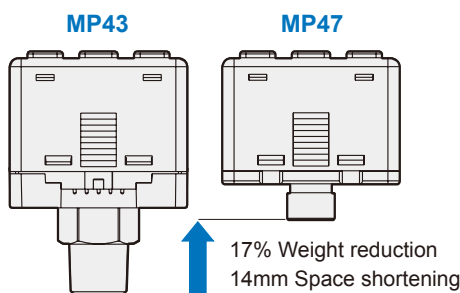
Quick installation

- Save installation time.
- Easy removal.



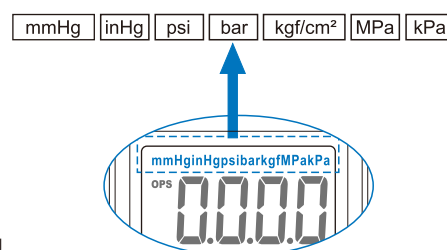
Compact design

- Compared with similar products, approx. 35% shorter.



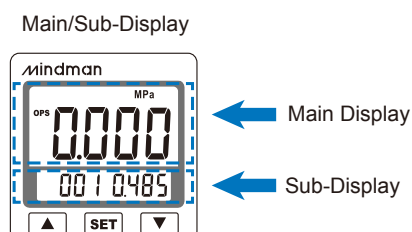
Easy unit identification

- Conversion unit is on display and easy to read.



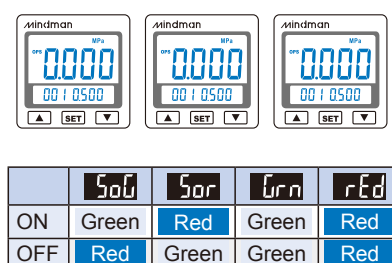
Setting Value Easy Indication

- User can easily observe the setting value from sub-display.



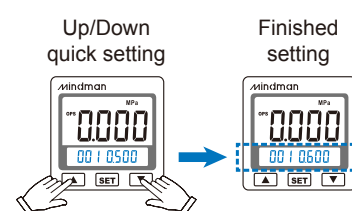
2-Color Main display

- User programmable color mode, for different setting conditions.



OPS Quick Setting

- Sub-display allows changing the parameter directly, reduce setting step by 3/4.



Specification

Model		MP47C (Compound)	MP47V (Vacuum)	MP47P (Positive)
Rated pressure range		-100 ~ 100 kPa	-101.3 ~ 0 kPa	-0.1 ~ 1.0 MPa
Setting pressure range		-103 ~ 103 kPa	-103 ~ 10 kPa	-0.103 ~ 1.03 MPa
Allowable pressure		500 kPa		1.5 MPa
Medium		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa	0.1		—
	MPa	—		0.001
	kgf/cm ² / bar	0.001		0.01
	psi	0.01		0.1
	InHg / mmHg	0.1 / 1		—
Power supply voltage		12~24V DC $\pm 10\%$, Ripple (P-P) 10% or less		
Current consumption		$\leq 30\text{mA}$ (With no load)		
Switch output		NPN: open collector outputs Max. load current: 80mA Max. supply voltage: 30V DC Residual voltage: $\leq 1\text{V}$		
Repeatability(Switch output)		$\pm 0.3\%$ F.S. ± 1 digit		
Hysteresis	One point set mode	Adjustable (Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.)		
	Hysteresis mode			
	Window comparator mode			
Response time		$\leq 2.5\text{ms}$ (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms selectable)		
Output short circuit protection		Yes		
Display	Display	2 color (Red/Green) main & unit display, Orange sub-display (Sampling rate: 0.2, 0.5, 1 sec./time selectable)		
	Indicator accuracy	$\pm 1\%$ F.S. ± 1 digit (ambient temperature: $25 \pm 3^\circ\text{C}$)		
	Switch ON Indicator	Orange Indicator OUT		
Analog output (within rated pressure range) (Voltage Output)		Output Voltage: 1 to 5V $\pm 2.5\%$ F.S. Linearity: $\pm 1\%$ F.S. Output impedance: about 1k Ω		Output Voltage: 0.6 to 5V 2.5% F.S. Linearity: $\pm 1\%$ F.S. Output impedance: about 1k Ω
Environment	Enclosure classification	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, Storage : -10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min (between case and lead wire)		
	Insulation resistance	50M Ω (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-150Hz-10Hz scan for 1 minute, 2 hours each direction of X, Y and Z		
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic		$\pm 2\%$ F.S. of detected pressure 25°C at temp. Range of 0~50°C		
Port size		F1: R1/8", M5 $\times 0.8$; F2: NPT1/8", #10-32UNF; F3: G1/8"(BSPP), M5 $\times 0.8$; M5 female thread		
Lead wire		Oil-resistance cable (0.15mm ²)		
Weight		Approx. 67g (with 2 meter lead wire)		

MP47 Dimensions

HIGH PRECISION DIGITAL PRESSURE SWITCH



Output circuit wiring graph

Model	MP47□-01	MP47□-03
Connect diagram		
Output method	1 NPN + Analog output (1~5V) (0.6~5V only positive)	1 PNP + Analog output (1~5V) (0.6~5V only positive)
Model	MP47□-02	MP47□-04
Connect diagram		
Output method	2 NPN output	2 PNP output

Order example

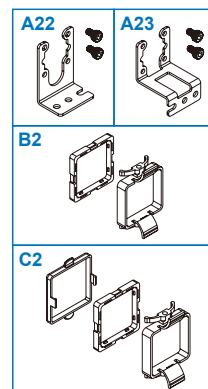
MP47C — 01 — F1

MODEL	PRESSURE PORT
PRESSURE RANGE	OUTPUT METHOD
C: Compound (-103~103 kPa)	01: 1 NPN output + Analog output (1~5V)
V: Vacuum (-103~10kPa)	02: 2 NPN output
P: Positive (-0.103~1.03 MPa)	03: 1 PNP output + Analog output (1~5V)
	04: 2 PNP output

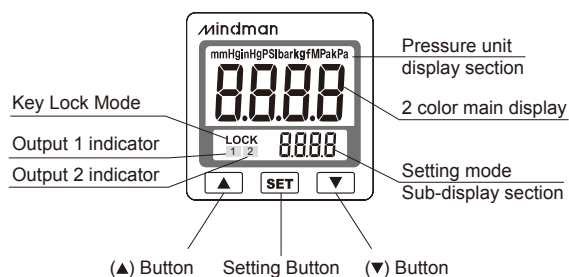
Mounting accessories (Option)

MP — A22

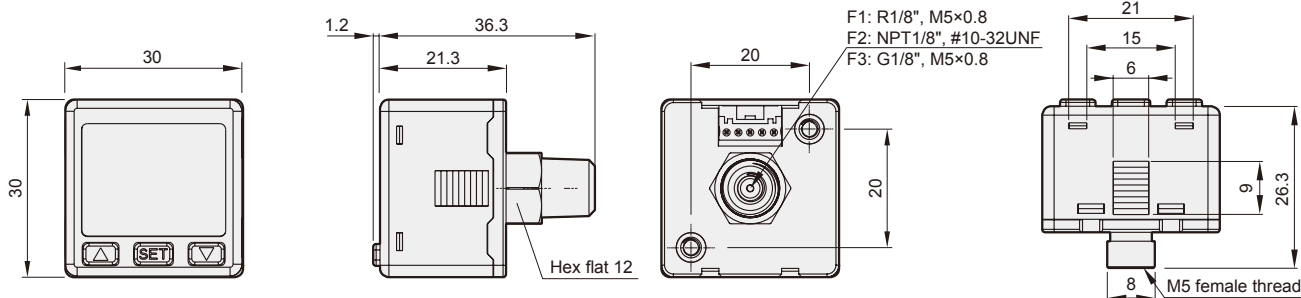
MODEL	OPTION PARTS
	A22: Mounting bracket
	A23: Mounting bracket
	B2: Panel adapter
	C2: Panel adapter + Front protective lid



Panel instructions

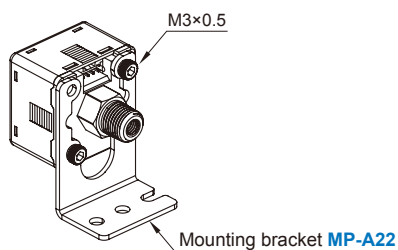


Dimensions

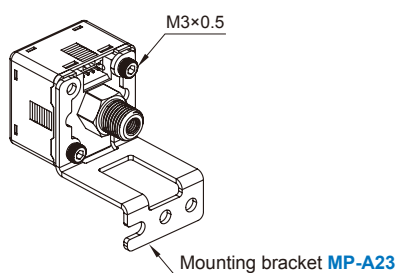
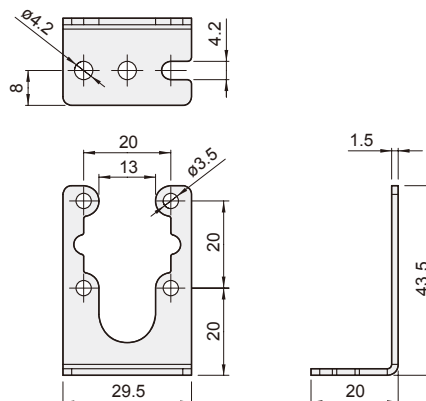


Mounting accessories

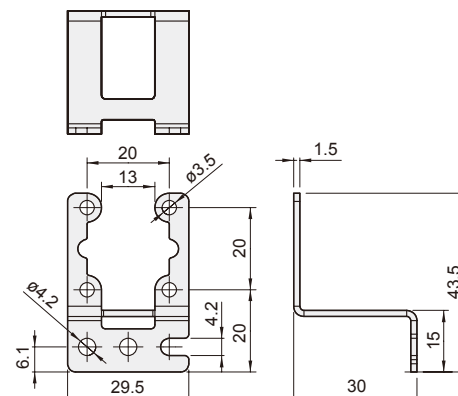
Mounting bracket



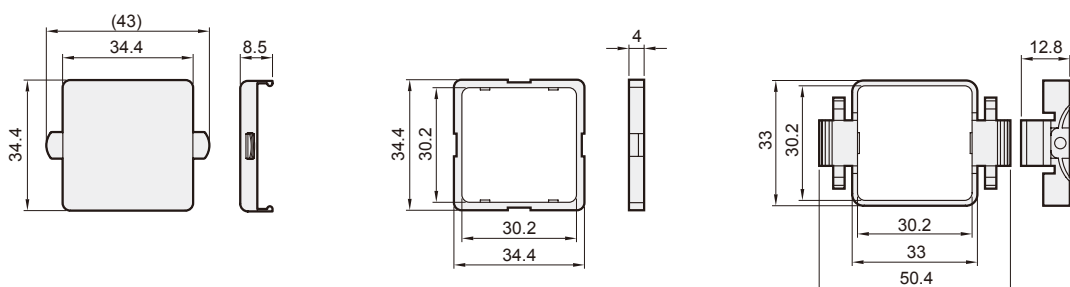
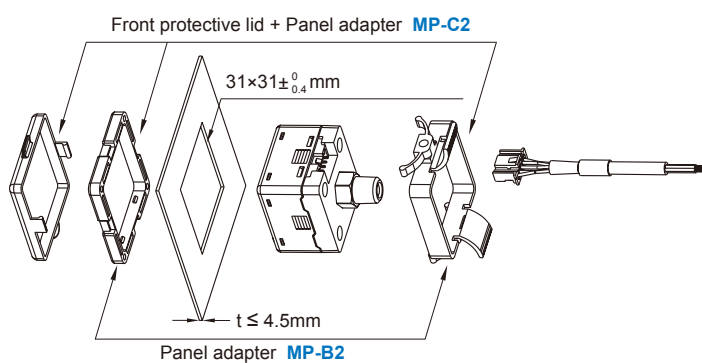
MP-A22



MP-A23



Panel type



MP50 series

HIGH PRECISION DIGITAL PRESSURE SWITCH



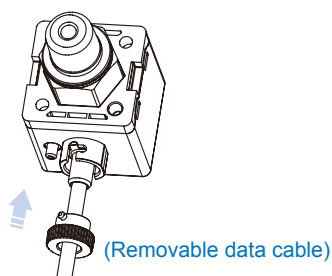
Features

- 2 color digital LCD display.
- Copy function.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, inHg.
- Sensor parts & fitting parts: Stainless steel 316L.
- Corrosive fluid or gas available.
- IP65 enclosure.

Features highlight

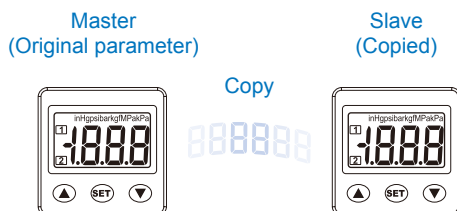
Quick installation

- Save installation time.
- Easy removal.



Copy setting

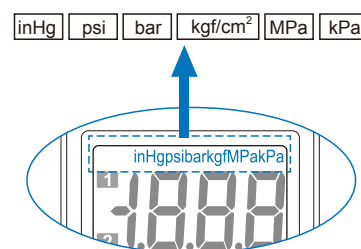
- Reduce setting time.
- Avoid setting errors.



Can copy the setting value from master to slave sensor.

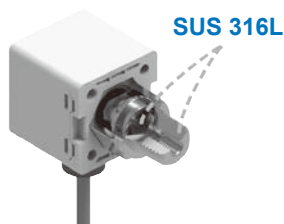
Easy unit identification

- Conversion unit is on display and easy to read.



Applicable for corrosive fluid or gas

- Sensor parts & fitting parts are SUS 316L, applicable for corrosive fluid or gas equipment.



2-Color display

- User programmable color mode, for different setting conditions.



	SoG	SoR	UrN	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

IP65 enclosure

- Protected against water and dust splash from all directions.



Specification

Model		MP50P (Positive)	MP50H (High)	MP50V (Vacuum)	MP50C (Compound)
Rated pressure range		0 ~ 1.0 MPa	0.0 ~ 2.0 MPa	0.0~ — 101.3 kPa	— 100.0~100.0 kPa
Setting pressure range		— 0.1 ~ 1.0 MPa	— 0.1 ~ 2.0 MPa	10.0~ — 101.3 kPa	— 101.0~101.0 kPa
Allowable pressure		3 MPa		300 kPa	
Fluid		Fluids do not corrode stainless steel 316L			
Set pressure resolution	KPa	—	—	0.1	
	MPa	0.001	0.001(~1.999) / 0.01(2.00~)	—	
	kgf/cm ² / bar	0.01	0.01(~19.99) / 0.1(20.0~)	0.001	
	psi	0.1	0.1(~199.9) / 1(200~)	0.01	
	InHg	—	—	0.1	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less			
Current consumption		≤ 40mA (With no load)			
Switch output		NPN: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 30V DC Residual voltage : ≤1.5V		PNP: open collector 2 outputs Max. load current : 125mA Max. supply voltage: 24V DC Residual voltage : ≤1.5V	
Repeatability (Switch output)		± 0.3% F.S. ±1 digit			
Hysteresis mode	One point set/ Hysteresis / Window comparator	Adjustable (*1)			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)			
Output short circuit protection		Yes			
Display		3 ½ digit, 7 segment (Red/Green)			
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)			
Switch ON Indicator		Orange (1 & 2 indicator) OUT1 / OUT2			
Analog output (Voltage Output) (*2)		Output Voltage: 1 to 5V ±2.5%F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ			
Analog output (Current) Output) (*3)		Output Current: 4 to 20mA ±2.5%F.S. (within rated pressure range); Linearity: ±1% F.S. Max. load impedance: 250Ω at power supply of 12V, 600Ω at power supply of 24V Min. load impedance: 50Ω			
Environment	Enclosure classification	IP65			
	Ambient temp. range	Operation: 0 ~ 50°C, storage : —10 ~ 60°C (No condensation or freezing)			
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)			
	Withstand voltage	250V AC in 1-min. (between case and lead wire)			
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)			
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z			
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z			
Tmperature charateristic		±3% F.S. of detected pressure (25°C) at temp. range of 0 ~ 50°C			
Port size		F1: R1/4, M5; F2: NPT1/4", #10-32 UNF; F3: G1/4"(BSPP), M5			
Lead wire		Oil-resistance cable (0.15mm ²)			
Weight		Approx. 110 g (Rear ported), Approx. 145 g (Bottom ported)			

*1. Hysteresis value is adjustable within 1~8 digits for one point set and window comparator mode.

*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.

*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.

*4. G port O-ring material is NBR. If any special request, please contact us.

MP50 Dimensions

HIGH PRECISION DIGITAL PRESSURE SWITCH



(4,3) Solenoid Valve

(2) Solenoid Valve

Pilot & Mechanical Valve

Air Unit

Pressure Switch

Compressed Air Dryer

Auxiliary Equipment

PISCO

PLC Control System

Output circuit wiring graph

Model	MP50□-010	MP50□-011	MP50□-02
Connect diagram			
Output method	2 NPN+Analog(Voltage) output (1~5V)	2 NPN+Analog(Current) output (4~20mA)	2 NPN+Copy function
Model	MP50□-030	MP50□-031	MP50□-04
Connect diagram			
Output method	2 PNP+Analog(Voltage) output (1~5V)	2 PNP+Analog(Current) output (4~20mA)	2 PNP+Copy function

Order example

MP50C — 010 — F1 — □

MODEL

PRESSURE RANGE

P: Positive
(— 0.1~1.0 MPa)

H: High
(— 0.1~2.0 MPa)

V: Vacuum
(10.0~— 101.3 kPa)

C: Compound
(— 101.0~101.0 kPa)

PRESSURE PORT

F1: R1/4", M5×0.8
F2: NPT1/4", #10-32UNF
F3: G1/4"(BSPP), M5×0.8

PIPING DIRECTION

Blank: Rear ported
L: Bottom ported

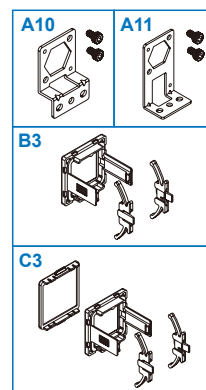
OUTPUT METHOD

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

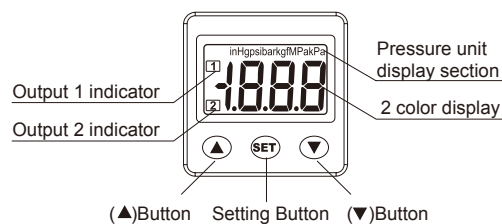
Mounting accessories (Option)

MP — A10

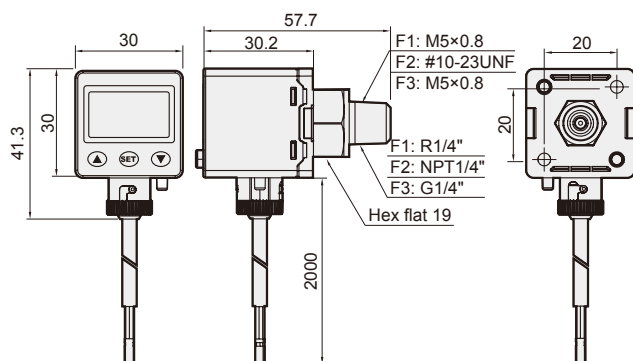
- MODEL** **OPTION PARTS**
- A10**: Mounting bracket
A11: Mounting bracket
B3: Panel adapter
C3: Panel adapter + Front protective lid
E1: I-0360 Snubber (for pressure port F1&F3)
E2: I-0379 Snubber (for pressure port F2)
- * MP50P & MP50H are suggested to select a snubber.



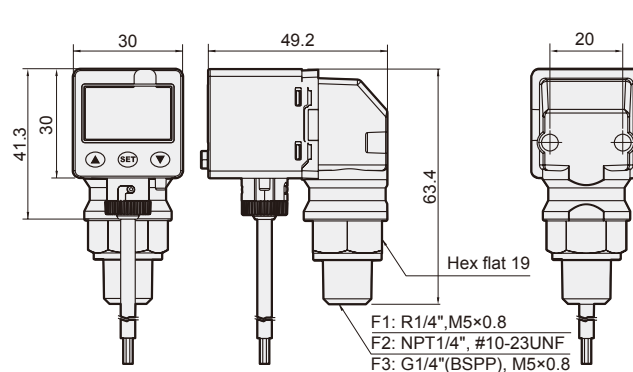
Panel instructions



Dimensions (Rear ported)

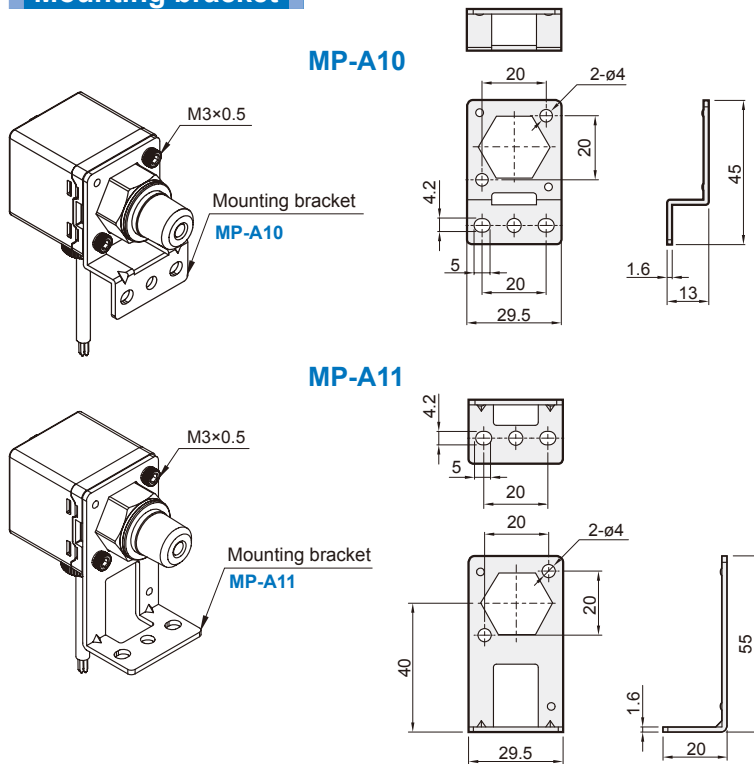


(Bottom ported)

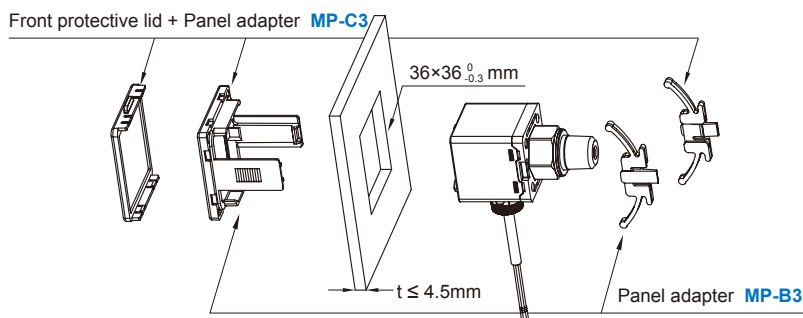


Mounting accessories

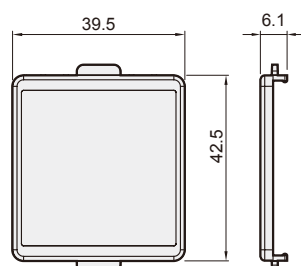
Mounting bracket



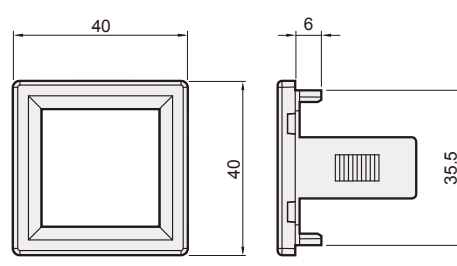
Panel type



Front protective lid



Panel adapter

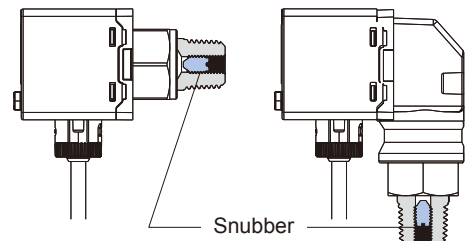


MP-E*

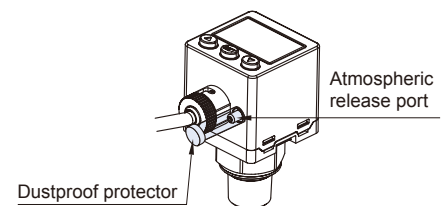
Removable snubber installed

Pressure port equipped with snubber can avoid damage caused by sudden pressure surge of water or oil, improve product durability.

* When snubber is clogged with contaminants, please use a flat head screwdriver to remove the snubber, clean and reinstall.



IP65 protector



Caution

This device must be installed to maintain IP 65 (Dust and splash proof) enclosure rating.



MP70 series

HIGH PRECISION DIGITAL PRESSURE SWITCH

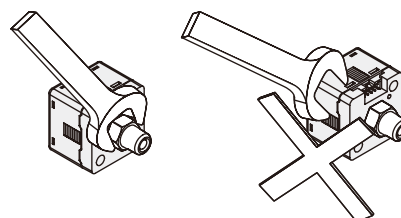


Features

- Smart pressure sensor.
- Remote control. Real-time monitoring.
- RS-485 modbus RTU / ASCII.
- 4 digit, 7 segment LCD display.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, inHg, mmHg.
- IP40 enclosure.

Installation precautions

- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply pressure and power after installation and make necessary adjustments and inspect any possible signs of leakage to ensure proper installation.



Features highlight

Station setting display

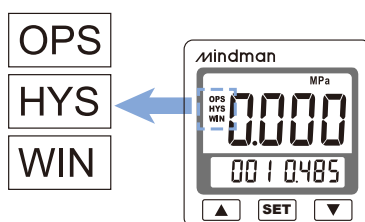
- Provide 0~255 station to set the sensor.



ID number display

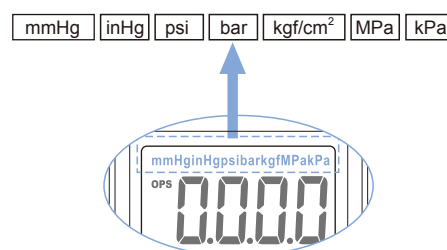
Modes display

- 3 modes show on the screen.



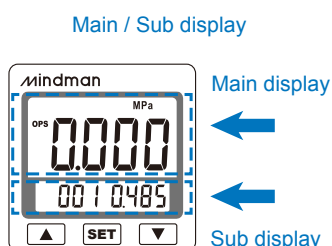
Easy unit identification

- Conversion unit is on display and easy to read.



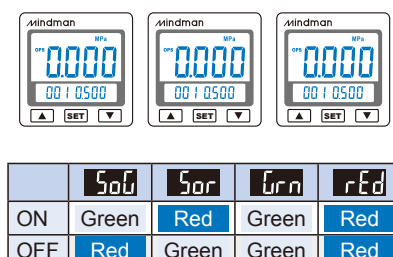
Setting value easy indication

- User can easily observe the setting value from sub display.



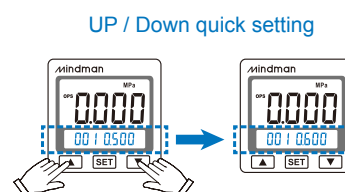
2 color display

- User programmable color mode, for different setting conditions.



OPS quick setting

- Sub display allows changing the parameter directly, reduce setting step by 3/4.



Specification

Model		MP70P (Positive)	MP70V (Vacuum)	MP70C (Compound)
Rated pressure range		0 ~ 1.0 MPa	— 101.3~0.0 kPa	— 100.0~100.0 kPa
Setting pressure range		— 0.10 ~ 1.0 MPa	— 101.3 ~10.0 kPa	— 101.0~101.0 kPa
Withstand pressure		1.5 MPa	500 kPa	
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	KPa, MPa	— / 0.001	0.1 / —	
	kgf/cm ² / bar	0.01	0.001	
	psi	0.1	0.01	
	InHg	—	0.1	
	mmHg	—	1	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 40mA (With no load)		
Switch output		NPN: open collector 1 output Max. load current: 125mA Max. supply voltage: 30V DC Residual voltage: ≤1.5V	PNP: open collector 1 output Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: ≤1.5V	
Repeatability (Switch output)		± 0.2% F.S. ±1 digit		
Hysteresis	Hysteresis mode / Window comparator mode	Adjustable (*1)		
Response time		≤ 2.5ms (*2)		
Output short circuit protection		Yes		
7 segment LCD display		Two color (Red/Green) main & unit display, Orange sub display (Sampling rate: 0.2, 0.5, 1 seconds/time selectable)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ± 3°C)		
Switch ON Indicator		Orange (1 indicator) OUT1		
Environment	Enclosure	IP40		
	Ambient temp. range	Operation: 0 ~ 50°C, storage : —10 ~ 60°C (No condensation or freezing)		
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)		
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)		
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)		
	Vibration	Total amplitude 1.5mm or 10G,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z		
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z		
Temperature characteristic		±2.5% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		
Communication interface		RS—485		
Port size (Male / Female thread)		F1: R1/8", M5; F2: NPT1/8", #10-32 UNF; F3: G1/8"(BSPP), M5		
Lead wire		Oil-resistance cable (0.15mm ²)		
Weight		Approx. 80 g (with 2 meter lead wire)		

*1. Hysteresis value is adjustable within 1~8 digits for one point set mode and window comparator mode.

*2. Chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms, 2000ms and 5000ms selectable.

MP70 Dimensions

HIGH PRECISION DIGITAL PRESSURE SWITCH



Output circuit wiring graph

Model	MP70□-02-□	MP70□-04-□
Connect diagram		
Output method	NPN output + RS485	PNP output + RS485

Order example

MP70C — 02 — F1

MODEL

PRESSURE PORT
(Male/ Female thread)
F1: R1/8", M5×0.8
F2: NPT1/8", #10-32UNF
F3: G1/8", M5×0.8

PRESSURE RANGE

C: Compound
(- 101.0~101.0 kPa)
V: Vacuum
(10.0~ - 101.3 kPa)
P: Positive
(- 0.1~1.0 MPa)

OUTPUT METHOD

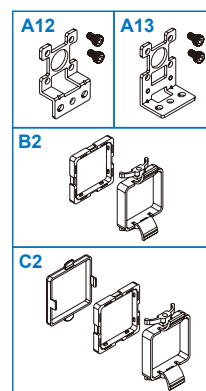
02 : 1 NPN output + RS485
04 : 1 PNP output + RS485

Mounting accessories (Option)

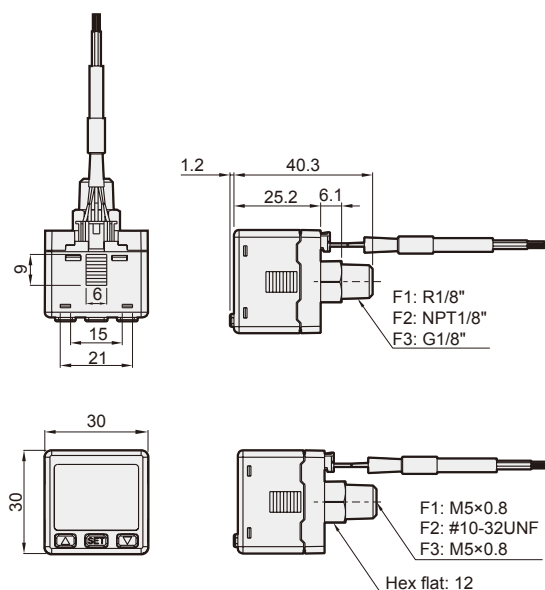
MP — A12

MODEL

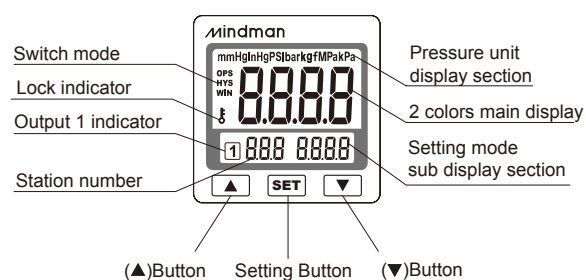
OPTION PARTS
A12: Mounting bracket
A13: Mounting bracket
B2: Panel adapter
C2: Panel adapter +
Front protective lid



Dimensions

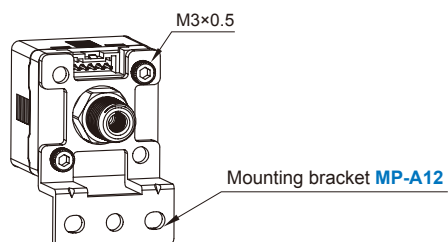


Panel instructions

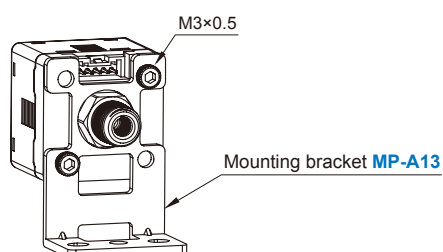
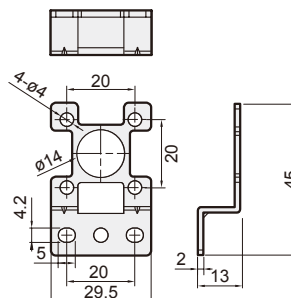


Mounting accessories

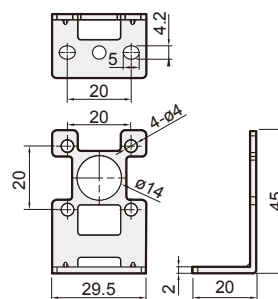
Mounting bracket



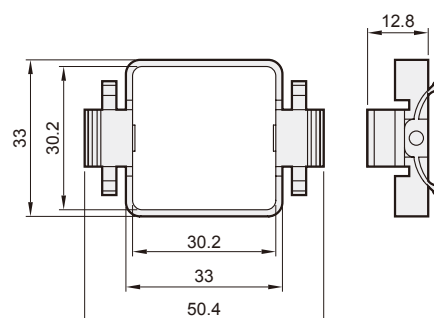
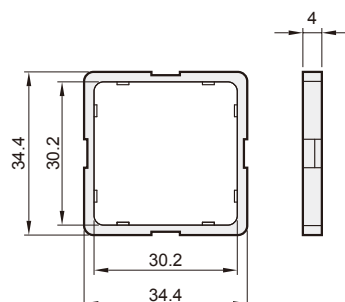
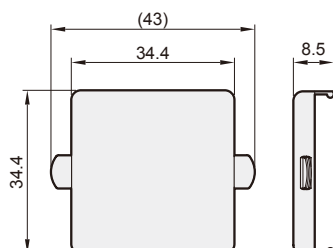
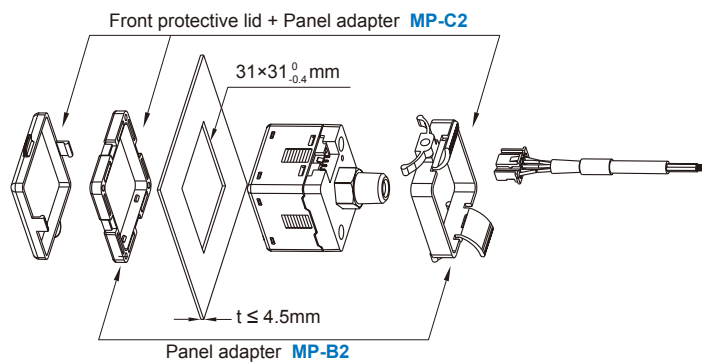
MP-A12



MP-A13

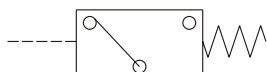


Panel type





Symbol



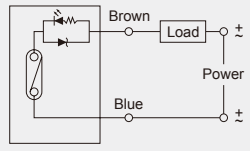
Order example

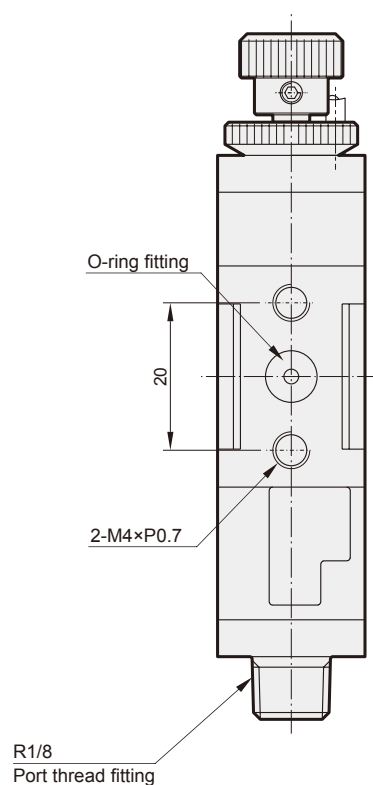
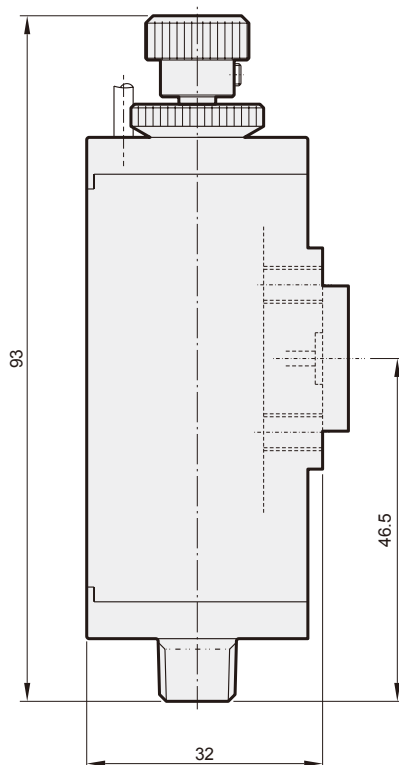
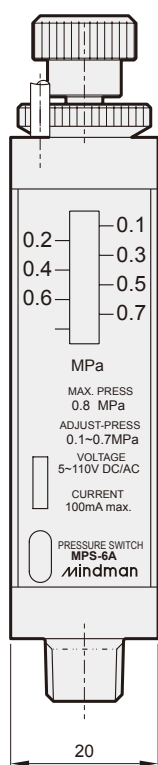
MPS — 6A — R

MODEL

Blank: by prot thread fitting
R: by O-ring fitting

Specification

Model	MPS-6A	MPS-6A-R
Fitting method	R1/8 (for port thread fitting)	O-ring: S4 (for O-ring fitting)
Ambient temperature	-5~+60°C (No freezing)	
Max. operating pressure	0.8 MPa	
Proof pressure	1 MPa	
Pressure setting range	0.1~0.7 MPa	
Operation output	Normal open ON (Red led lighting up) above value	
Sensor switch	RCE2 Reed switch / Normal open Voltage range: 5~110V DC/AC Max. Current: 100mA	
Connect diagram		
Weight	185 g	189 g





Features

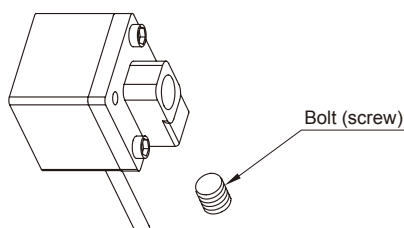
- Digital display, easy readout.
- Pressure range: Compound -100~100 kPa
Positive 0~1 MPa.
- High accuracy and Resolution.
- Programmable pressure unit: kPa, MPa, kgf/cm², bar, psi, inHg, mmHg, mmH₂O.
- Low cost.

Specification

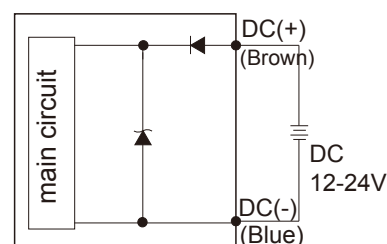
Model		MP23C (Compound)	MP23P (Positive)
Operating pressure range		−100.0~100.0 kPa	− 0.100 ~ 1.0 MPa
Allowable pressure		300 kPa	1.5 MPa
Fluid		Filtered air, Non-corrosive / Non-flammable gas	
Set pressure resolution	kPa / MPa	0.1 / —	— / 0.001
	kgf/cm ² / bar	0.001	0.01
	psi	0.01	0.1
	inHg	0.1	—
	mmHg	1	—
	mmH ₂ O	0.1	—
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less	
Current consumption		≤ 55mA	
7 segment LED display		3 1/2 digit LED display (Sampling rate: 5 times/1sec.)	
Indicator accuracy		≤±2% F.S. ±1 digit (ambient temperature: 25 ± 3°C)	
Environment	Enclosure	IP40	
	Ambient temp. range	Operation: 0 ~ 50°C, storage : −20 ~ 60°C (No condensation or freezing)	
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)	
	Withstand voltage	1000V AC in 1-min. (between case and lead wire)	
	Insulation resistance	50MΩ (at 500V DC, between case and lead wire)	
	Vibration	Total amplitude 1.5mm,10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z	
	Shock	980m/s ² (100G), 3 times each in direction of X, Y and Z	
Temperature characteristic		≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C	
Port size		F1: Rc1/8"; F2: NPT1/8"; F3: G1/8"(BSPP)	
Lead wire		Oil-resistance cable(0.15mm ²)	
Weight		Approx. 80 g (with 2 meter lead wire), Approx. 68 g (with M8 4Pin male connector)	

Installation

1. This product has two inlet pressure ports, select the one most convenient for installation.
2. Please plug the unused inlet port with supplied port plug. Use seal tape to prevent pressure leak.



Circuit wiring graph



MP23 Dimensions

DIGITAL PRESSURE GAUGE



Order example

MP23C — F1 — QD

MODEL

PRESSURE PORT

F1: Rc1/8" M1: R1/8"
F2: NPT1/8" M2: NPT1/8"
F3: G1/8" N1: R1/4"
N2: NPT1/4" (Male thread)

PRESSURE RANGE

C: Compound (−100.0~100.0 kPa)
P: Positive (−0.10~1.00 MPa)

CABLE LENGTH / CONNECTOR

Blank: With 2 meter cable
QD: With M8, 4 Pin male connector

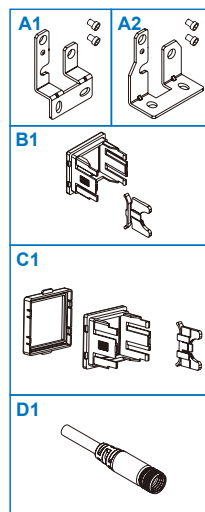
Mounting accessories (Option)

MP — A1

MODEL

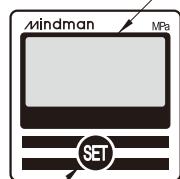
OPTION PARTS

A1: Mounting bracket
A2: Mounting bracket
B1: Panel adapter
C1: Panel adapter + Front protective lid
D1: M8 4Pin female connector (M84R-W0085-2M)



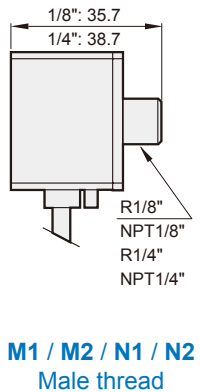
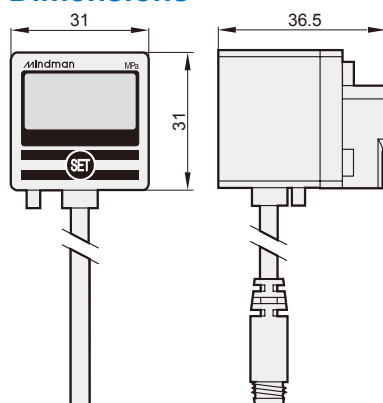
Panel instructions

3 1/2 digit LED display
Display the measured Pressure value. Each set Content and error code.

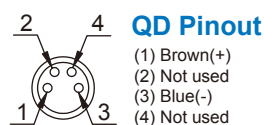


Zero & Unit setting button

Dimensions

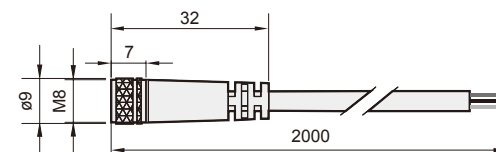


M1 / M2 / N1 / N2
Male thread



Optional part dimensions

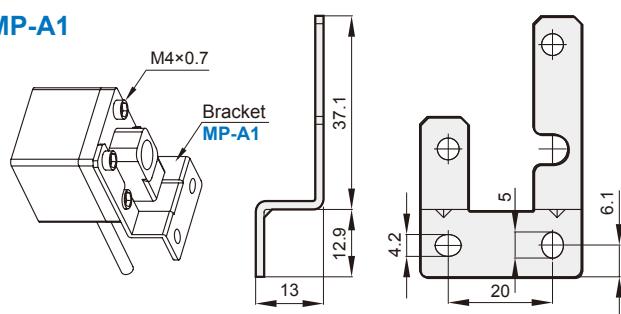
M8, 4 Pin female connector Model: MP-D1



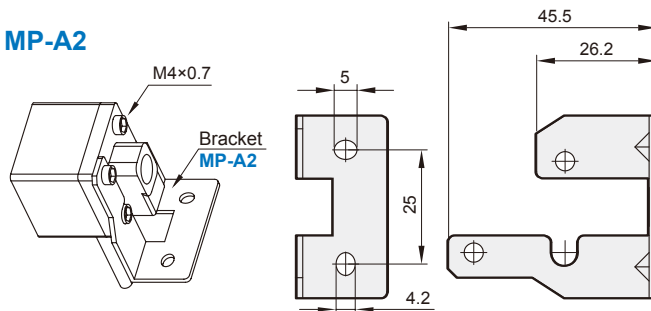
Mounting accessories

Mounting bracket

MP-A1

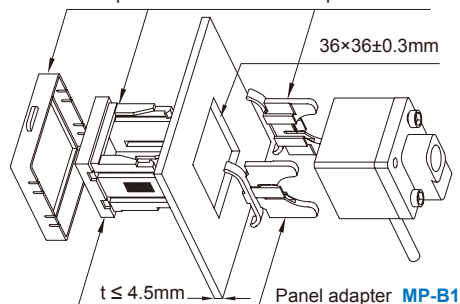


MP-A2

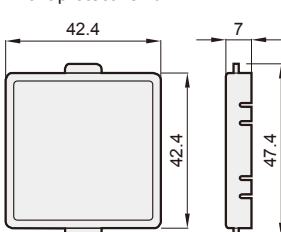


Panel type

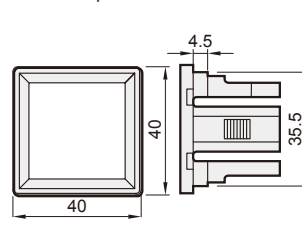
Front protective lid + Panel adapter **MP-C1**



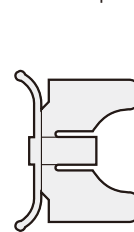
Front protective lid



Panel adapter



Panel adapter



MPG-60 series

DIGITAL PRESSURE GAUGE



Features

- 6 user programmable pressure units (kPa, MPa, kgf/cm², psi, bar, mmHg) available.
- Battery powered.
- Easy / fast read out with digital display.
- Power saving mode.
- Back light option.
- IP65 enclosure, dust and splash-proof.

Specification

Model		Vacuum		Positive	
		MPG-60V	MPG-60V-L	MPG-60P	MPG-60P-L
Rate / display pressure range		0 ~ -101 kPa / 10 ~ -101 kPa		0 ~ 1 MPa / -0.1 ~ 1 MPa	
Proof pressure		300 kPa		1.5 MPa	
Fluid		Filtered air, Non-corrosive gases ,incombustible gases			
Set pressure resolution	kPa / MPa	1 / —		— / 0.001	
	kgf/cm ² / bar	— / 0.01		0.01	
	psi	0.1		0.1	
	mmHg	1		—	
Battery / Battery replaceable		CR 2032 lithium / Yes			
Battery life		3 years (5 times/day)	1 years (5 times/day)	3 years (5 times/day)	1 year (5 times/day)
Low-power indicator		Yes			
Back light		No	Yes	No	Yes
Turn-on interval		Display turn off after 60 sec.			
Sampling rate		2 Hz (2 times/sec.)			
Programmable pressure unit		psi, bar mmHg, kPa user selectable		psi, bar, kgf/cm ² , MPa user selectable	
Repeatability		≤ ±1% F.S. ±1digit		≤ ±0.2% F.S. ±1digit	
LCD display		7 segment, 3 1/2 digit			
Indicator accuracy		≤ ±2% F.S. ±1 digit (Ambient temperature: 25 ±3 °C)			
Environment	Enclosure	IP65 (Air tube must be installed to maintain IP65)			
	Ambient temp. range	Operation: 0 ~ 50°C, storage : —10 ~ 60°C (No condensation or freezing)			
	Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)			
	Vibration	Total amplitude 1.5mm or 10G, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z			
	Shock	100m/s ² (10G), 3 times each in direction of X, Y and Z			
Temperature characteristic		≤±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C			
Weight		Approx. 40 g			

Order example

MPG — 60 P — L — F1

MODEL

PRESSURE RANGE
V: Vacuum
P: Positive

PRESSURE PORT

F1: R1/8", M5
F2: NPT1/8", #10-32 UNF
F3: G1/8", M5
F4: R1/4", M5
F5: NPT1/4", #10-32 UNF
F6: G1/4", M5

BACK LIGHT

Blank: Back light unavailable
L: Back light available

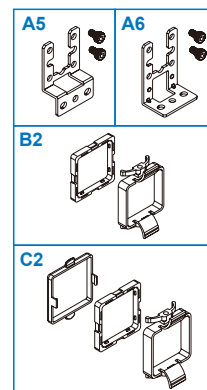
Mounting accessories (Option)

MP — A5

MODEL

OPTION PARTS

A5: Mounting bracket
A6: Mounting bracket
B2: Panel adapter
C2: Panel adapter + Front protective lid

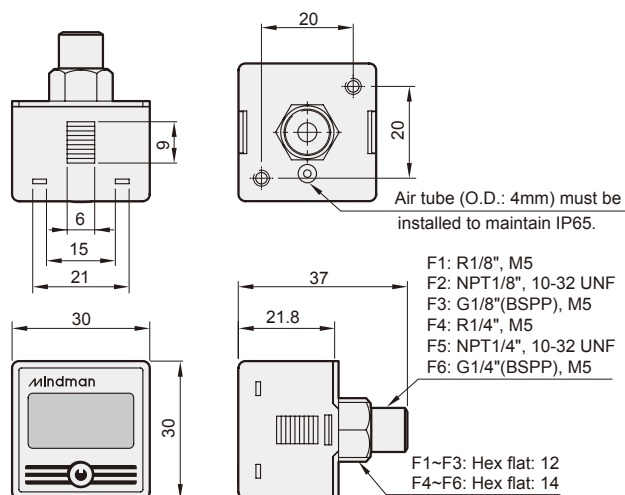


MPG-60 Dimensions

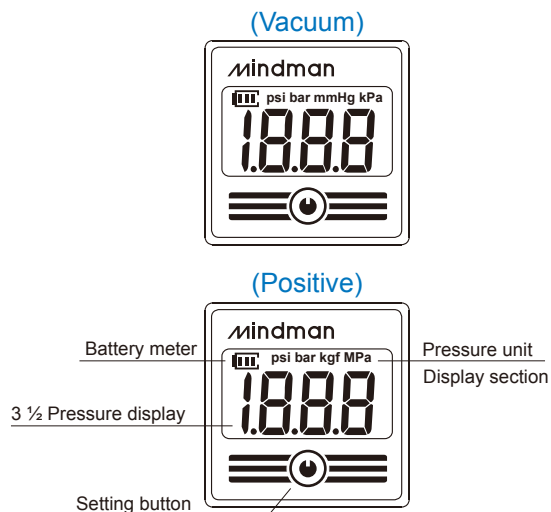
DIGITAL PRESSURE GAUGE



Dimensions



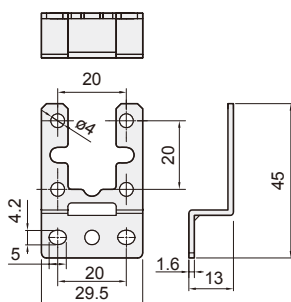
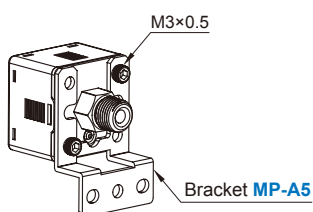
Panel instructions



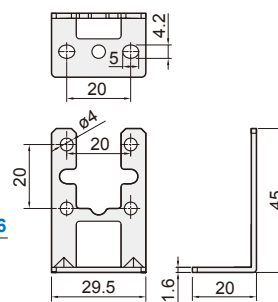
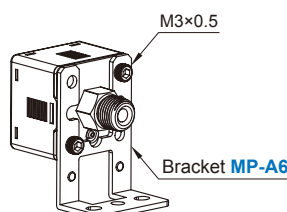
Mounting accessories

Mounting bracket

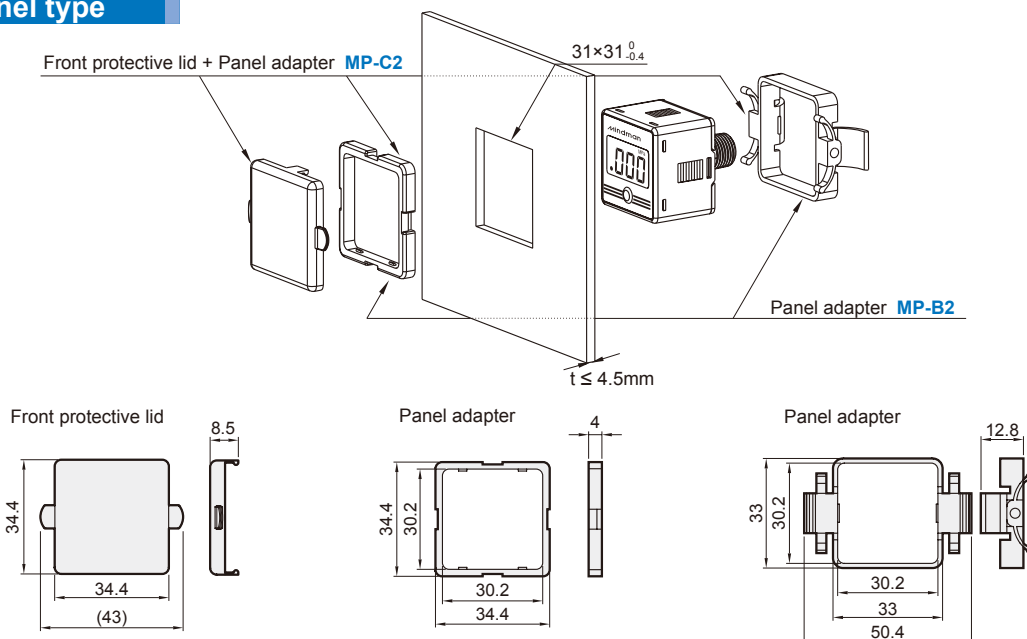
MP-A5



MP-A6



Panel type





Specification

Model	PG-20	PG-25	PG-33	PG-40	PG-50
Bore No.	—	—	6A	6A	8A
Port size	—	1/16	1/8	1/8	1/4
Medium	Air				
Operating perssure range	By order specifications				
Proof pressure	The max. scale of gauge times 1.2				
Precision	±4% F.S.		ASME B class		
Ambient temperature	-5~+60°C (No freezing)				
Weight	11 g	17 g	34 g	54 g	108 g

* Please consult us if out of specification.

Order example

PG — 40 S — 1K — NPT

MODEL GAUGE SIZE PRESSURE RANGE PORT THREAD

Blank: 0~1 MPa
1K: 0~0.1 MPa
2K: 0~0.2 MPa
3K: 0~0.3 MPa
4K: 0~0.4 MPa
5K: 0~0.5 MPa
20K: 0~2 MPa
30K: 0~3.5 MPa

Blank: R thread
NPT: NPT thread

CASE MATERIAL

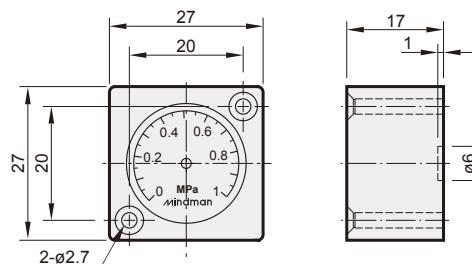
Code Model	—	W	S	Note
PG-20	○	○		W(White)
PG-25				
PG-33			○	
PG-40	○	○	○	W(Electroplating)
PG-50	○			

* Blank: Standard type (Black)
PG-25 standard type (Gray)

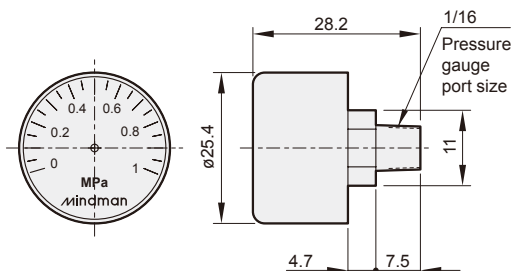
* S: Stainless steel

Code Model	—	1K	2K	3K	4K	5K	20K	30K
PG-20	○	×	×	×	×	×	×	×
PG-20W	○	×	×	×	×	×	×	×
PG-25	○	×	×	×	×	×	×	×
PG-33S	○	×	×	×	×	×	×	×
PG-40	○	○	○	○	○	○	○	×
PG-40W	○	○	○	○	○	○	○	○
PG-40S	○	×	×	×	×	×	×	×
PG-50	○	×	×	×	×	×	○	×

PG-20

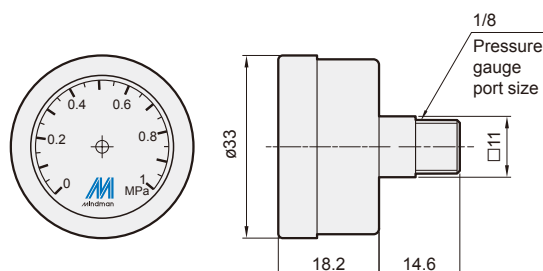


PG-25

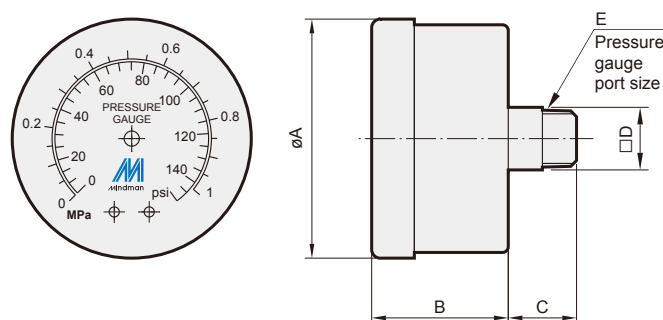


PG-33S

*Only for SUS case.



PG-40 / 50



Code Model	A	B	C	D	E
PG-40	42	25	15	11	1/8
PG-50	53	26.5	22.5	14	1/4



Feature

- Display can be vertically inverted.
To set and watch monitor easily.
- 3-Color & 7 segment LCD display.
- 8 digit accumulated flow rate display.
- Real-time monitoring.
- RS-485 Modbus RTU.

Specification

Model		005	010	050	100	500	101	201
Fluid		Dry air, N ₂ , Non-corrosive / Non-flammable gas						
Sensor element	Flow	Unidirection						
	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
Display	Display	4 digital (Flow) / 8 digital (Accumulated flow), 7 segment LCD display (Red / Green / Orange)						
	Instant flow rate	Unidirection						
	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	1 mL/min						
	CFM *1	0.01 ft ³ /min						
	Accumulated Flow	99999999 mL						
Accuracy	Flow	2 ~ 100 % F.S.						
	Indicator accuracy	± 3 % F.S. ± 1 digit *2						
	Analog output accuracy	± 5 % F.S. *2						
	Repeatability	± 1 % F.S. ± 1 digit *3						
	Linearity	± 3 % F.S. *3						
	Temp. characteristic	± 2 % F.S. (15 ~ 35 °C) ; ± 5 % F.S. (0 ~ 15 °C, 35 ~ 50 °C) (compare with *3)						
Switch output	Pressure characteristic	± 5 % F.S. ± 1 digit *4						
	Switch output	2 NPN : open collector 2 outputs Max. Load Current : 125 mA Max. Supply Voltage : 28 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						
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	

(Continued)

Specification

Model	005	010	050	100	500	101	201
Analog output	Voltage output range : 1 ~ 5 V ; Output impedance : 1 K Ω						
	Current output range : 4 ~ 20 mA ; Load impedance : $\leq$ 300 Ω						
	Response time $\leq$ 100 ms						
External input	Non-voltage input, < 0.4 V, $\geq$ 30 ms						
Communication interface	RS-485 *5						
Power	Power supply voltage 12 ~ 24 V DC $\pm$ 10 %, Ripple (P-P) $\leq$ 10 %						
	Current consumption $\leq$ 50 mA						
Environment	Working pressure range	-0.09~0.8 MPa					
	Withstand pressure	1 MPa					
	Enclosure	IP40					
	Working Fluid Temp.	0 ~ 50 $^{\circ}$ C (No condensation or freezing)					
	Ambient Temp. Range	Operation : 0 ~ 50 $^{\circ}$ C ; Storage : -10 ~ 60 $^{\circ}$ C (No condensation or freezing)					
	Ambient Humidity Range	Operation / Storage : 35 ~ 85 % R.H. (No condensation)					
	Insulation Resistance	$\geq$ 50 M Ω (500 V DC, between case and lead wire)					
	Withstand Voltage	1000 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		ϕ 4 Oil-resistance cable (PVC) - 26 AWG (0.15 mm ²) - 6 cores					
Port Size	R6, F1C	●	●	●	●	●	●
	R8, F4C					●	●
Weight (with 2 meter lead wire)		Approx. 109.3 g (ϕ 6 port) ; Approx. 112.7 g (ϕ 8 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 $\times 10^{-2}$

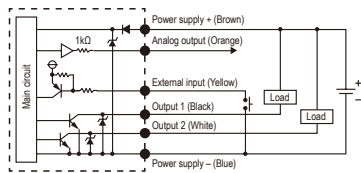
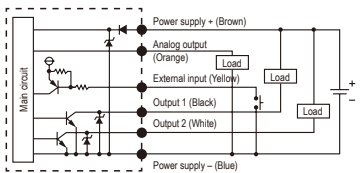
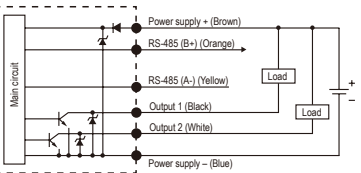
*2. Condition: Inlet pressure: 300 kPa, Outlet pressure: 1 atmospheric pressure, 25 $^{\circ}$ C

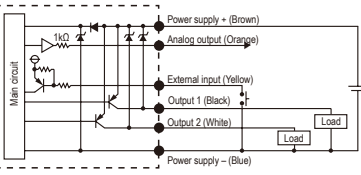
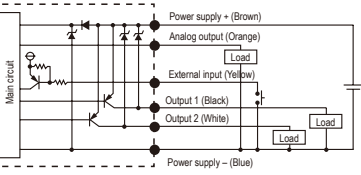
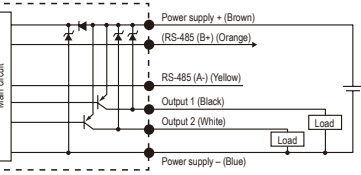
*3. Condition: Outlet pressure: 1 atmospheric pressure, 25 $^{\circ}$ C.

*4. -0.09 ~ 0.8 MPa, Outlet pressure: 1 atmospheric pressure, 25 $^{\circ}$ C.

*5. This function only available for Output Specification -02 and -04.

Output circuit wiring graph

Model	MF01-□-010	MF01-□-011	MF01-□-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	MF01-□-030	MF01-□-031	MF01-□-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.

MF01 Order example

DIGITAL FLOW SENSOR



Order example

MF01 – 005 – 010 – R6

MODEL

FLOW RATE RANGE

005: 500 (ml/min)
010: 1000 (ml/min)
050: 5 (l/min)
100: 10 (l/min)
500: 50 (l/min)
101: 100 (l/min)
201: 200 (l/min)

OUTPUT SPEC.

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

R6: ø6 mm, for flow rate range 005, 010, 050, 100, 500.
R8: ø8 mm, for flow rate range 101, 201.
F1C: Rc1/8", with internal threads, for flow rate range 005, 010, 050, 100, 500
F4C: Rc1/4", with internal threads, for flow rate range 101, 201

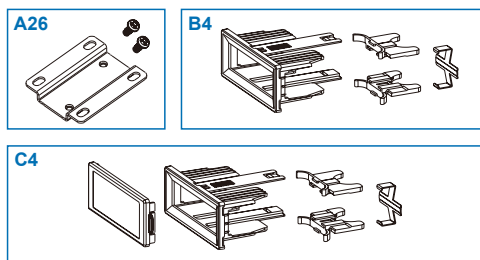
Mounting accessories

MP – A26

MODEL

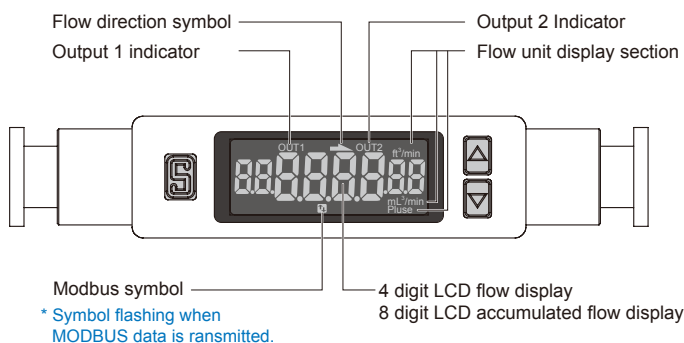
OPTION PARTS

A26: Mounting bracket
B4: Panel adapter
C4: Panel adapter + Front protective lid

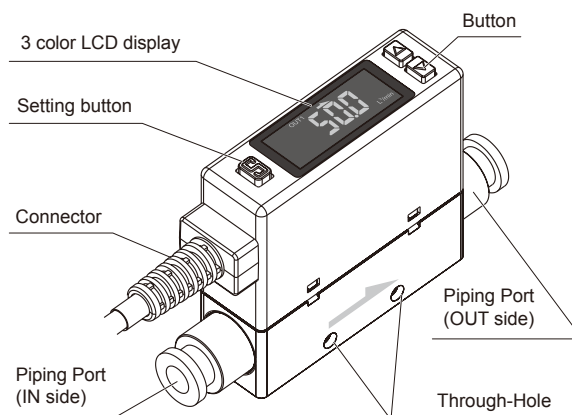


Name and functions of individual parts

Panel description



Body description



MF01 Dimensions

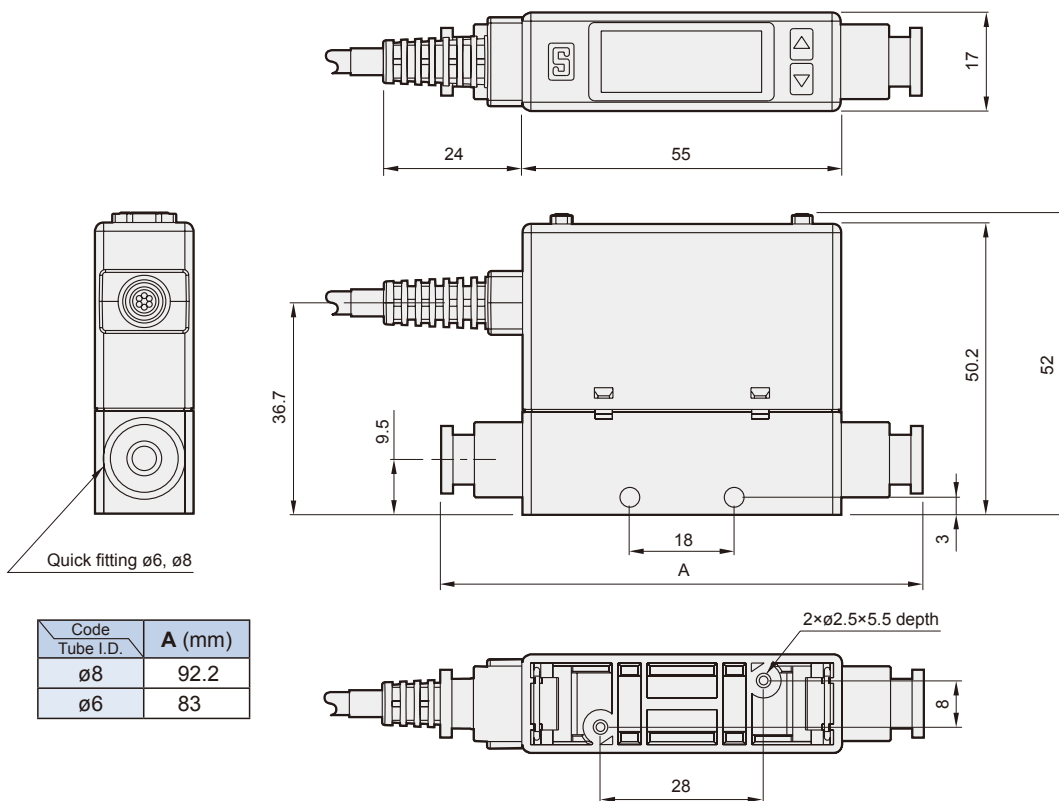
DIGITAL FLOW SENSOR



Port size

R6 (ø6)

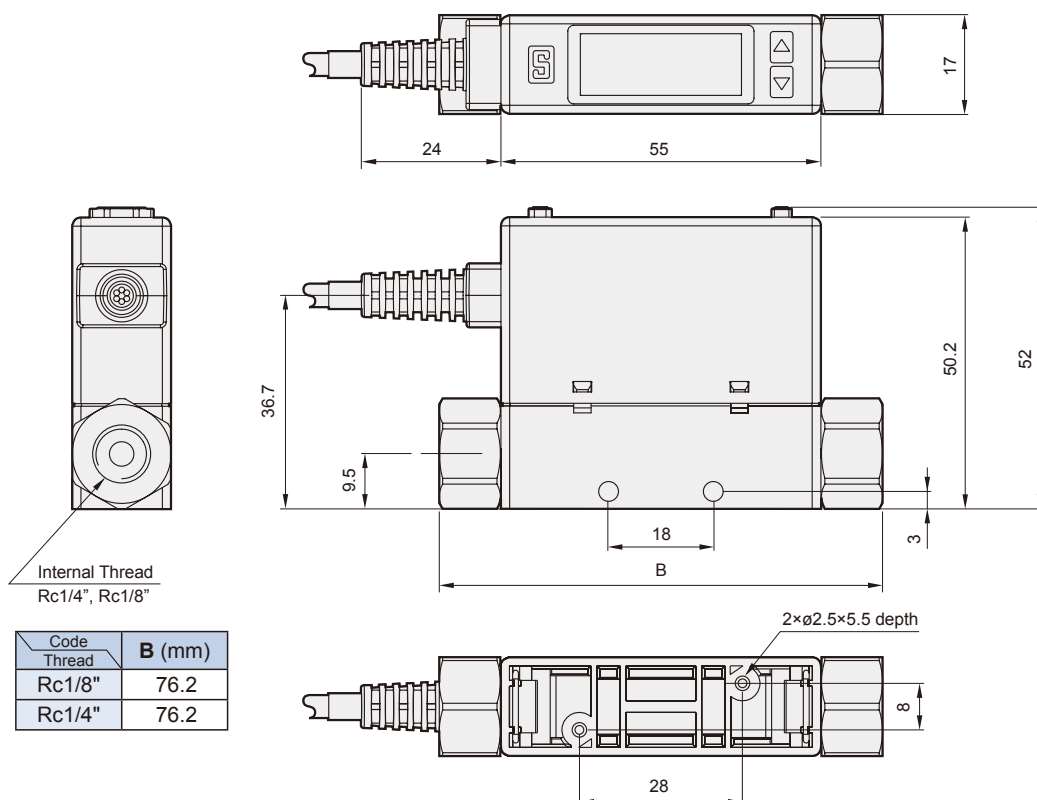
R8 (ø8)



Port size

F1C (Rc1/8")

F4C (Rc1/4")



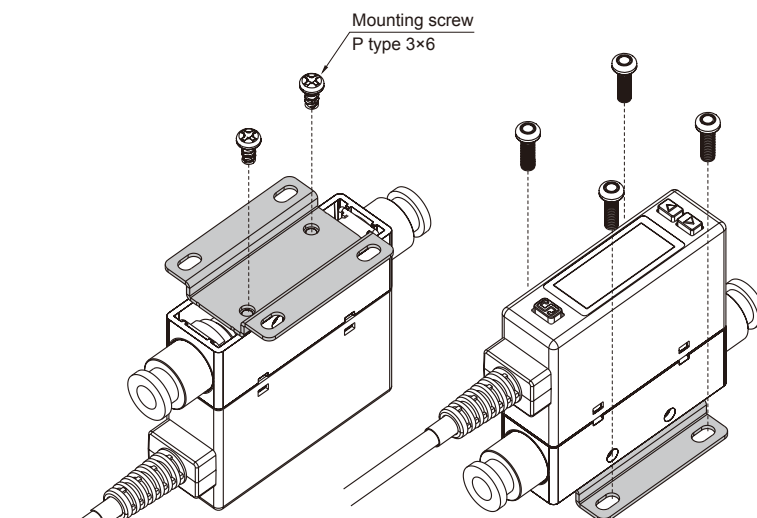
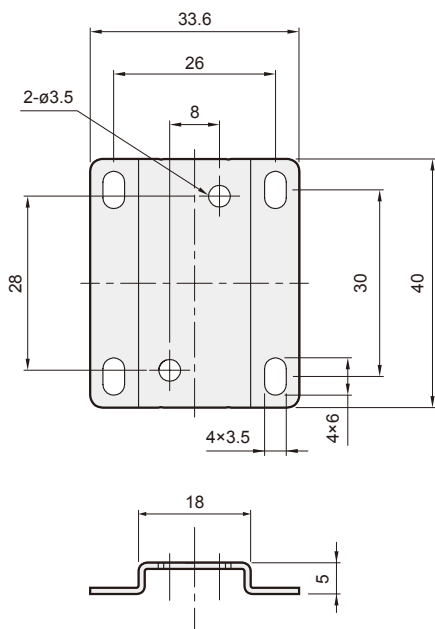
MF01 Mounting accessories

DIGITAL FLOW SENSOR



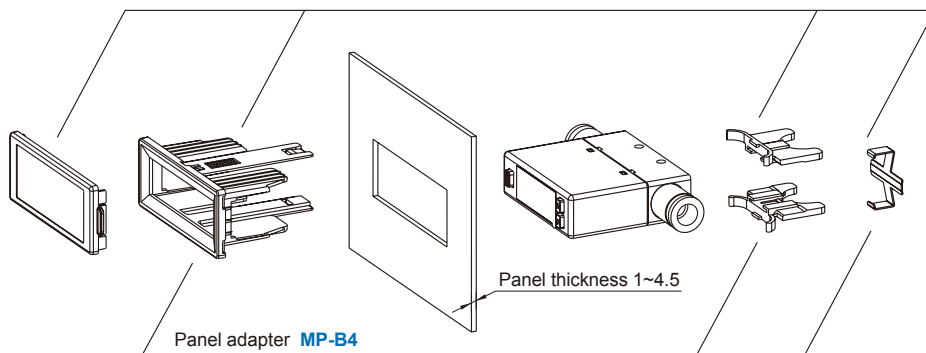
Mounting bracket

MP-A26

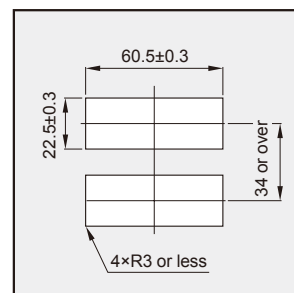


Panel type

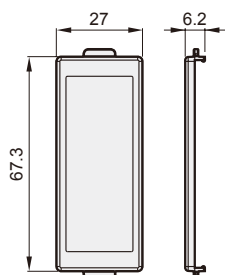
Front protective lid + Panel adapter MP-C4



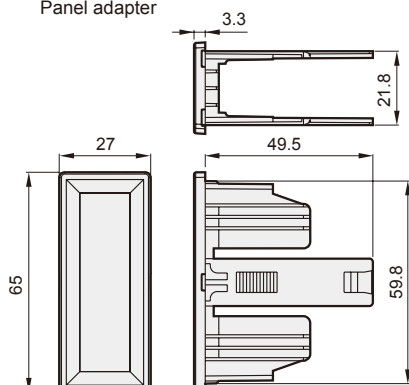
Panel cut dimensions



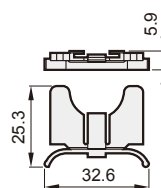
Front protective lid



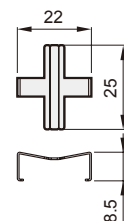
Panel adapter



Panel adapter



Panel adapter





Feature

- Cost control, User-friendly, High performance.
- Dry air, N₂.
- RS-485 MODBUS control.
- 2-in-1 design: Pressure and flow rate simultaneous monitoring.
- Accumulated flow rate display at a glance.
- Multiple output function: Digital display, switch output, analog output, accumulated pulse output.
- Wide range of flow rates.

Specification

Model			005	010	050	100	500	101	201	
Fluid			Dry air, N ₂ , Non-corrosive / Non-flammable gas							
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 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			
	Pressure Display	Display range	-100 ~ 1000 kPa							
		Min. Setting Scale	kPa	1						
			kgf/cm²	0.01						
			bar / psi	0.01 / 0.1						
Accuracy	Flow	Guaranteed range	2 ~ 100 % F.S.							
		Indicator accuracy	± 3 % F.S. ± 1 digit *2							
		Analog output accuracy	± 5 % F.S. *2							
		Repeatability	± 1 % F.S. ± 1 digit *3							
		Linearity	± 3 % F.S. *3							
		Temp. characteristic	± 2 % F.S. (15 ~ 35 °C) ; ± 5 % F.S. (0 ~ 15 °C, 35~ 50 °C) (compare with *3)							
		Pressure characteristic	± 5 % F.S. ± 1 digit *4							
	Pressure	Guaranteed range	0 ~ 100 % F.S.							
		Indicator accuracy	± 2 % F.S. ± 1 digit *5							
		Analog output accuracy	± 2.5 % F.S. *5							
		Repeatability	± 0.2 % F.S. ± 1 digit *5							
		Linearity	± 1 % F.S. *5							
		Temp. characteristic	± 2 % F.S. (compare with *5)							

(Continued)

MFP01 Specifications

FLOW & PRESSURE SENSOR



Specification

Model			005	010	050	100	500	101	201
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						
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 ft³/Pulse	0.04 ft³/Pulse	0.2 ft³/Pulse	0.4 ft³/Pulse	2 ft³/Pulse	4 ft³/Pulse	7 ft³/Pulse
Analog output	Voltage output		Voltage output range : 1 ~ 5 V *6 ; Output impedance : 1 KΩ						
	Current output		Current output range : 4 ~ 20 mA *6 ; 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 *7							
Power	Power supply voltage		12 ~ 24 V DC ± 10 %, Ripple (P-P) ≤ 10 %						
	Current consumption		≤ 50 mA						
Environment	Withstand Pressure		1000 kPa						
	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)						
	Withstand Voltage		1000 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/s² (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 mm²) - 6 cores							
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

*2. Condition: Inlet pressure: 300 kPa , Outlet pressure: 1 atmospheric pressure, 25 °C

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

*4. -90 ~ 800 kPa, Outlet pressure: 1 atmospheric pressure, 25 °C

*5. Outlet flow rate = 0 L/min, 25 °C

*6. PWM output, corresponding to pressure sensor 0 ~ 1000 kPa

*7. This function only available for Output Specification -02 and -04

MFP01 Order example

FLOW & PRESSURE SENSOR



Output circuit wiring graph

Model	MFP01-□-010	MFP01-□-011	MFP01-□-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-□-030	MFP01-□-031	MFP01-□-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 conneciton BEFORE power line connection.

Order example

MFP01 – 005 – 010 – R6

MODEL

FLOW RATE RANGE

005: 500 (ml/min)
010: 1000 (ml/min)
050: 5 (l/min)
100: 10 (l/min)
500: 50 (l/min)
101: 100 (l/min)
201: 200 (l/min)

OUTPUT SPEC.

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

R6: ø6 mm, for flow rate range
005, 010, 050, 100, 500.
R8: ø8 mm, for flow rate range
101, 201.
F1C: Rc1/8", with internal
threads, for flow rate range
005, 010, 050, 100, 500
F4C: Rc1/4", with internal
threads, for flow rate range
101, 201

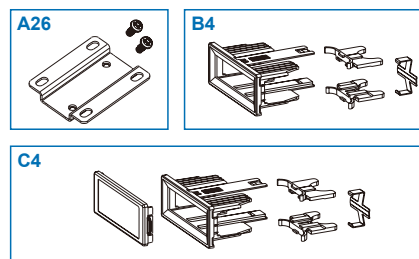
Mounting accessories

MP – A26

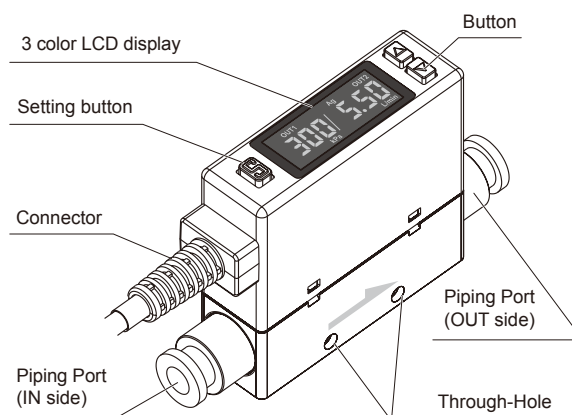
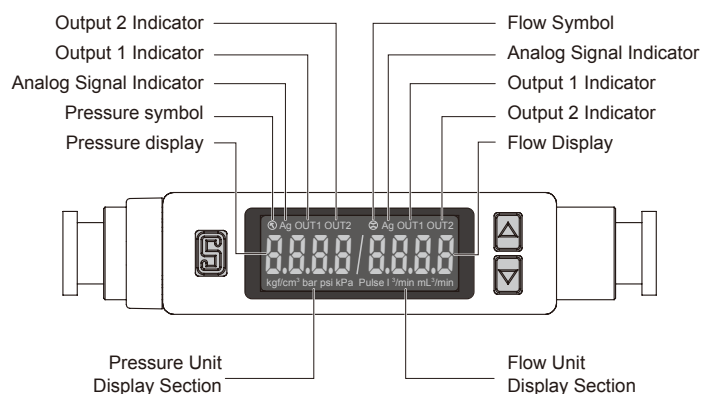
MODEL

OPTION PARTS

A26: Mounting bracket
B4: Panel adapter
C4: Panel adapter + Front protective lid



Name and functions of individual parts

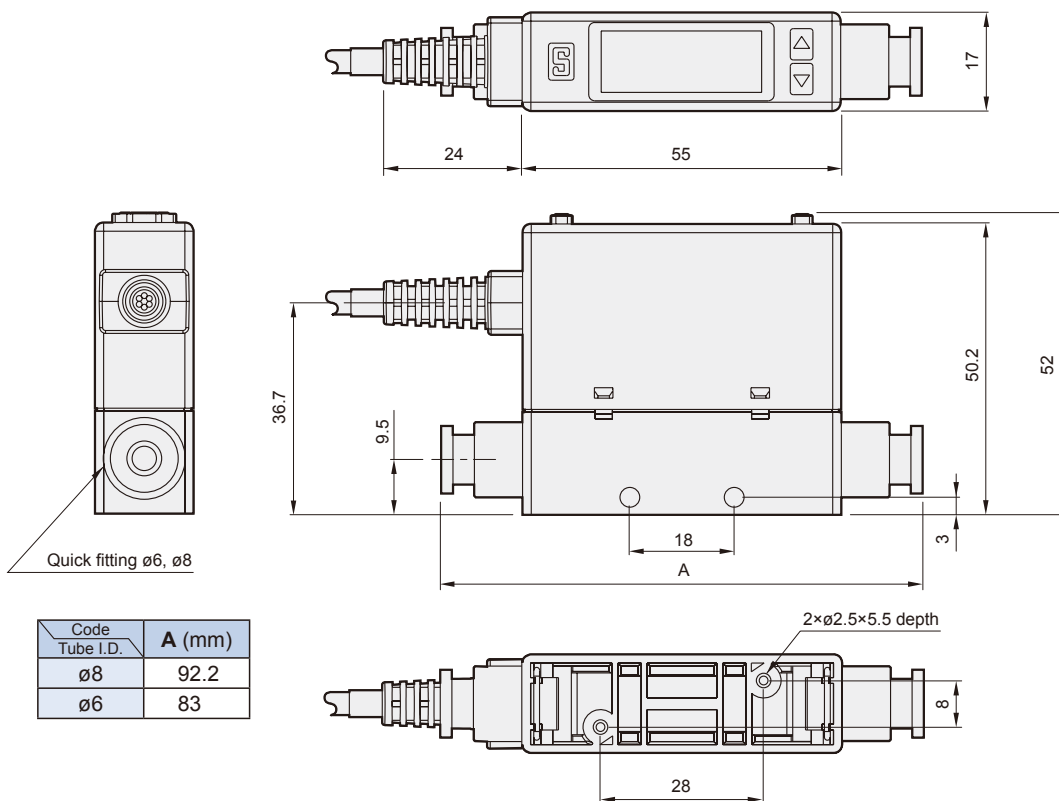


MFP01 Dimensions

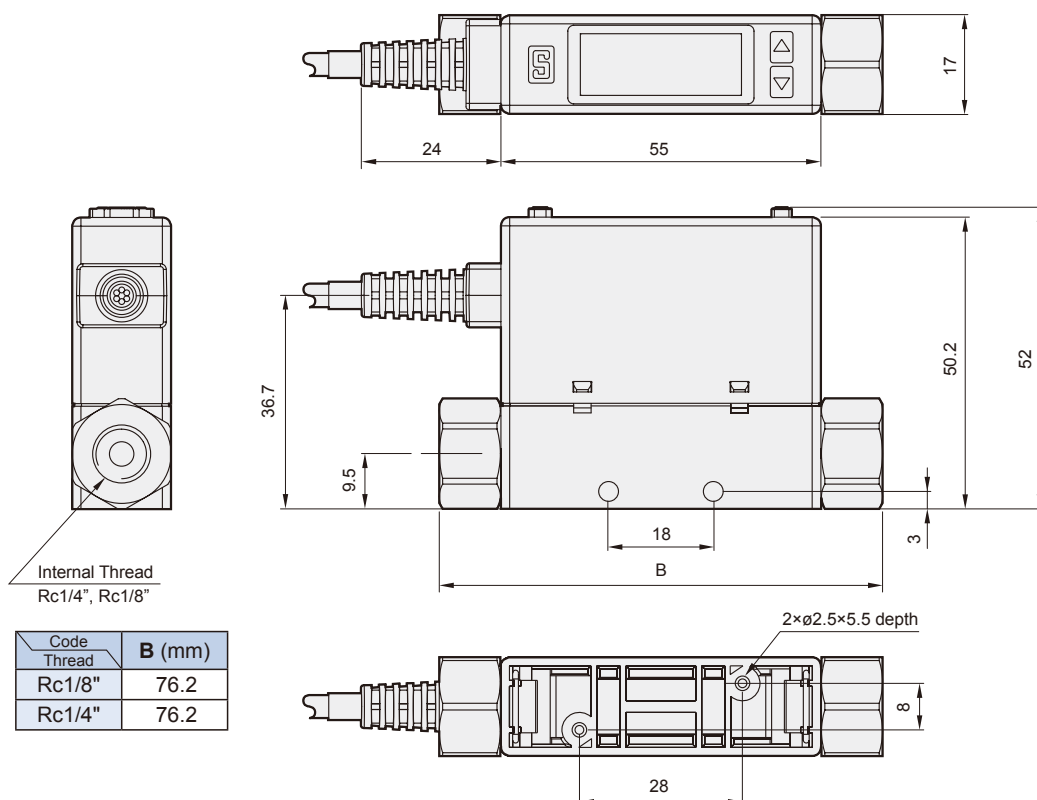
FLOW & PRESSURE SENSOR



Port size
R6 (ø6)
R8 (ø8)

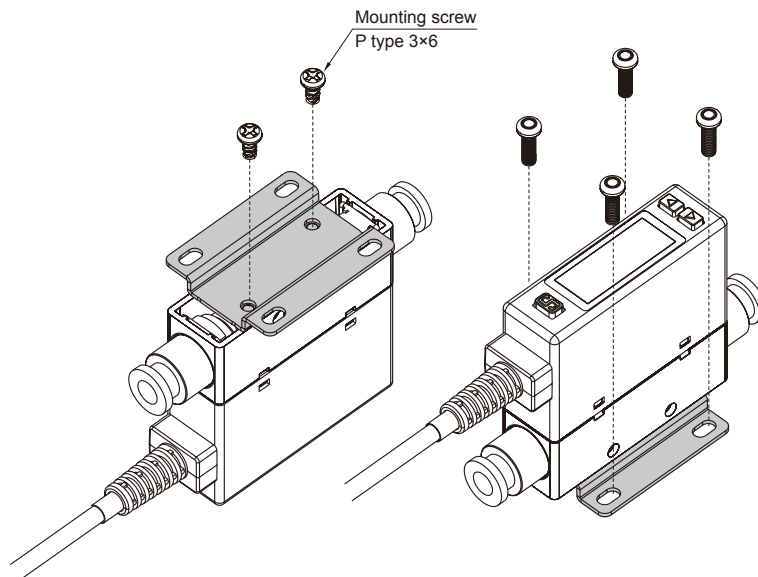
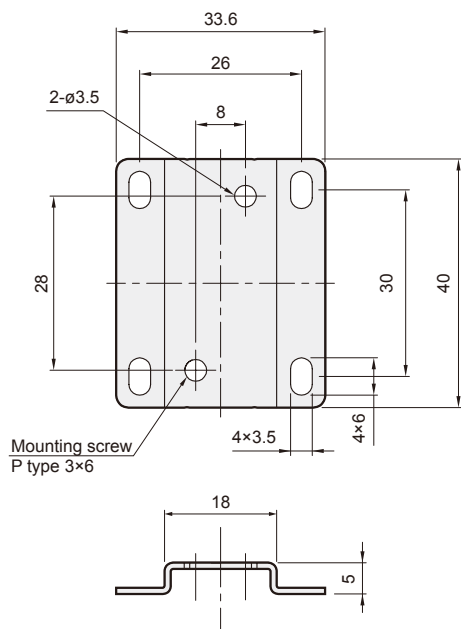


Port size
F1C (Rc1/8")
F4C (Rc1/4")



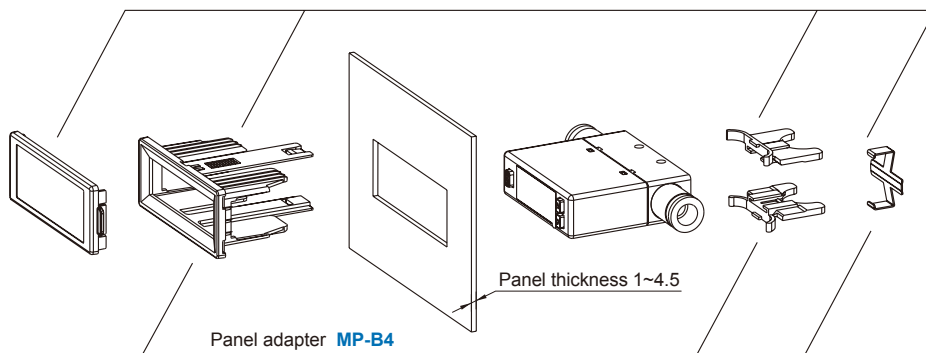
Mounting bracket

MP-A26

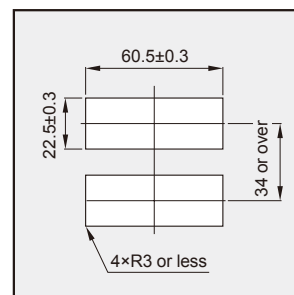


Panel type

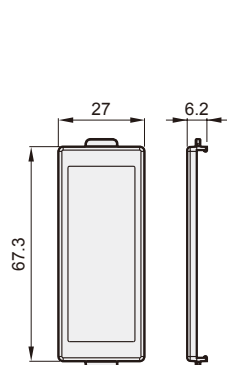
Front protective lid + Panel adapter MP-C4



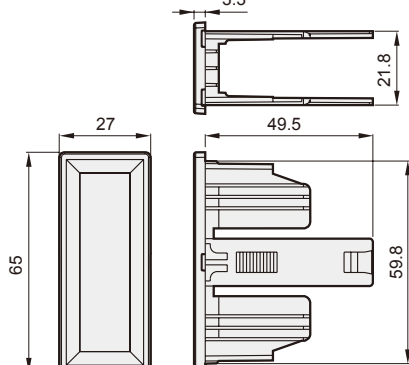
Panel cut dimensions



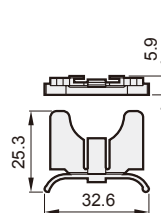
Front protective lid



Panel adapter



Panel adapter



Panel adapter

