



Contact confirmation switch (digital gap switch) single unit

GPS3 Series

● Port size: Rc1/8



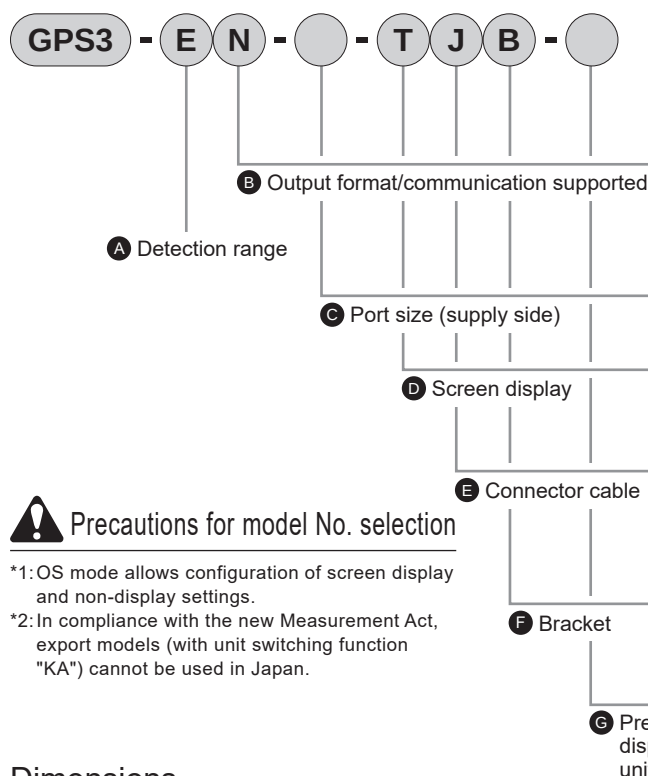
Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item		Short range GPS3-E	Wide range GPS3
Working fluid		Compressed clean air (after 5 μm filter, lubrication not possible)	
Working pressure	kPa	50 (≈8 psi, 1 bar) to 200 (≈29 psi, 2 bar)	
Proof pressure	kPa	600 (≈87 psi, 6 bar)	
Detection range	mm	0.02 to 0.15	0.03 to 0.4
Reference value display range		10 to 200 (display unit 1)	20 to 500 (display unit 1)
Repeatability	mm	±0.01	±0.01 (detection range min to 0.1)
Hysteresis		Variable (reference value variable from 1 in increments of 1. Default 10)	
Temperature characteristics (base temperature +25°C)		0.015	0.030 mm or less (detection distance min to 0.3 mm) 0.1 mm or less (detection distance 0.3 to 0.4 mm)
Detection nozzle		Single hole nozzle ø1.5	
Power supply voltage	V	24 DC ±10% (18 to 30 DC) *1, ripple P-P 10% or less (with reverse connection protection)	
Current consumption	mA	25 or less (35 or less) *1	
Output/communication supported		2-point output (NPN, PNP open collector) *2	
Output rating		30 VDC, 100 mA or less	
Internal voltage drop	V	2 or less (using 100 mA)	
Short circuit protection circuit	*3	Equipped	
Display		Reference value, thresholds (2-point), output status indicators (2-point), detection side pressure, blockage indication	
Insulation resistance		No failure after 1 minute of 1,000 VAC application	
Withstand voltage		10 MΩ and over at 500 VDC megger	
Ambient temperature	°C	0 (32°F) to 50 (122°F) (no freezing or condensation)	
Degree of protection		IP67 or equivalent	
Port size		Supply port: Rc1/8, detection port: push-in fitting ø6	
Wiring	*4	M12 connector, 4-pin	
Weight	g	128 (excluding cable)	
Air consumption	L/min	Less than 9	Less than 22

*1: Values in () are when communication support option L is selected
 *2: Refer to page 1255 for communication specifications.
 *3: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.
 *4: Tighten M12 connectors at 0.5 N·m torque or less.

How to order



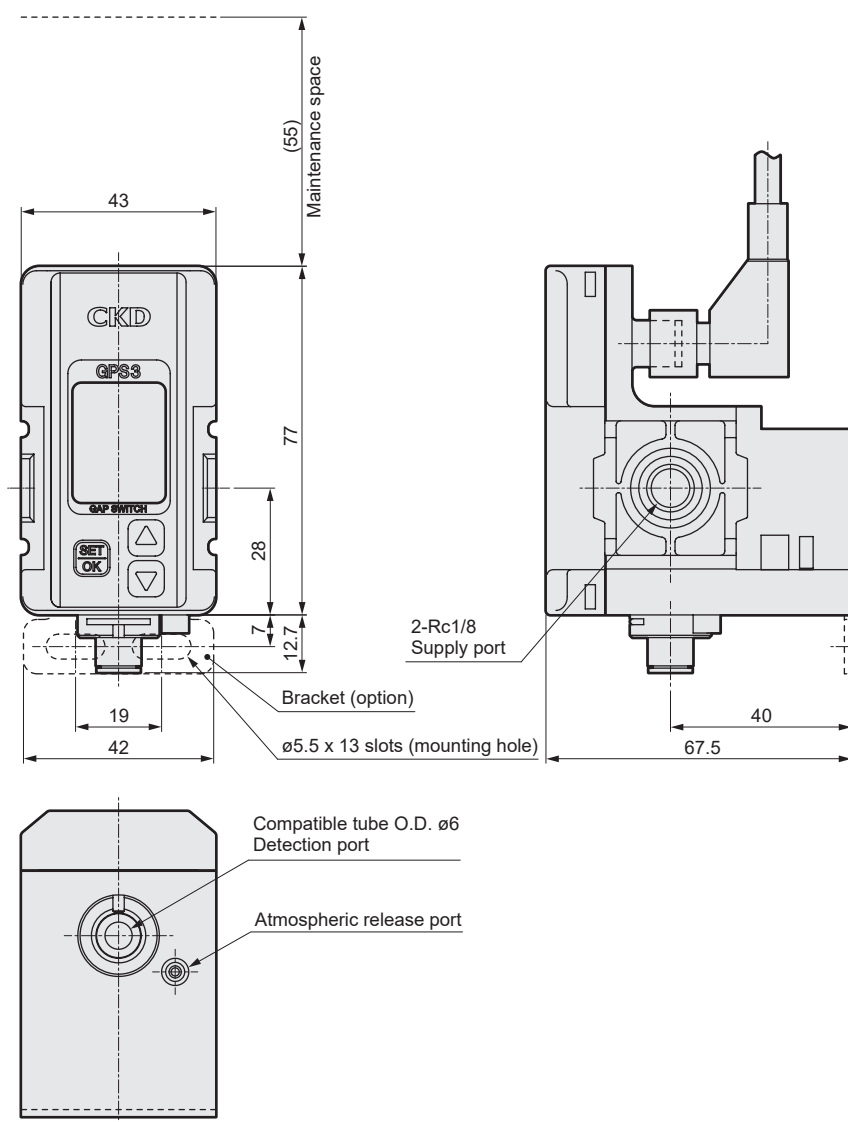
Precautions for model No. selection

*1: OS mode allows configuration of screen display and non-display settings.

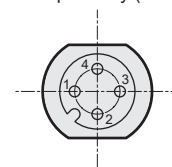
*2: In compliance with the new Measurement Act, export models (with unit switching function "KA") cannot be used in Japan.

Code	Description
A Detection range	
Blank	0.03 to 0.4
E	0.02 to 0.15
B Output format/communication supported	
N	NPN open collector (2-point)
P	PNP open collector (2-point)
L	IO-Link communication
C Port size (supply side)	
Blank	Rc1/8
D Screen display *1	
Blank	Display (default)
T	Non-display (default)
E Connector cable	
Blank	5 m connector cable included (one side elbow)
D	5 m connector cable included (both sides elbows/straight)
J	Without connector cable
F Bracket	
Blank	Without bracket
B	With bracket
G Pressure display unit *2	
Blank	SI units only (domestic model)
KA	With unit switching function (export model)

Dimensions



Connector pin array (body side)



Pin No.	Lead wire color	Applications
1	Brown	Power supply +
2	White	Output 2
3	Blue	Power supply -
4	Black	Output 1 (C/Q*1)

*1: For IO-Link compatible options

(Atmospheric release port)

When in use, if this port may become obstructed by coolant or oil, etc., connect a tube (O.D. ø4, I.D. ø2.5) and move the tube opening to a location that will not become obstructed.

F.R.L.
F.R.
F (Filtr)
R (Reg)
L (Lub)
Drain Separ
Mech Press SW
Res press exh valve
SlowStart
Anti-bac/Bac-remove Filt
Film Resist FR
Oil-ProhR
Med Press FR
No Cu/ PTFE FRL
Outdrs FRL
Adapter Joiner Press Gauge
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
Speed Ctrl
Silncr
CheckV/ other
Fit/Tube
Nozzle
Air Unit
PrecsCompn
Electro Press SW
ContactSW
AirSens
PresSW Cool
Air Flo Sens/Ctrl
WaterRISens
TotAirSys (Total Air)
TotAirSys (Gamma)
Gas generator
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending



Gap switch Manifold

MGPS3 Series

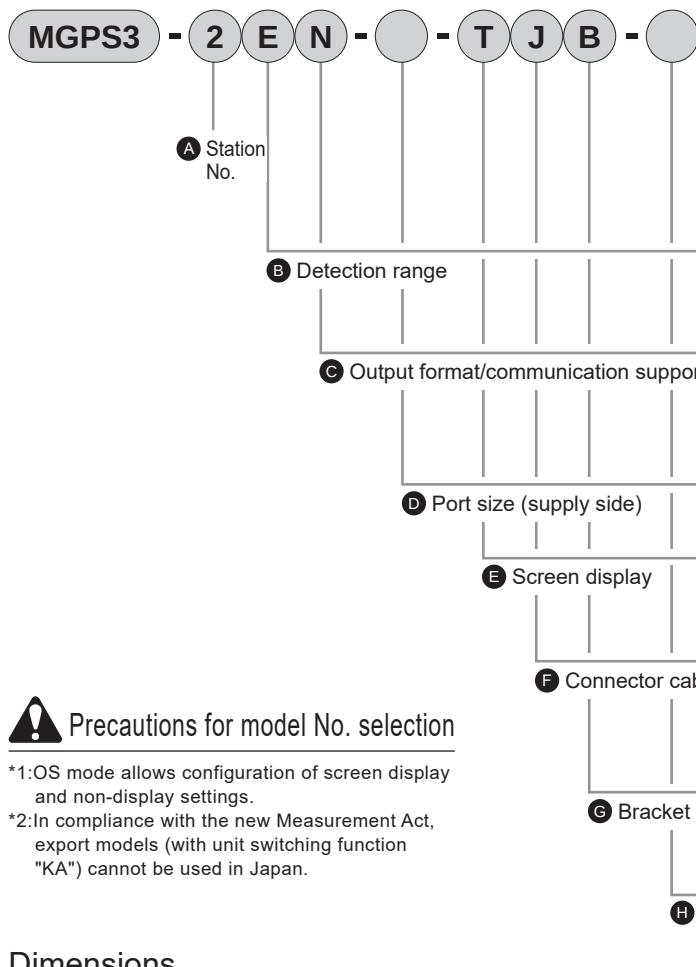
● Station No.: 2 to 6 stations



Specifications

Basic specifications are the same as the single units on page 1240.

How to order



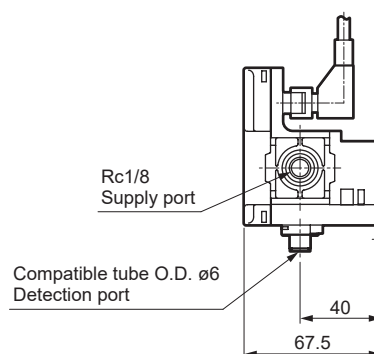
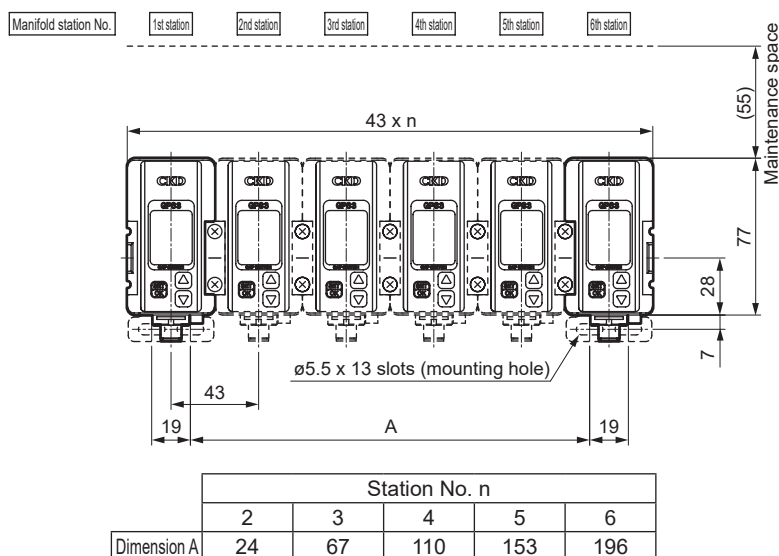
! Precautions for model No. selection

*1:OS mode allows configuration of screen display and non-display settings.

*2:In compliance with the new Measurement Act, export models (with unit switching function "KA") cannot be used in Japan.

Code	Description
A Station No.	
2	2 stations
3	3 stations
4	4 stations
5	5 stations
6	6 stations
B Detection range	
Blank	0.03 to 0.4
E	0.02 to 0.15
C Output format/communication supported	
N	NPN open collector (2-point)
P	PNP open collector (2-point)
L	IO-Link communication
D Port size (supply side)	
Blank	Rc1/8
E Screen display *1	
Blank	Display (default)
T	Non-display (default)
F Connector cable	
Blank	5 m connector cable included (one side elbow)
D	5 m connector cable included (both sides elbows/straight)
J	Without connector cable
G Bracket	
Blank	Without bracket
B	With bracket
H Pressure display unit *2	
Blank	SI units only (domestic model)
KA	With unit switching function (export model)

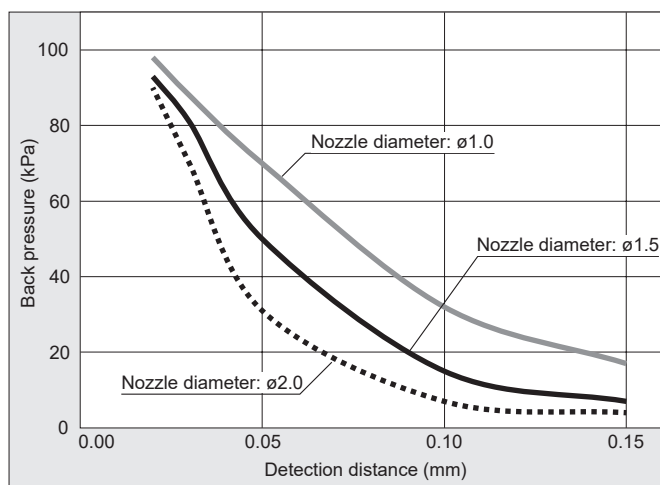
Dimensions



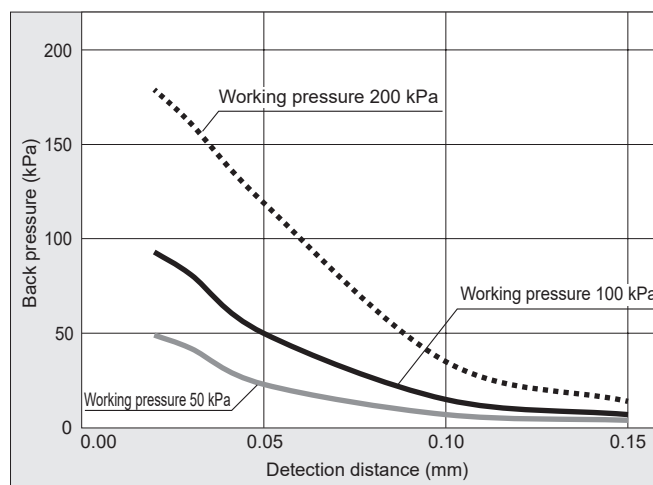
F.R.L.
F.R.
F (Filtr)
R (Reg)
L (Lub)
Drain Separ
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Res press exh valve
SlowStart
Anti-bac/Bac- remove Filtr
Film Resist FR
Oil-ProhR
Med Press FR
No Cu/ PTFE FRL
Outdrs FRL
Adapter Joiner
Press Gauge
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneUR
AirBoost
Speed Ctrl
Silncr
CheckV/ other
Fit/Tube
Nozzle
Air Unit
PrecsCompr
Electro Press SW
ContactSW
AirSens
PresSW Cool
Air Flo Sens/Ctrl
WaterRtSens
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TotAirSys (Gamma)
Gas generator
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

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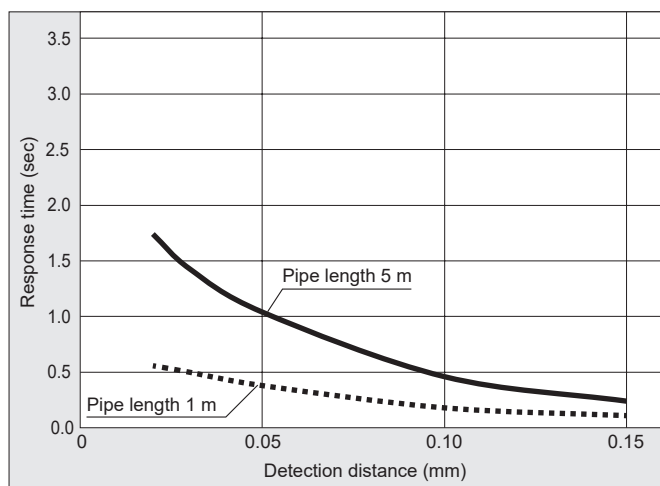
Characteristics data (short range)



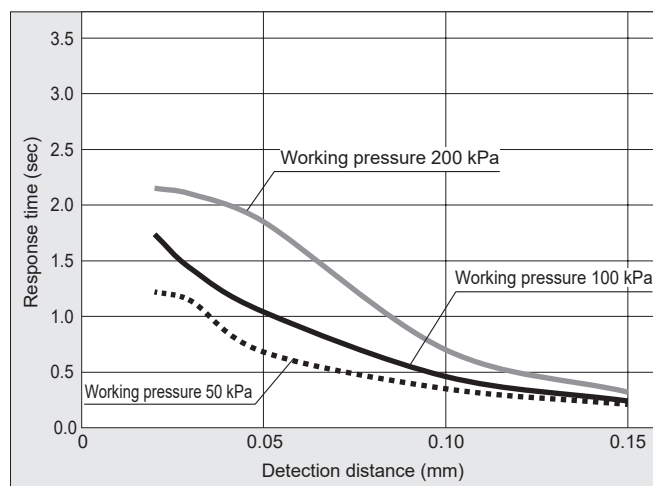
● Back pressure characteristic 1 - Differences in back pressure change due to detection nozzle diameter
 · Type: GPS3-E · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Supply pressure: 100 kPa



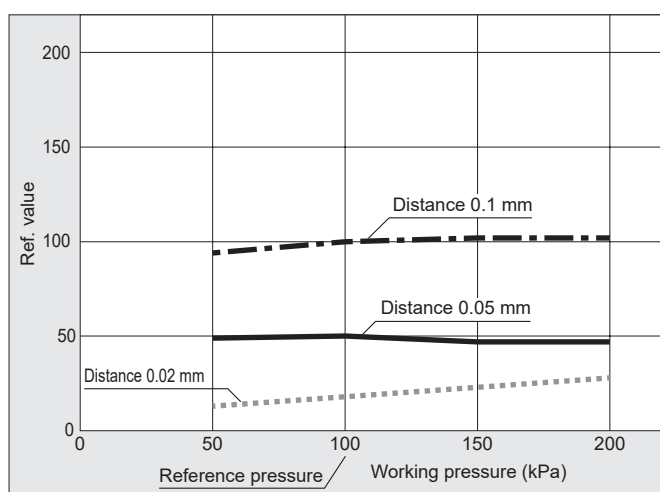
Back pressure characteristic 2 - Differences in back pressure change due to working pressure
 · Type: GPS3-E · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Nozzle diameter: $\phi 1.5$ (flat tip)



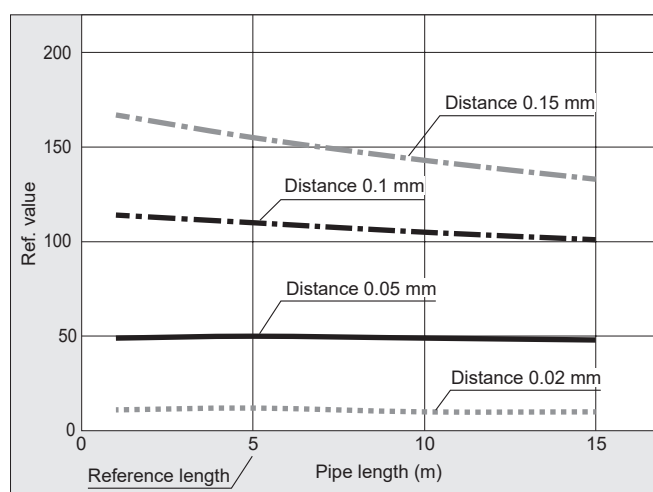
● Effect of pipe length on response time (OFF → ON)
 · Type: GPS3-E · Bore size: $\phi 6 \times \phi 4$
 · Supply pressure: 100 kPa · Nozzle diameter: $\phi 1.5$ (flat tip)



● Effect of working pressure on response time (OFF → ON)
 · Type: GPS3-E · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Nozzle diameter: $\phi 1.5$ (flat tip)

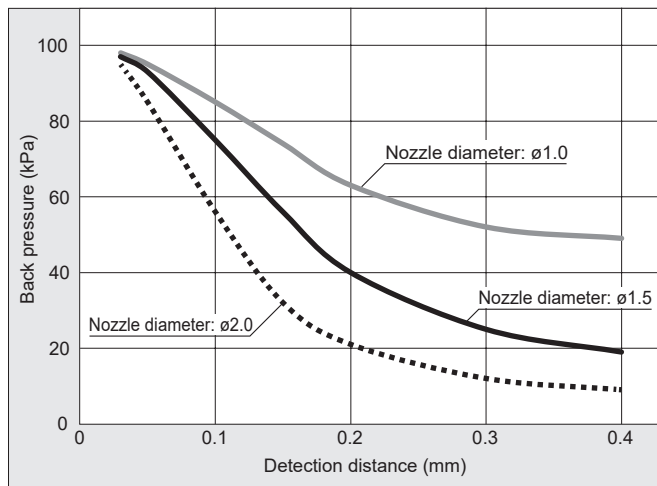


● Effect of working pressure change on reference value
 · Type: GPS3-E · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Nozzle diameter: $\phi 1.5$ (flat tip)

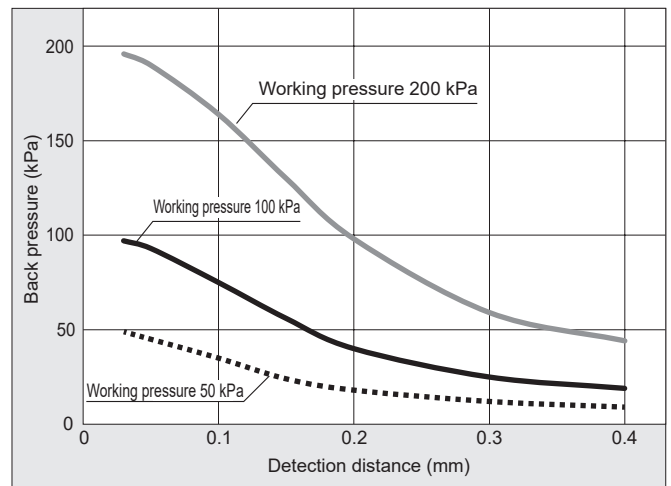


● Effect of pipe length change on reference value
 · Type: GPS3-E · Bore size: $\phi 6 \times \phi 4$ · Reference pipe length: 5 m
 · Supply pressure: 100 kPa · Nozzle diameter: $\phi 1.5$ (flat tip)

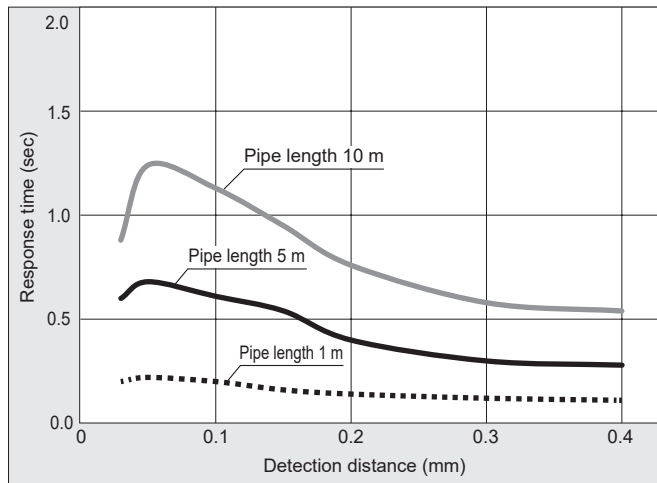
Characteristics data (wide range)



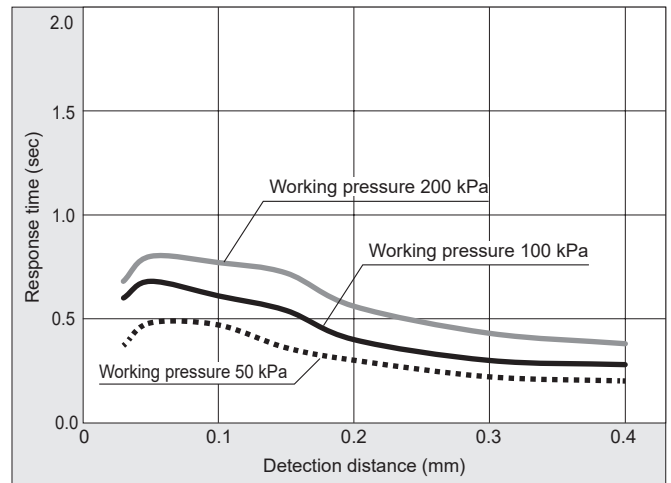
● Back pressure characteristic 1 - Differences in back pressure change due to detection nozzle diameter
 · Type: GPS3 · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Supply pressure: 100 kPa



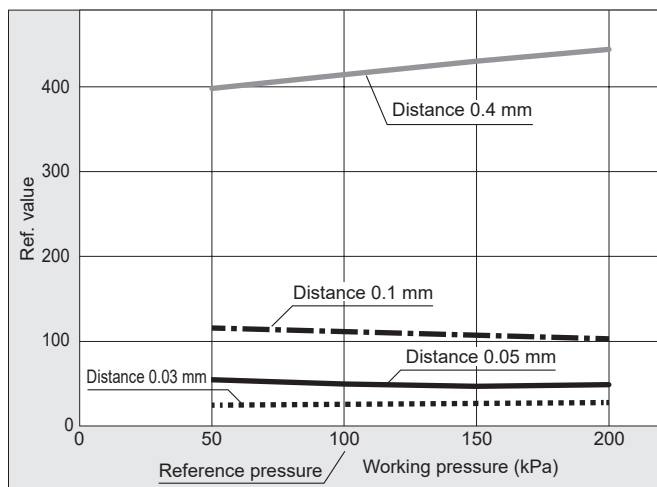
Back pressure characteristic 2 - Differences in back pressure change due to working pressure
 · Type: GPS3 · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Nozzle diameter: $\phi 1.5$ (flat tip)



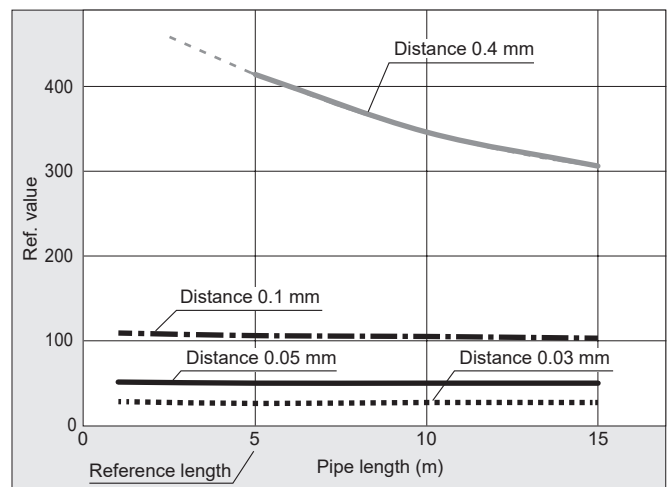
● Effect of pipe length on response time (OFF → ON)
 · Type: GPS3 · Bore size: $\phi 6 \times \phi 4$ · Supply pressure: 100 kPa
 · Nozzle diameter: $\phi 1.5$ (flat tip)
 (response time is measured at 80% distance of threshold)



● Effect of working pressure on response time (OFF → ON)
 · Type: GPS3 · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Nozzle diameter: $\phi 1.5$ (flat tip)
 (response time is measured at 80% distance of threshold)



● Effect of working pressure change on reference value
 · Type: GPS3 · Bore size: $\phi 6 \times \phi 4$ · Pipe length: 5 m
 · Nozzle diameter: $\phi 1.5$ (flat tip)



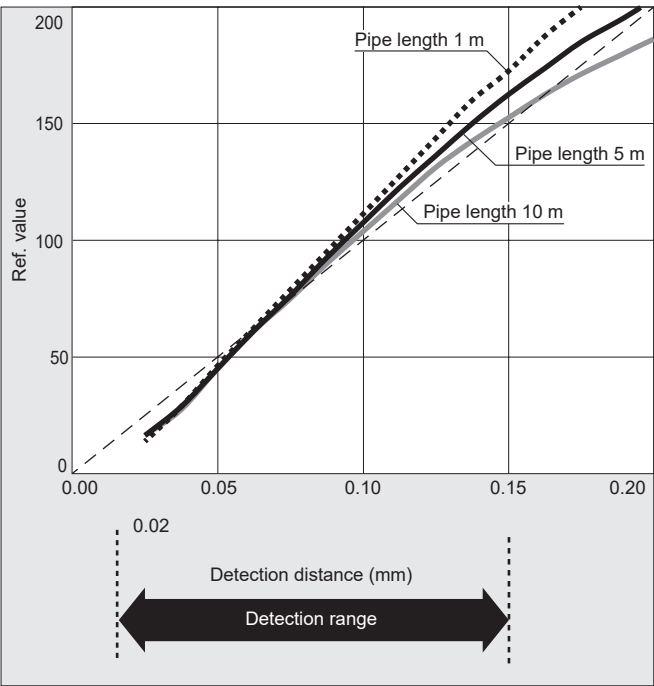
● Effect of pipe length change on reference value
 · Type: GPS3 · Bore size: $\phi 6 \times \phi 4$ · Reference pipe length: 5 m
 · Supply pressure: 100 kPa · Nozzle diameter: $\phi 1.5$ (flat tip)

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Characteristics data

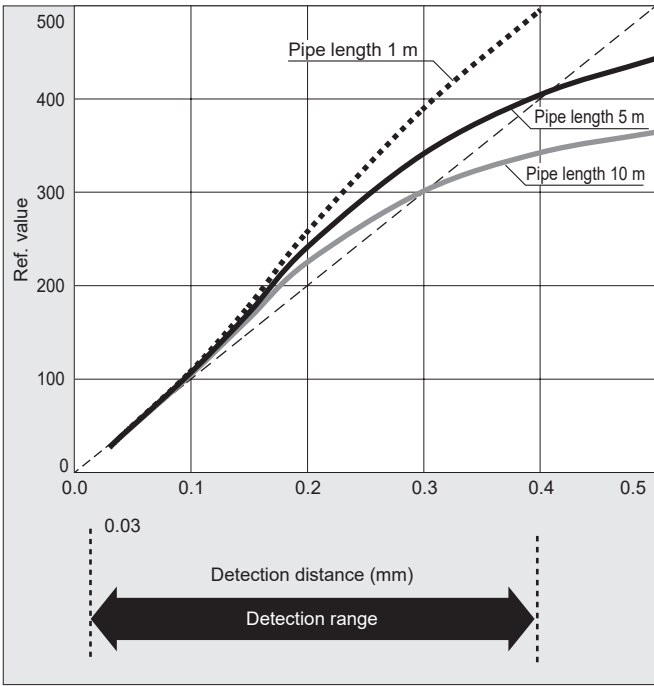
● Short range



● Relationship between detection distance and reference value

- Type: GPS3-E · Bore size: $\phi 6 \times \phi 4$
- Supply pressure: 100 kPa · Nozzle diameter: $\phi 1.5$ (flat tip)

● Wide range

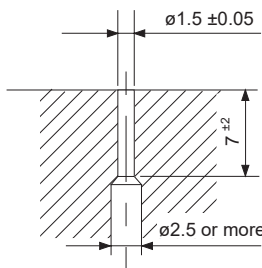


● Relationship between detection distance and reference value

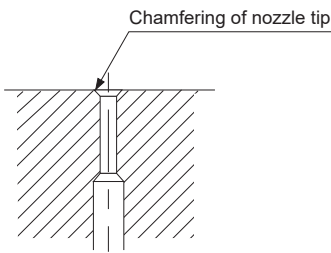
- Type: GPS3 · Bore size: $\phi 6 \times \phi 4$
- Supply pressure: 100 kPa · Nozzle diameter: $\phi 1.5$ (flat tip)
- Data from setting at shipment (reference pipe length 5 m).

Design of detection nozzle

● Single hole nozzle



Correct nozzle shape



Incorrect nozzle shape

Design the detection nozzle with a point size of $\phi 1.5$ mm and depth of 7 ± 2 mm. The blow-off section of the nozzle cannot be chamfered. If chamfered, the nozzle retracts from the seating surface and the reference value on the display will no longer match the actual dimensions.

MEMO

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PrecsR
VacF/R
Clean FR
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Silncr
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Nozzle
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PrecsCompn
Electro Press SW
ContactSW
AirSens
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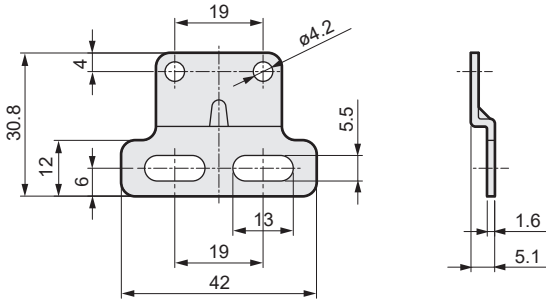
GPS3 Series

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Fit/Tube
Nozzle
Air Unit
PrecsCompn
Electro Press SW
ContactSW
AirSens
PresSW Cool
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WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
Gas generator
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

● Example of bracket model No.

GPS3 - B

Weight: 10 g



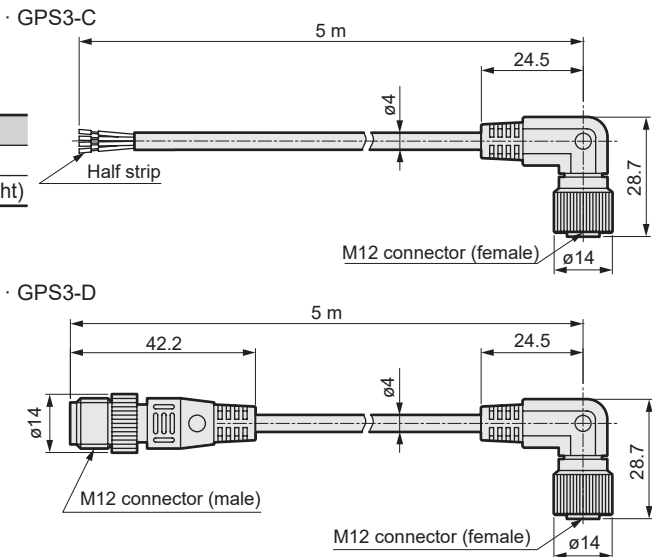
● How to order connector cable

GPS3 - C

Code	Description
C	Cable with 5 m connector (one side elbow)
D	Cable with 5 m connector (both sides elbows/straight)

Lead wire color	Applications
Brown	Power supply +
White	Output 2
Blue	Power supply -
Black	Output 1

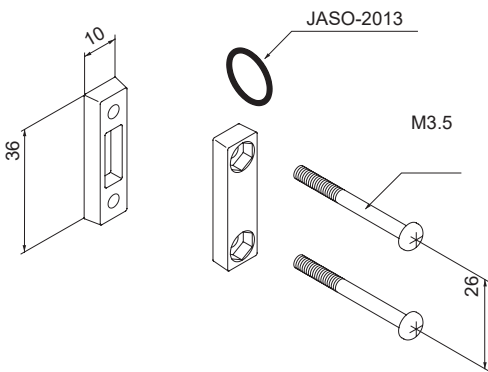
GPS3-C: 148 g
Weight: GPS3-D: 156 g



● How to order joiner set

C1000 - J100 - W

Weight: 11 g



● Gasket

C1000 - GASKET

The sales unit is 5 pieces/set.
Use with a joiner when connecting GPS3 units together.

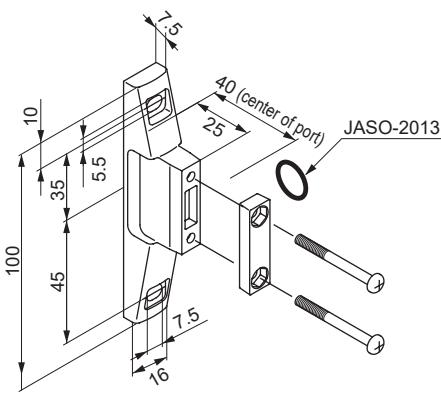


Material: NBR

● How to order T-bracket set

B110 - W

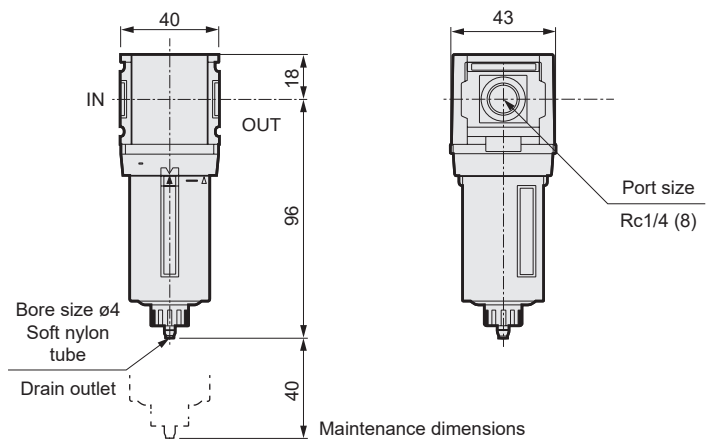
Weight: 24 g



● How to order air filter

F1000 - 8 - W

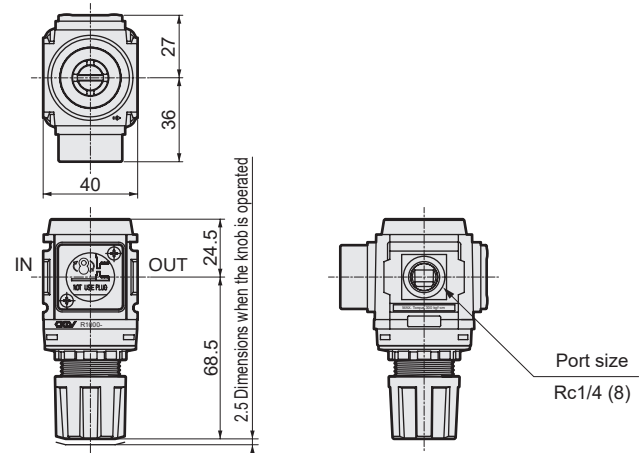
Weight: 87 g



● How to order regulator

R1000 - 8 - W - LT

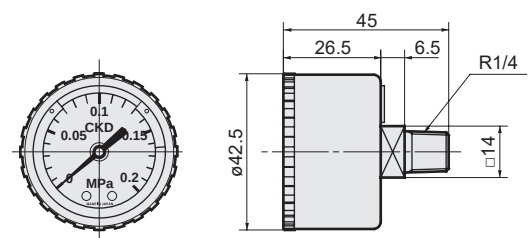
Weight: 150 g



● How to order pressure gauge with safety marker

GPS2 - G40D - 8 - P02 - S501

A	Model No.	G40D	Pressure gauge with safety mark
	Port size	8	R1/4
	Pressure display	P02	0 to 0.2 MPa
		P04	0 to 0.4 MPa
C	Pressure display	P10	0 to 1.0 MPa



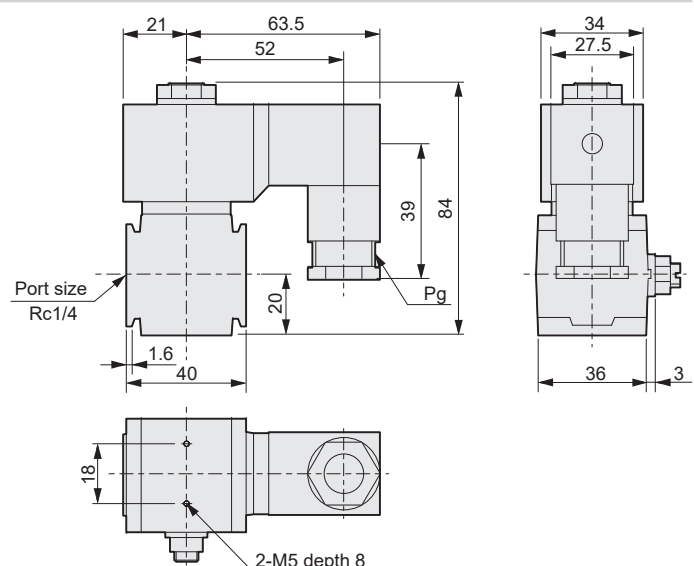
- * 1. Safety zone setting range: 0.03 to 0.2 MPa
- * 2. Safety zone setting max. range: 0.09 MPa
- * 3. Gauge accuracy: JIS B 7505, old class 3.0
- * 4. Cover material: Transparent nylon

Weight: 85 g

● How to order solenoid valve with needle

GPS2 - AB3X - 2H - FL - DC24V

A	Terminal box
2H	DIN terminal box with lamp



Weight: 280 g

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PresSW Cool
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Dischrg etc
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