ADSENS TECHNOLOGY

LIMITED WARRANTY

Adsens Technology warrants each product against defects in material and workmanship for a period of one year from the date of original invoice. In the event of such defects within the warranty period, Adsens Technology will, at its option, replace or recondition the product without charge, provided that product is shipped prepaid to the factory (UPS or Parcel Post only).

Adsens Technology shall not be responsible for any incidental or consequential damages, including without limitation damages or other costs resulting from labor charge, delays, vandalism, fouling caused by foreign material, damage from adverse air conditions, chemicals, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication or improper installation of the product.

ADSENS TECHNOLOGY MAKES NO OTHER WARRANTY. ALL OTHER WARRANTIES, ORAL OR WRITTEN, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A SPECIFIC PURROSE ARE HEREBY EXCLUDED AND DISCLAIMED. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

INDEX

Pressure Sensor 1

Caution
Application
AP10 series 1-01
AP10S series 1-05
AP101/102 series 1-09
AP1 series 1-13
AP25 series 1-17
AP30 series 1-21
AP43 series 1-25
AP45 series 1-29
AP45S series 1-33
AP47 series 1-37
AP50 series 1-41
AP60 series 1-45
AP61 series 1-47
AP70 series 1-49
AP90 series 1-53
AP400 series 1-57
AP610 series 1-61
AP800 series 1-65

Circular Connector 3

KM8 □ R series 3-01
M8 □ QD series 3-02
M8 □ SW series 3-03
KM8 □ RSW series 3-04
M12 □ R series 3-05
M12 □ QD series 3-06

Magnetic Sensor 2

Ordering Information & Connection Method 2-01
Cylinder / Magnetic Sensor Cross Index 2-02
Magnetic Sensor Operating & Installing 2-04
Caution 2-05
CS-05 series 2-06
CS-06 series 2-07
CS-07 series 2-08
CS-11 series 2-09
CS-15 series 2-10
CS-16 series 2-11
CS-18 series 2-12
CS-21 series 2-13
CS-28 Magnetic Proximity Sensor 2-14
CS-30 series 2-15
CS-31 series 2-16
CS-33 series 2-17
CS-36 series 2-18
CS-37 series 2-19
CS-38 series 2-20
CS-40 series 2-21
CS-47 series 2-22
CS-48 series 2-23
CS-50 series 2-24
CS-53 series 2-25
CS-58 series 2-26
CS-59 series 2-27
CS-65 series 2-28
CS-65 EX series 2-30
CS-65 UL series 2-31
CS-71 series 2-32
CS-75 series 2-33
CS-77 series 2-34
CS-6100 series 2-35
CS-6200 series 2-36
CS-1000D Weld-field Immune series 2-37
CS-1001D Weld-field Immune series 2-39
Bracket 2-40
Clamp 2-43
Magnet 2-49

Pressure Sensor

AP10 series

1-01

AP101/102 series

1-09

AP1 series

1-13

AP25 series

1-17

AP30 series

1-21

AP43 series

1-25

AP45 series

1-29

AP47 series

NEW

1-37

AP50 series

1-41

AP70 series

NEW

1-49

AP90 series

1-53

Pressure Sensor Controller

AP400 series

1-57

Pressure Gauge

AP60 series

1-45

AP61 series

1-47

Differential Pressure Gauge

AP610 series

NEW

1-61

AP800 series

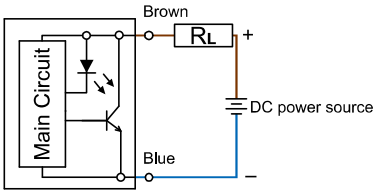
NEW

1-65

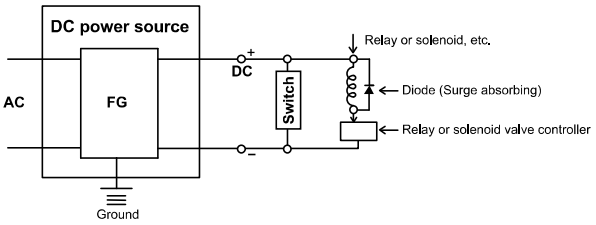
CAUTION ⚠

1. When using a 2-wire type pressure sensor (AP101/102), please make sure it is connected to a proper resistance load. Otherwise excessive current will damage the switch permanently.

2. When using a 2-wire type pressure sensor (AP101/102), only connect it to a DC power source, and polarity must be observed.
   Only connect the brown wire to the positive (+), blue wire to the negative (-).
   Permanent damages to the pressure sensor will occur if the connections are reversed.

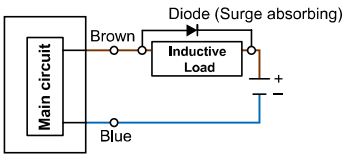


3. To improve stability of the pressure sensor and the whole circuit in general, it is recommended to properly ground the DC power source.
   If the same power source for the pressure sensor is used with other inductive loads (such as relay or solenoid), attach a circuit protection diode or surge suppressor to prevent damages to the pressure sensor.

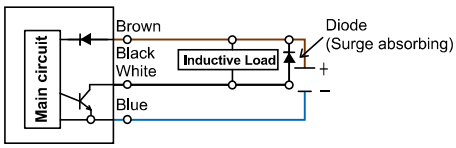


4. When using with inductive load (such as relay or solenoid), please install a protection circuit parallel to the load to extend the service life of pressure sensor.
   If using with DC inductive load, install a diode across the load to remove surge, but polarity must be observed or damages to pressure sensor may occur.

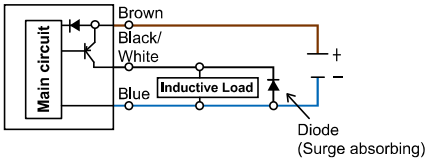
2 wire switch type



NPN type



PNP type



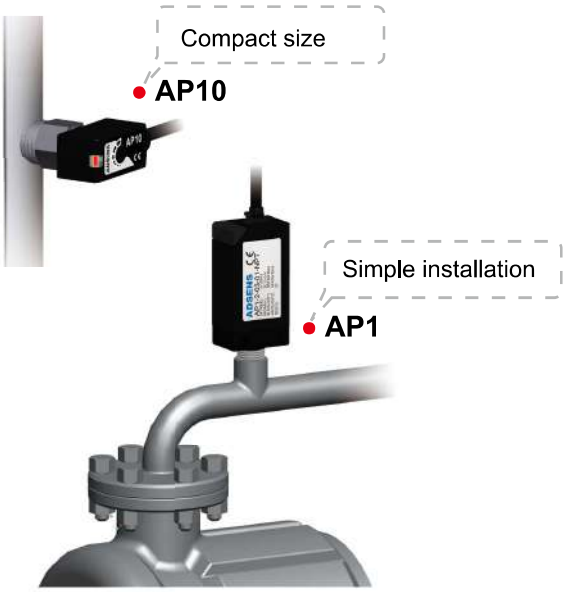
5. Before installation or removal, please make sure the power is OFF, line pressure has been released, to avoid personnel injuries and damages to the pressure sensor or other losses.

6. Please properly ground all noise inducing equipment (such as induction motor), avoid noise affect the pressure sensor normal operation.

7. Do not use corrosive gases or liquids as pressure media.

Application

1 Detection of line pressure



2 Pressure display of line pressure

- Digital display, easy readout
- Replace traditional analog gauge

3 Pressure display of pneumatic equipment

- Accurate read out with wide viewing angle
- IP65 enclosure, dust-proof and splash-proof

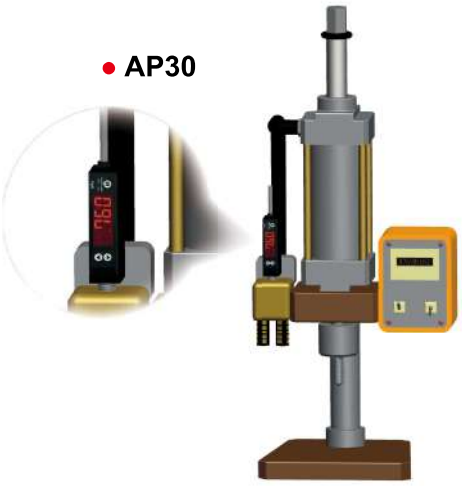
4 Pressure display and control of pressure in reservoir tank

- Programmable pressure unit: 8 types
- IP65 enclosure, dust-proof and splash-proof

5 Pressure display and control of press machine

- Two sensor outputs and one analog output:1~5V
- High display accuracy: ±0.2% F.S.

• AP30



6 Leakage test

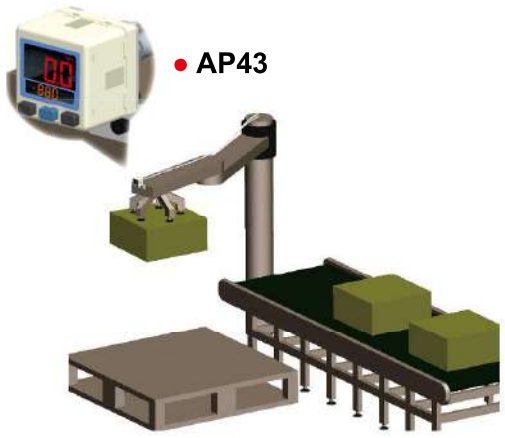
- 3-color digital display, easy readout

• AP43

7 Operation of suction pads, transport

- 3-color digital LCD display, easy readout
- 2 NPN or 2 PNP output
- Analog output:1~5V or 4~20mA

• AP43



8 Pressure display of F.R.L. unit

- Battery type gauge
- Digital display, easy readout
- IP65 enclosure, dust-proof and splash-proof

• AP60

IP65

AP10 SERIES

RoHS

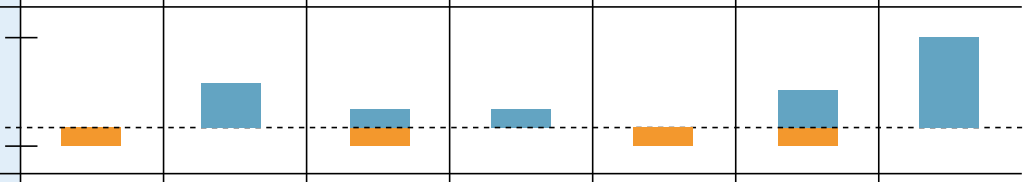
Pressure Sensor

Features

- Simple installation, plug-in port or thread-in fitting
- Compact size : 26*10*10.4mm
- Setting pressure range :

Switch : Vacuum -101.3 ~ 0 kPa (-29.9 ~ 0 inHg)
Positive 0 ~ 0.6 MPa (0 ~ 87 psi)
Analog : Compound -100 ~ 100 kPa (-14.5 ~ 14.5 psi)
Compound -101 ~ 500 kPa (-14.6 ~ 72.5 psi)
Low 0 ~ 100 kPa (0 ~ 14.5 psi)
Vacuum -101.3 ~ 0 kPa (-29.9 ~ 0 inHg)
Positive 0 ~ 1.0 MPa (0 ~ 145 psi)

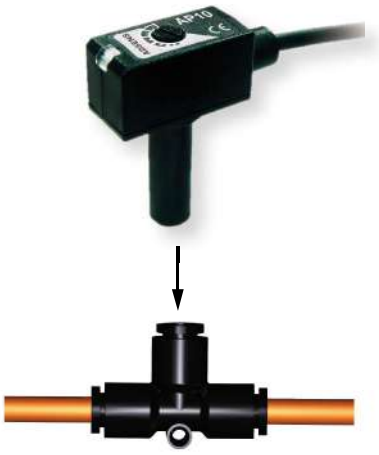
■ SPECIFICATIONS

TYPE	Switch		Analog				
MODEL	AP10V	AP10P	AP10C	AP10L	AP10V	AP10R	AP10P
1.0 MPa (145 psi) / 0 / -101.3 kPa (-29.9 inHg)							
Setting pressure range	-101.3 ~ 0 kPa (-29.9 ~ 0 inHg)	0 ~ 0.6 MPa (0 ~ 87 psi)	-100 ~ 100 kPa (-14.5 ~ 14.5 psi)	0 ~ 100 kPa (0 ~ 14.5 psi)	-101.3 ~ 0 kPa (-29.9 ~ 0 inHg)	-101 ~ 500 kPa (-14.6 ~ 72.5 psi)	0 ~ 1.0 MPa (0 ~ 145 psi)
Withstand pressure	0.6 MPa (87 psi)	1.5 MPa (217.5 psi)	0.2 MPa (29 psi)			1.5 MPa (217.5 psi)	
Fluid	Filtered air, Non-corrosive/Non-flammable gas						

■ FEATURES HIGHLIGHT

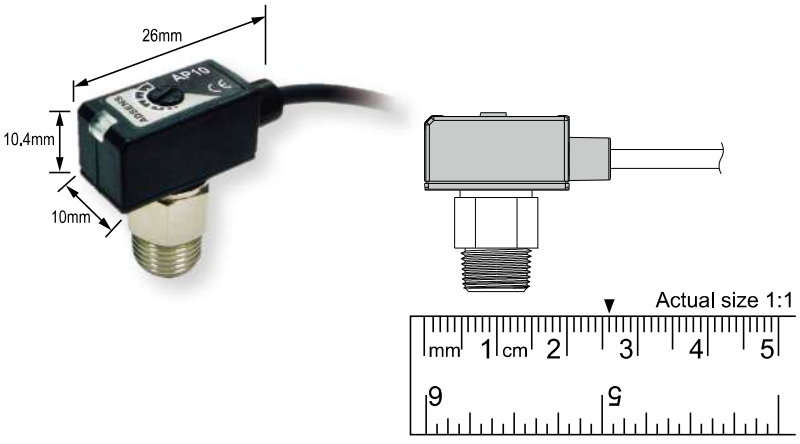
1 Simple installation

Plug-in port for push-to-connect fittings



2 Compact size

Extremely compact size 26(L)x10(W)x10.4(H)mm
to fit the most confined areas



AP10 SERIES

RoHS

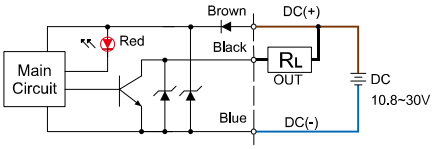
Pressure Sensor

■ SPECIFICATIONS

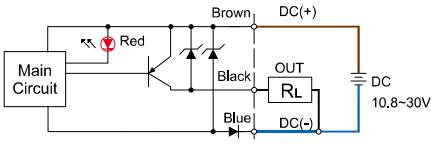
TYPE	AP10V-02/04	AP10P-02/04	AP10C-01	AP10L-01	AP10V-01	AP10R-01	AP10P-01
	1.0 MPa (145 psi) 0 -101.3 kPa (-29.9 inHg)						
Setting pressure range	-101.3 ~ 0 kPa (-29.9 ~ 0 inHg)	0 ~ 0.6 MPa (0 ~ 87 psi)	-100 ~ 100 kPa (-14.5 ~ 14.5 psi)	0 ~ 100 kPa (0 ~ 14.5 psi)	-101.3 ~ 0 kPa (-29.9 ~ 0 inHg)	-101 ~ 500 kPa (-14.6 ~ 72.5 psi)	0 ~ 1.0 MPa (0 ~ 145 psi)
Withstand pressure	0.6 MPa (87 psi)	1.5 MPa (217.5 psi)	0.2 MPa (29 psi)			1.5 MPa (217.5 psi)	
Fluid	Filtered air, Non-corrosive/Non-flammable gas						
Power supply voltage	10.8 to 30V DC (include ripple voltage)		12 to 24V DC (5% ripple voltage)				
Load current	80mA max.		-				
Internal voltage drop	NPN ≤0.8V, PNP ≤0.8V		-				
Current consumption	10 mA max.						
Analog output	-		1~5 V ±1% F. S. / Linearity ±0.5% F. S.				
Sensor type	NPN or PNP		-				
Output short circuit protection	Yes		-				
Setting method	Adjusting by VR		-				
Response time	Approx.1ms		-				
Repeatability	±1% F.S.		-				
Hysteresis	3% F.S. max.		-				
Indicator	Red LED turns ON		-				
Enclosure	IP 40						
Temperature characteristic	±3% F.S. of detected pressure (25°C) at temp. Range of 0~50°C		±2% F.S. of detected pressure (25°C) at temp. Range of 0~50°C				
Ambient temp. range	Operation: 0 ~ 60°C (32 ~ 140°F), Storage: -20 ~ 70°C (-4 ~ 158°F) (No condensation or freezing)		Operation: 0 ~ 50°C (32 ~ 122°F), Storage: -20 ~ 70°C (-4 ~ 158°F) (No condensation or freezing)				
Ambient humidity range	Operation/Storage: 35 ~ 85% RH (No condensation)						
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						
Piping method	Ø 4 mm; Ø 6 mm; R1/8", M5; NPT1/8", M5; G1/8"(BSPP), M5; M5*0.8P						
Lead wire	Oil-resistance cable, 3 wires (0.18mm^2), Ø 2.6mm						
Weight	Approx. 50g (with 3 meter lead wire)						

■ CIRCUIT WIRING DIAGRAMS

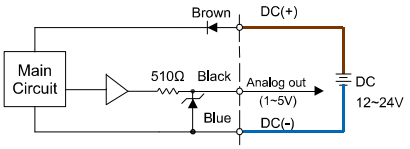
AP10□ - 02 - □ - □
NPN Output



AP10□ - 04 - □ - □
PNP Output

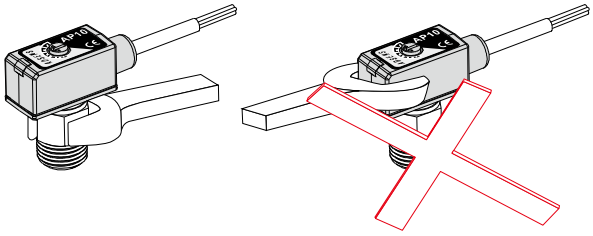


AP10□ - 01 - □ - □
Analog Output (1~5V)



■ 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.



AP10 SERIES

RoHS

Pressure Sensor

■ ORDERING INFORMATION

A P 1 0 V - 0 1 - F 1 - ☐

Pressure Range

C : Compound -100 ~ 100 kPa (-14.5 ~ 14.5 psi)
R : Compound -101 ~ 500 kPa (-14.6 ~ 72.5 psi)
L : Low 0 ~ 100 kPa (0 ~ 14.5 psi)
V : Vacuum -101.3 ~ 0 kPa (-29.9 ~ 0 inHg)
P : Positive (0 ~ 1.0 MPa) (0 ~ 145 psi)

Output Specification

01 : Analog output(1~5V)

A P 1 0 V - 0 2 - F 1 - ☐

Pressure Range

V : Vacuum -101.3 ~ 0 kPa (-29.9 ~ 0 inHg)
P : Positive 0 ~ 0.6 MPa (0 ~ 87 psi)

Output Specification

02 : NPN output
04 : PNP output

Cable Length / Connector

Blank : With 3-meter cable
C : With M8, 3-Pin male connector

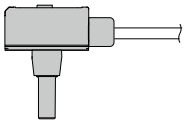
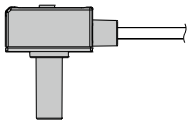
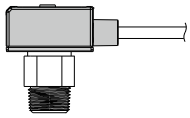
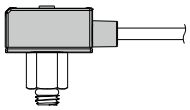
Optional Part

KM83R-PVC-2M / KM83R-PVC-5M :
M8, 3-Pin female cordset

Optional Part

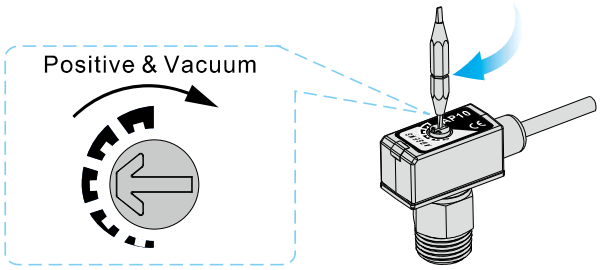
M8, 3-Pin female cordset

■ KM83R-PVC-2M
KM83R-PVC-5M

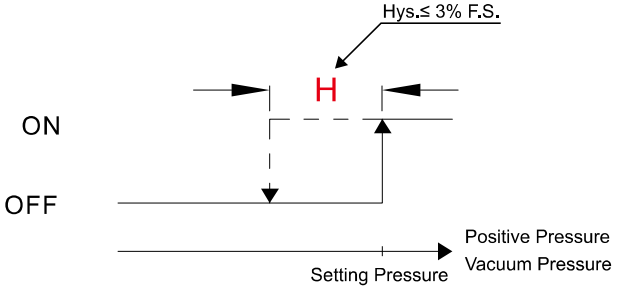
Pressure Port	R4	¼ / R6	F1 / F2 / F3	M5
Appearance				
Port size	R4 : Ø 4mm	¼ : Ø 1/4" R6 : Ø 6mm	F1 : R1/8", M5 F2 : NPT1/8", M5 F3 : G1/8"(BSPP), M5	M5 : M5 x 0.8P

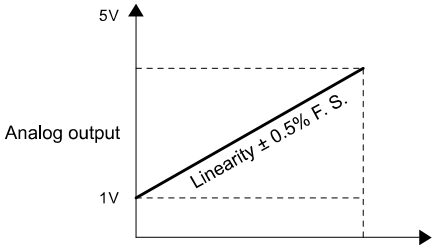
■ HOW TO SET PRESSURE

- Use the Pressure setting trimmer to set "ON" pressure. Rotate clockwise to increase pressure setpoint . Rotate counter-clockwise to decrease pressure setpoint .
- Use appropriate size screwdriver for the setting trimmers. Gently turn the screwdriver to make adjustments. To prevent damage to the Pressure setting trimmer, DO NOT force the trimmer when it comes to a stop.



■ OUTPUT TYPE





Compound Pressure	-100 kPa (-14.5 psi)	100 kPa (14.5 psi)
Compound Pressure	-101 kPa (-14.6 psi)	500 kPa (-29.9 inHg)
Low	0 kPa	100 kPa (14.5 psi)
Vacuum Pressure	0 kPa	-101.3 kPa (-29.9 inHg)
Positive Pressure	0 kPa	1.0 MPa (145 psi)

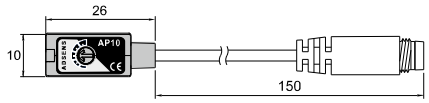
AP10 SERIES

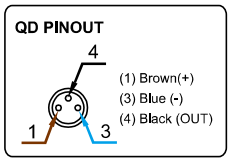
RoHS

Pressure Sensor

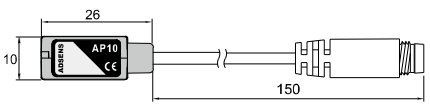
■ DIMENSION

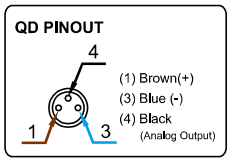
AP10☐ - 02, 04 - ☐ - C



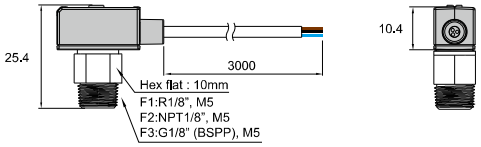


AP10☐ - 01 - ☐ - C

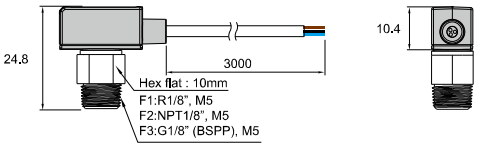




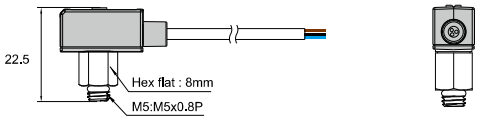
AP10☐ - 02, 04 - F1, F2, F3



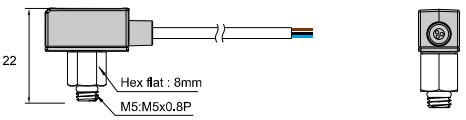
AP10☐ - 01 - F1, F2, F3



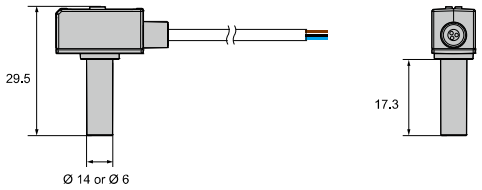
AP10☐ - 02, 04 - M5



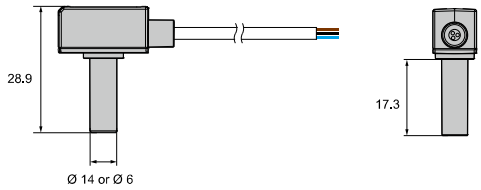
AP10☐ - 01 - M5



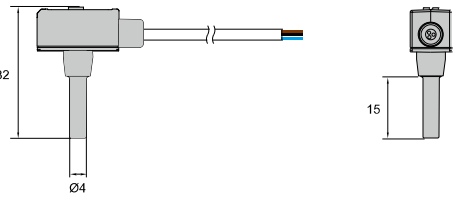
AP10☐ - 02, 04 - 1/4, R6



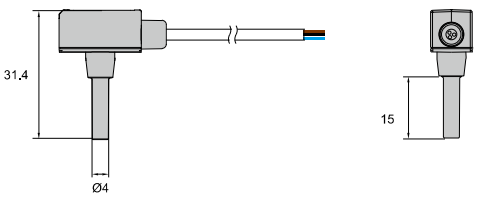
AP10☐ - 01 - 1/4, R6



AP10☐ - 02, 04 - R4



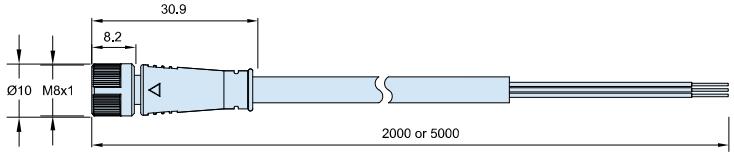
AP10☐ - 01 - R4



Unit:mm

■ OPTIONAL PART DIMENSIONS

M8 Female Cordset Model：KM83R-PVC-2M 、 KM83R-PVC-5M



Unit:mm

AP10S SERIES

RoHS

Pressure Sensor

Features

- Simple installation, plug-in port or thread-in fitting
- Compact size : 26x10x10.4mm
- Setting pressure range :

  Analog : Micro pressure S1 (0 ~ 10 kPa)

  Micro pressure S2 (0 ~ 5 kPa)

■ SPECIFICATIONS

TYPE	Analog	
MODEL	AP10S1	AP10S2
	10 kPa (1.45 psi) 5 kPa (0.725 psi) 0	
Setting pressure range	0 ~ 10 kPa (0 ~ 1.45 psi)	0 ~ 5 kPa (0 ~ 0.725 psi)
Withstand pressure	20 kPa (2.9 psi)	
Fluid	Filtered air, Non-corrosive/Non-flammable gas	

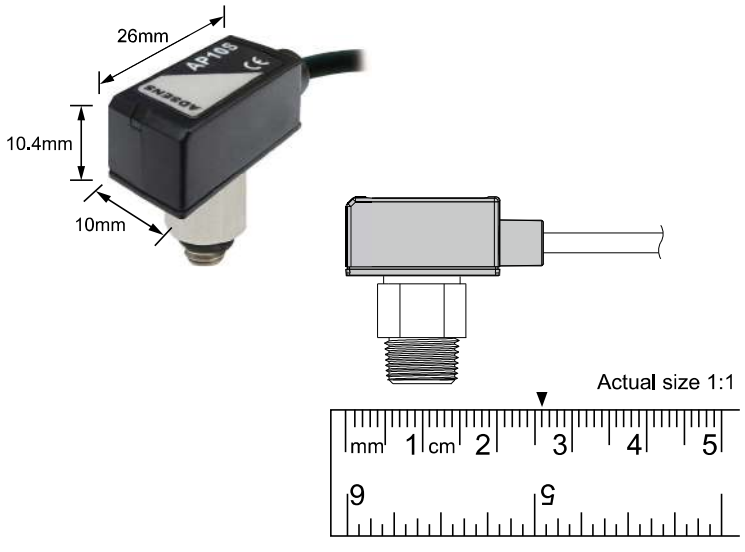
■ FEATURES HIGHLIGHT

1 Simple installation

Plug-in port for push-to-connect fittings

2 Compact size

Extremely compact size 26(L)x10(W)x10.4(H)mm
to fit the most confined areas



AP10S SERIES

RoHS

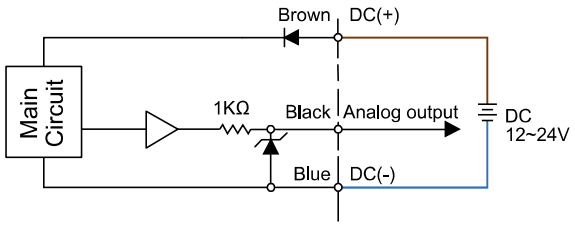
Pressure Sensor

■ SPECIFICATIONS

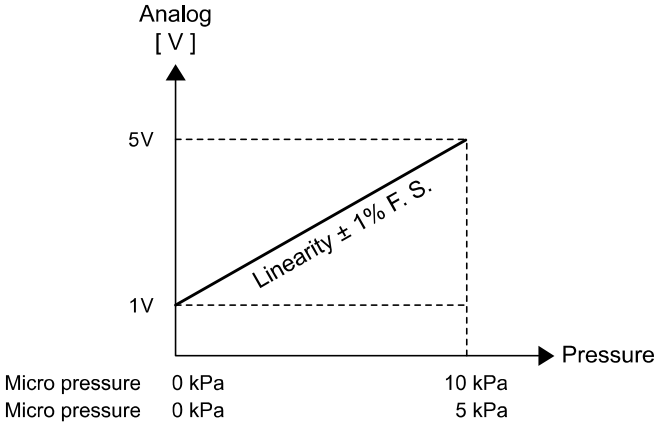
TYPE	AP10S1	AP10S2
	10 kPa (1.45 psi) 5 kPa (0.725 psi) 0	
Setting pressure range	0 ~ 10 kPa (0 ~ 1.45 psi)	0 ~ 5 kPa (0 ~ 0.725 psi)
Withstand pressure	20 kPa (2.9 psi)	
Fluid	Filtered air, Non-corrosive/Non-flammable gas	
Power supply voltage	12 to 24V DC (5% ripple voltage)	
Load current	15mA max	
Analog output	1~5 V ±1% F. S. / Linearity ±0.5% F. S.	1~5 V ±1.5% F. S. / Linearity ±1% F. S.
Enclosure	IP 40	
Temperature characteristic	±3% F.S. (Range of 0~50°C)	
Ambient temp. range	Operation: 0 ~ 50°C (32 ~ 122°F) Storage: -20 ~ 70°C (-4 ~ 158°F) (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/s² (100G), 3 times each in direction of X, Y and Z	
Piping method	Ø 4 mm; Ø 6 mm; R1/8", M5; NPT1/8", M5; G1/8"(BSPP), M5; M5*0.8P	
Lead wire	Oil-resistance cable, 3 wires (0.18mm²), Ø 2.6mm	
Weight	Approx. 50g (with 3 meter lead wire)	

■ CIRCUIT WIRING DIAGRAMS

AP10☐ - 01 - ☐ - ☐
Analog Output (1~5V)



■ OUTPUT TYPE



AP10S SERIES

RoHS

Pressure Sensor

■ ORDERING INFORMATION

A P 1 0 S 1 - 0 1 - [ ] - [ ]

Pressure Range

S1 : Micro pressure (0 ~ 10 kPa)
(0 ~ 0.145 psi)
S2 : Micro pressure (0 ~ 5 kPa)
(0 ~ 0.725 psi)

Output Specification

01 : Analog output (1~5V)

Pressure Port

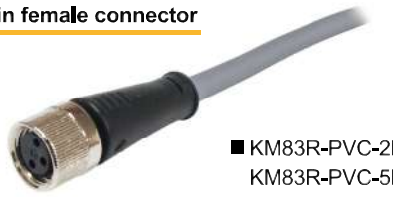
R4 : ø 4mm Tube
R6 : ø 6mm Tube
F1 : R1/8", M5
F2 : NPT1/8", M5
F3 : G1/8"(BSPP), M5
M5 : M5*0.8P

Cable Length / Connector

Blank : With 3 meter cable
C : With M8 3Pin male connector

Optional Part

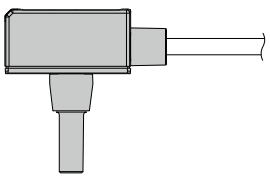
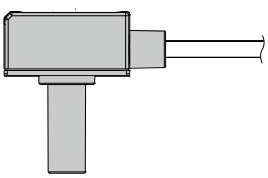
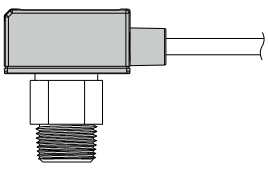
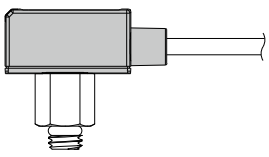
M8, 3Pin female connector



■ KM83R-PVC-2M
KM83R-PVC-5M

Optional Part

KM83R-PVC-2M / KM83R-PVC-5M :
M8, 3Pin female connector

Pressure Port	R4	R6	F1 / F2 / F3	M5
Appearance				
Port size	R4 : Ø 4mm	R6 : Ø 6mm	F1 : R1/8", M5 F2 : NPT1/8", M5 F3 : G1/8"(BSPP), M5	M5 : M5*0.8P

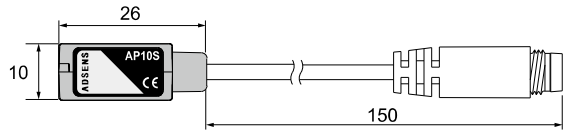
AP10S SERIES

RoHS

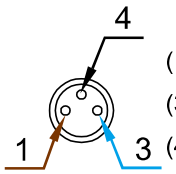
Pressure Sensor

■ DIMENSIONS

AP10☐ - 01 - ☐ - C

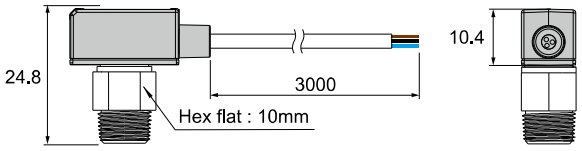


QD PINOUT

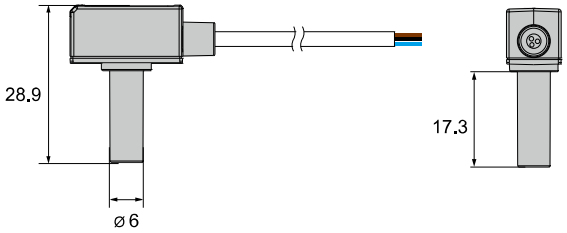


(1) Brown(+)
(3) Blue (-)
(4) Black (Analog out)

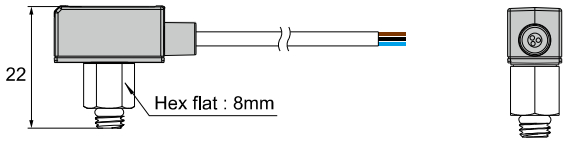
AP10☐ - 01 - F1, F2, F3



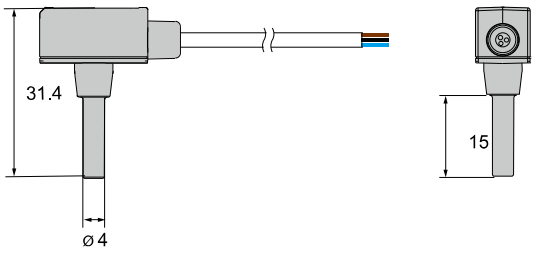
AP10☐ - 01 - R6



AP10☐ - 01 - M5

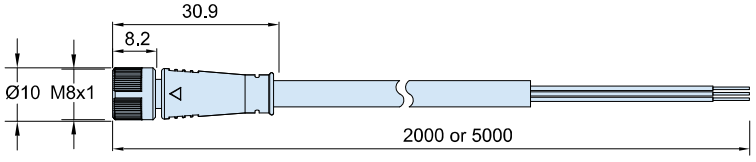


AP10☐ - 01 - R4



■ OPTIONAL PART DIMENSIONS

M8 Female Cordset **Model：KM83R-PVC-2M 、 KM83R-PVC-5M**



Unit:mm

AP101
AP102

SERIES

RoHS

Pressure Sensor

Features

- Simple installation, plug-in port or thread-in fitting
- Compact size : 30(L)x13(W)x12(H)mm
- Setting pressure range : -0.1 ~ 0.4 MPa (-14.5 ~ 58 psi)

■ SPECIFICATION

MODEL	AP101	AP102
	0.4 MPa (58 psi) 0 -100 kPa (-14.5 psi)	
Operating pressure range	-0.1 ~ 1.0 MPa (-14.5 ~ 145 psi)	
Setting pressure range	-0.1 ~ 0.4 MPa (-14.5 ~ 58 psi)	
Withstand pressure	1.5 MPa (217 psi)	
Fluid	Filtered air, Non-corrosive/Non-flammable gas	

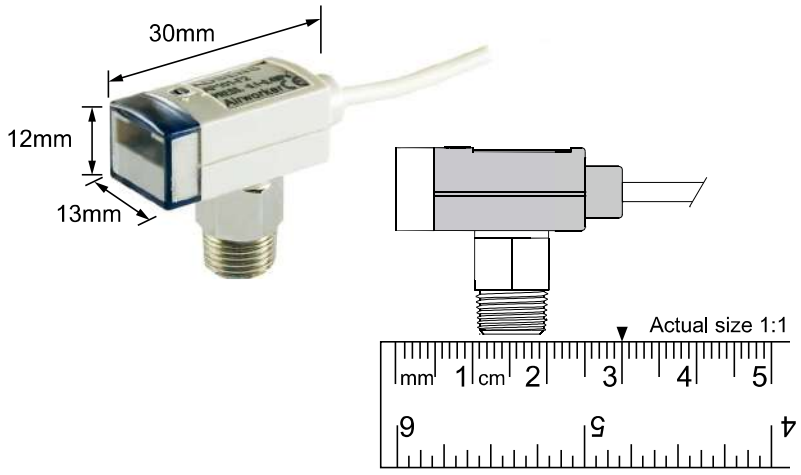
■ FEATURES HIGHLIGHT

1 Simple installation

Plug-in port for push-to-connect fittings

2 Compact size

Extremely compact size 30(L)x13(W)x12(H)mm to fit the most confined areas



AP101
AP102
SERIES

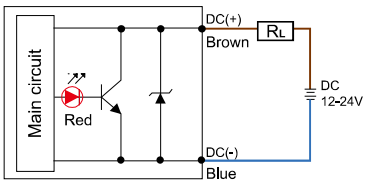
RoHS

Pressure Sensor

■ SPECIFICATION

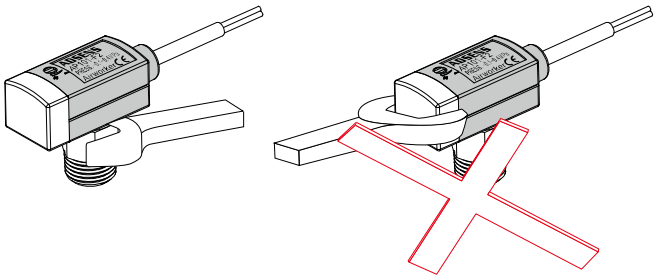
MODEL	AP101	AP102
	0.4 MPa (58 psi) 0 -100 kPa (-14.5 psi)	
Operating pressure range	-0.1 ~ 1.0 MPa (-14.5 ~ 145 psi)	
Setting pressure range	-0.1 ~ 0.4 MPa (-14.5 ~ 58 psi)	
Withstand pressure	1.5 MPa (217 psi)	
Fluid	Filtered air, Non-corrosive/Non-flammable gas	
Load voltage	12 to 24V DC ±10%, Ripple (P-P) 10% or less	
Load current	5~40mA	
Leak current	≤ 1mA	
Internal voltage drop	≤ 5V	
Switch output	Present Press . ≥ Set Press. : ON	Present Press . ≥ Set Press. : OFF
Repeatability	±1% F.S.	
Response time	Approx. 1ms	
Hysteresis	≤ 4% F.S.	
Indicator	Red LED turns ON	
Enclosure	IP 40	
Temperature characteristic	≤ 3% F.S. of detected pressure (77 °F) at temp. Range of 32 ~ 122°F	
Ambient temp. range	Operation : 32 ~ 140 °F (No condensation or freezing)	
Piping method	Ø 6 mm; Ø 1/4; R1/8", M5; NPT1/8", M5; G1/8"(BSPP), M5; M5*0.8P	
Lead wire	Oil-resistance cable, 2 wires (0.18mm^2), Ø 2.6mm, 3M	
Weight	Approx. 39g (with 3-meter lead wire)	

■ CIRCUIT WIRING DIAGRAM



■ 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.



AP101
AP102
SERIES

RoHS

Pressure Sensor

■ ORDERING INFORMATION

A P 1 0 1 - F 1 - ☐

Sensor Specification

101 : Sensor turns ON when the pressure is larger than setting pressure.

102 : Sensor turns OFF when the pressure is larger than setting pressure.

Cable Length / Connector

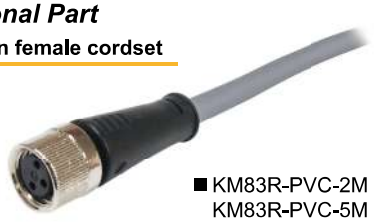
Blank : With 3-meter cable
C : With M8, 3-Pin male connector

Optional Part

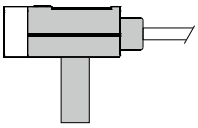
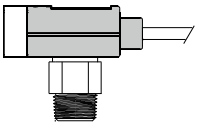
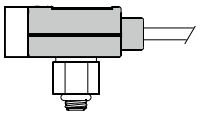
KM83R-PVC-2M / KM83R-PVC-5M : M8, 3-Pin female cordset

Optional Part

M8, 3-Pin female cordset

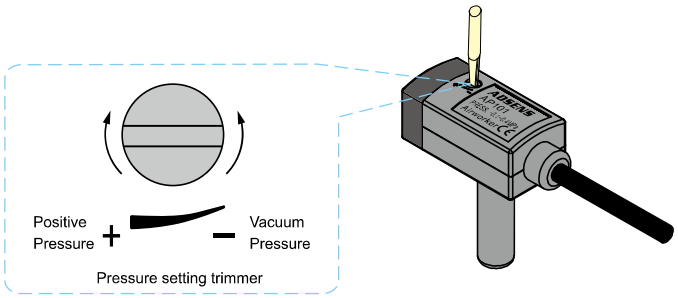


■ KM83R-PVC-2M
KM83R-PVC-5M

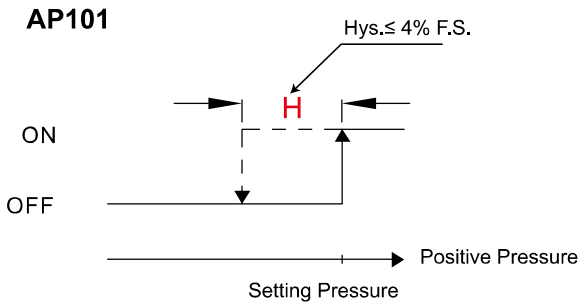
Pressure Port	R6 / 1/4"	F1 / F2 / F3	M5
Appearance			
Port size	R6 : Ø 6mm 1/4" : Ø 1/4"	F1 : R1/8", M5 F2 : NPT1/8", M5 F3 : G1/8"(BSPP), M5	M5 : M5 x 0.8P

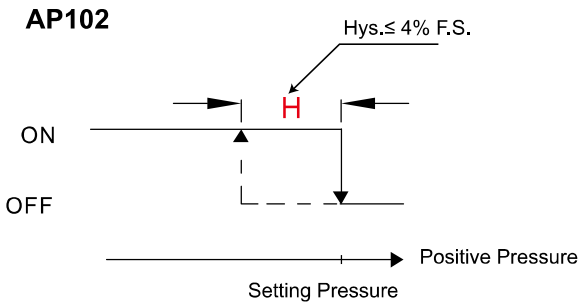
■ HOW TO SET PRESSURE

- Use the Pressure setting trimmer to set "ON" pressure. Rotate clockwise to increase pressure setpoint . Rotate counter-clockwise to decrease pressure setpoint .
- Use appropriate size screwdriver for the setting trimmers. Gently turn the screwdriver to make adjustments. To prevent damage to the Pressure setting trimmer, DO NOT force the trimmer when it comes to a stop.



■ OUTPUT TYPE





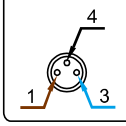
AP101 AP102 SERIES

RoHS

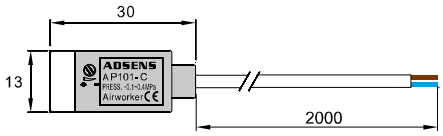
Pressure Sensor

■ DIMENSION

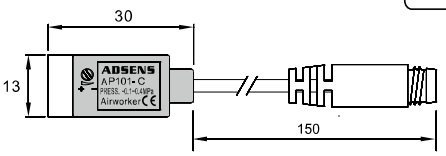
QD PINOUT



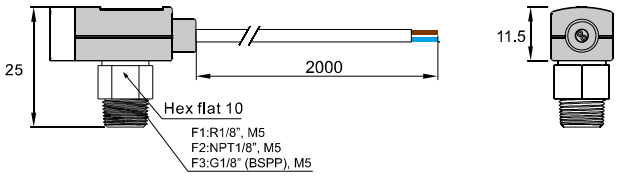
AP10☐ - ☐



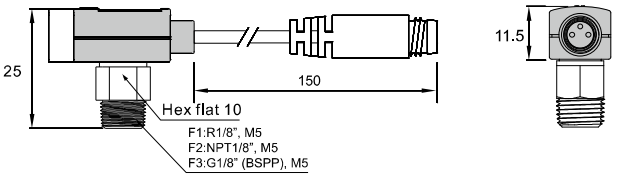
AP10☐ - ☐ - C



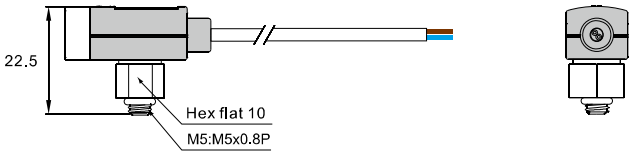
AP10☐ - F1, F2, F3



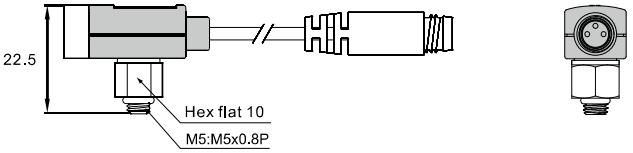
AP10☐ - F1, F2, F3 - C



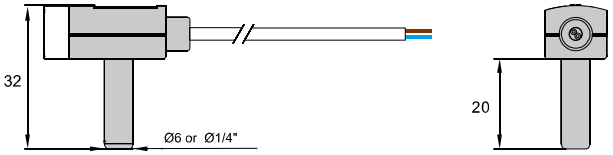
AP10☐ - M5



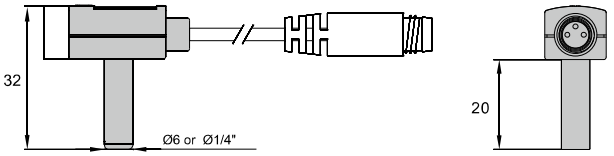
AP10☐ - M5 - C



AP10☐ - R6, 1/4"



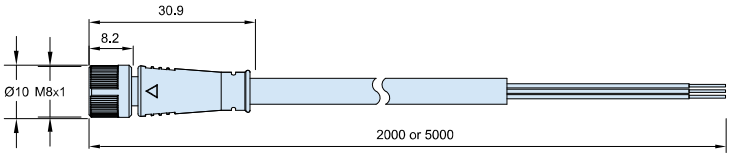
AP10☐ - R6, 1/4" - C



Unit:mm

■ OPTIONAL PART DIMENSIONS

M8 Female Cordset Model：KM83R-PVC-2M 、KM83R-PVC-5M



Unit:mm

AP1 SERIES

RoHS

Pressure Sensor

Features

- High display accuracy : ±1% F.S.
- Fast response : 5ms
- Hysteresis adjustable

■ SPECIFICATION

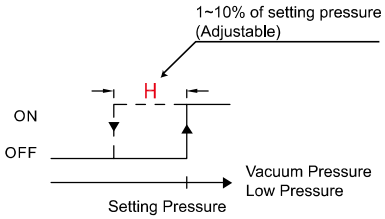
TYPE	Vacuum	Low pressure	Positive
MODEL	AP1-1	AP1-2	AP1-3
1.0 MPa (145 psi) 100.0 kPa (14.5 psi) 0 -101.0 kPa (-29.8 inHg)			
Setting pressure range	-101.0 ~ 0 kPa (-29.8 ~ 0 inHg)	0 ~ 100.0 kPa (0 ~ 14.5 psi)	0 ~ 1.0 MPa (0 ~ 145 psi)
Withstand pressure	300 kPa (43.5 psi)		1.5 MPa (217.6 psi)
Fluid	Filtered air, Non-corrosive/Non-flammable gas		

■ FEATURES HIGHLIGHT

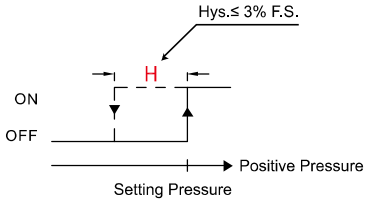
1 Hysteresis adjustable

Output hysteresis (H) is user adjustable

AP1-1 & AP1-2

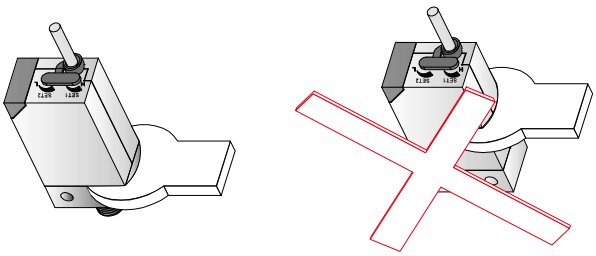


AP1-3



■ 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.

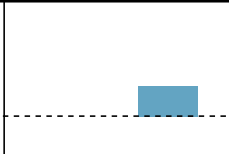
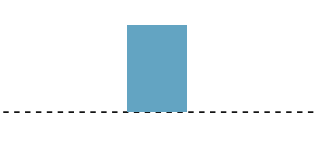


AP1 SERIES

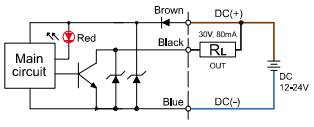
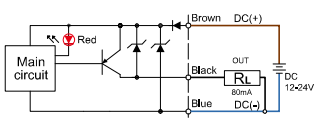
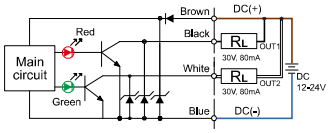
RoHS

Pressure Sensor

■ SPECIFICATION

MODEL		AP1-1 (Vacuum)	AP1-2 (Low Pressure)	AP1-3 (Positive)
1.0 MPa (145 psi) 100.0 kPa (14.5 psi) 0 -101.0 kPa (-29.8 inHg)				
Setting pressure range		-101.0 ~ 0 kPa (-29.8 ~ 0 inHg)	0 ~ 100.0 kPa (0 ~ 14.5 psi)	0 ~ 1.0 MPa (0~145 psi)
Withstand pressure		300 kPa (43.5 psi)		1.5 MPa (217.5 psi)
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 & 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	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		±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"(BSPP), M5		
Lead wire		Oil-resistance cable (0.18mm^2)		
Weight		Approx. 50g (with 1-meter lead wire)		

■ CIRCUIT WIRING DIAGRAMS

MODEL	AP1-□-01	AP1-□-02	AP1-□-03
CONNECT DIAGRAM / CHARACTERISTICS			
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	1 Point		2 Point
Operation indicating Lamp	Red LED turns on		Out1 = Red, Out2 = Green

AP1 SERIES

RoHS

Pressure Sensor

■ ORDERING INFORMATION

A P 1 - 1 - 0 1 - 0 1 - N P T

Pressure Range

1 : Vacuum -101 ~ 0 kPa (-29.8 ~ 0 inHg)
2 : Low Pressure 0 ~ 100 kPa (0 ~ 14.5 psi)
3 : Positive 0 ~1 MPa (0 ~ 145 psi)

Output Specification

01 : NPN output
02 : PNP output
03 : 2 NPN output

Cable Length / Connector

01 : With 1-meter cable
03 : With 3-meter cable
C : With M8, 4-Pin male connector

Pressure Port

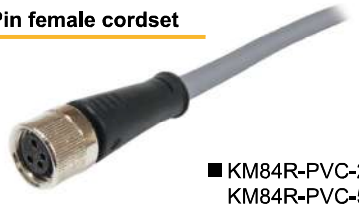
R : R1/8", M5
NPT : NPT1/8", M5
G : G1/8"(BSPP), M5

Optional Part

KM84R-PVC-2M / KM84R-PVC-5M :
M8, 4-Pin female cordset

Optional Part

M8, 4-Pin female cordset

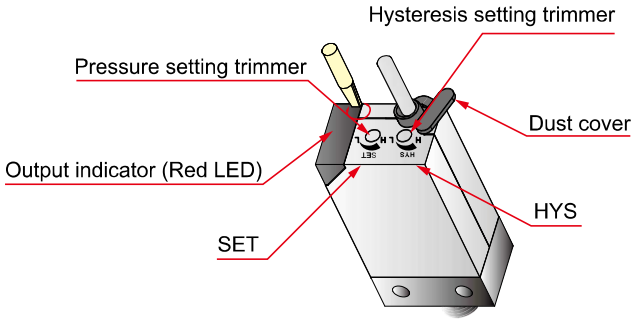


■ KM84R-PVC-2M
KM84R-PVC-5M

■ HOW TO SET PRESSURE

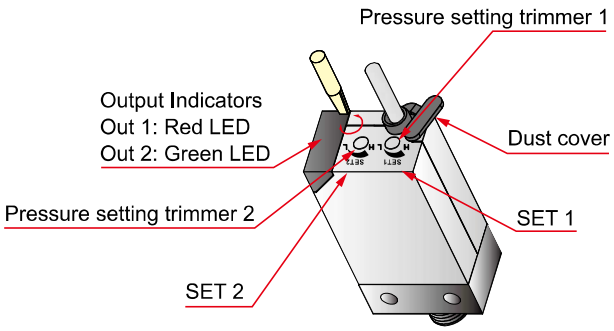
AP1-□- 01, 02

- Remove dust cover to make any adjustments. Replace dust cover when finished to prevent foreign object from entering.
- Pressure setting trimmer (SET) is for setting the output (ON) pressure. Rotate SET trimmer counter-clockwise to increase (Pressure or Vacuum) the ON point. Rotate clockwise will decrease the setting pressure.
- Hysteresis setting trimmer (HYS) is for changing the hysteresis. Rotate trimmer counter-clockwise to increase the range 1~10%.
- Use appropriate size screwdriver for the setting trimmers. Gently turn the screwdriver to make adjust ments. Do not force the trimmer when it comes to a stop to prevent damage to the setting trimmer.



AP1-□- 03

- Remove dust cover to make any adjustments. Replace dust cover when finished to prevent foreign object from entering.
- Pressure setting trimmer (SET 1, SET 2) is for setting the output (ON) pressure. Rotate SET trimmer counter-clockwise to increase (Pressure or Vacuum) the ON point. Rotate clockwise will decrease the setting pressure.
- Hysteresis for models with two outputs is 3% fixed.



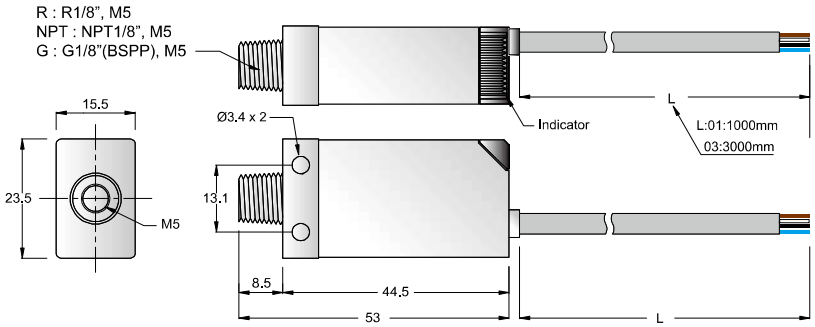
AP1 SERIES

RoHS

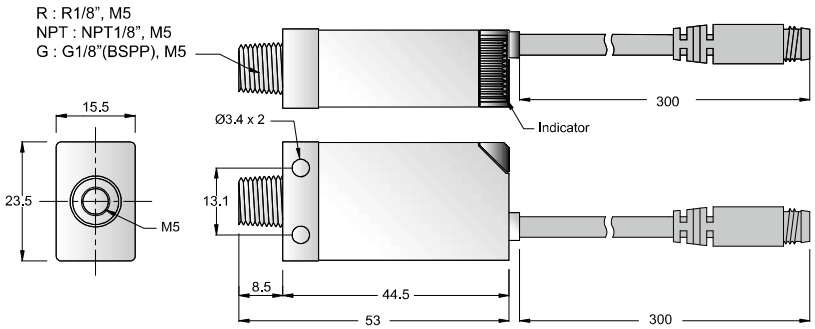
Pressure Sensor

■ DIMENSION

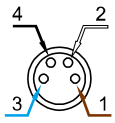
AP1 - ☐ - ☐ - ☐



AP1-☐ - ☐ - C - ☐



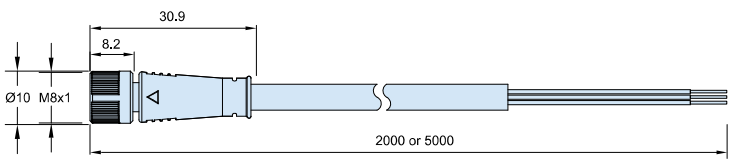
QD PINOUT



(1) Brown (+)
(2) White (OUT2)
(3) Blue (-)
(4) Black (OUT1)

■ OPTIONAL PART DIMENSION

M8 Female Cordset **Model：KM84R-PVC-2M 、 KM84R-PVC-5M**



Unit:mm

AP25 SERIES

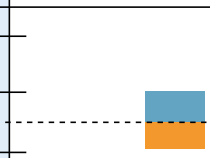
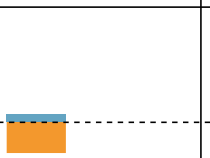
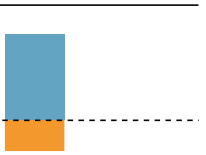
RoHS

Pressure Sensor

Features

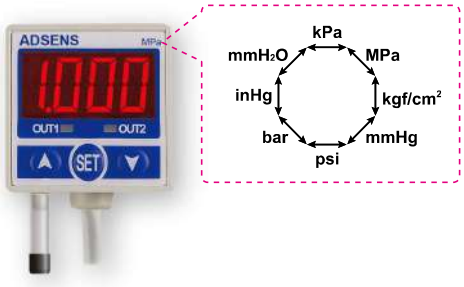
- Setting pressure range :
  Compound : -100.0~100.0 kPa (-14.50~14.50 psi)
  Vacuum : -101.3~10.0 kPa (-29.9 inHg~1.45 psi)
  Positive : -0.100~1.000 MPa (-14.5~145.0 psi)
- Two switch outputs & One analog output (1~5V)
- Hysteresis adjustable
- High display accuracy : ±0.2% F.S.
- Programmable pressure unit :
  kPa、MPa、kgf/cm^2、mmHg、psi、bar、inHg、mmH$_2$O
- IP65 enclosure, dust-proof and splash-proof

■ SPECIFICATION

TYPE	Compound	Vacuum	Positive
MODEL	AP25C	AP25V	AP25P
1.000 MPa (145.0 psi) 100.0 kPa (14.5 psi) 0 -101.3 kPa (-14.7 psi)			
Rated pressure range	-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	-101.3 ~ 0.0 kPa (-29.9 ~ 0.0 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range	-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	-101.3 ~ 10.0 kPa (-29.9 inHg ~ 1.45 psi)	-0.100 ~ 1.000 MPa (-14.5 ~ 145.0 psi)

■ FEATURES HIGHLIGHT

1 Programmable pressure unit

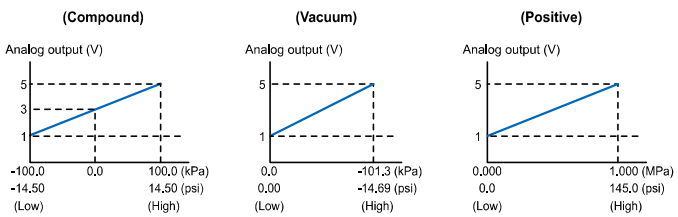


2 Dust-proof and splash-proof

Enclosure protection rating: IP 65

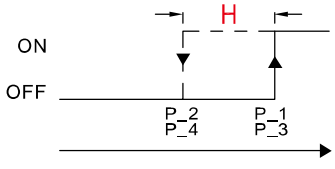
3 Analog output

Two sensor outputs & One analog output
Output range 1 to 5V, proportional to the pressure range



4 Hysteresis adjustable

Output hysteresis (H) is adjustable by user



AP25 SERIES

RoHS

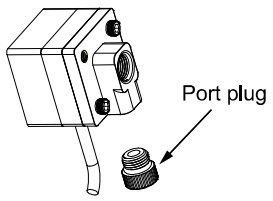
Pressure Sensor

■ SPECIFICATION

MODEL		AP25C (Compound)	AP25V (Vacuum)	AP25P (Positive)
		1.000 MPa (145.0 psi) 100.0 kPa (14.5 psi) 0 -101.3 kPa (-14.7 psi)		
Rated pressure range		-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	-101.3 ~ 0.0 kPa (-29.9 ~ 0.0 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range		-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	-101.3 ~ 10.0 kPa (-29.9 inHg ~ 1.45 psi)	-0.100 ~ 1.000 MPa (-14.50 ~ 145.0 psi)
Withstand pressure		300.0 kPa (43.5 psi)		1.500 MPa (217.6 psi)
Fluid		Filtered air, Non-corrosive/Non-flammable gas		
Set pressure resolution	kPa	0.1		-
	MPa	-		0.001
	kgf/cm^2	0.001		0.01
	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		
Switch output		NPN : open collector 2 outputs Max. load current : 80mA Max. supply voltage : 30V DC Residual voltage : ≤ 1V	PNP : open collector 2 outputs Max. load current : 80mA Max. supply voltage : 24V DC Residual voltage : ≤ 1V	
Repeatability(Sensor output)		±0.2% F.S. ±1 digit		
Hysteresis	Hysteresis mode	Adjustable		
	Window comparator mode	Fixed (3 digits)		
Response time		≤ 2.5ms (chattering-proof function: 24ms, 192ms and 768ms selectable)		
Output short circuit protection		Yes		
7 segment LED display		3 ½ digit LED display (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ±3°C)		
Indicator		OUT1 = Green, OUT2 = Red		
Analog output (Only type AP25 □- 01 - □, AP25 □- 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	IP65 (Dust proof protector installed)		
	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. 105g (with 2-meter lead wire), Approx. 71g (with M8, 4-pin male connector)		

■ INSTALLATION

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

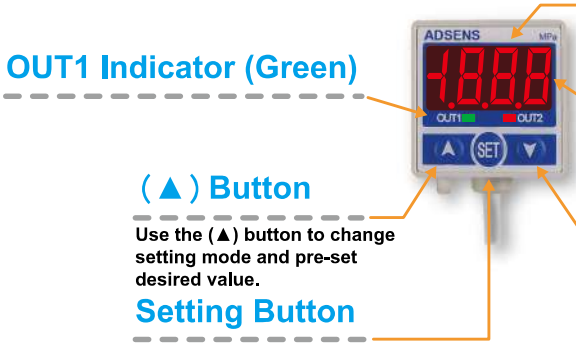


AP25 SERIES

RoHS

Pressure Sensor

■ PANEL DESCRIPTION



3 ½ Digit LED Display
Pressure value display.

OUT1 Indicator (Green)

OUT2 Indicator (Red)

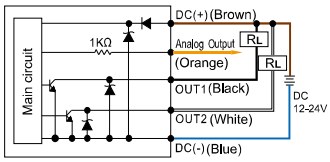
(▲) Button
Use the (▲) button to change setting mode and pre-set desired value.

(▼) Button
Use the (▼) button to change setting mode and pre-set desired value.

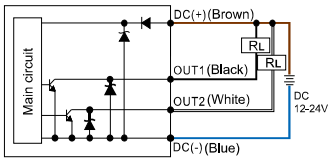
Setting Button
Change setting mode and pre-set final desired value.

■ OUTPUT CIRCUIT WIRING DIAGRAMS

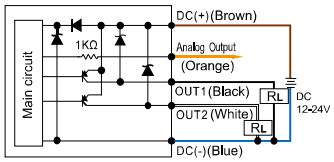
AP25 □- 01 -□- □
NPN Output & Analog Output



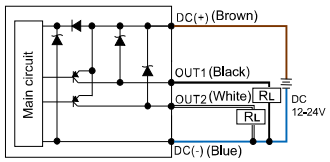
AP25 □- 02 -□- □
NPN Output



AP25 □- 03 -□- □
PNP Output & Analog Output



AP25 □- 04 -□- □
PNP Output



■ ORDERING INFORMATION

A P 2 5 C - 0 1 - F 1 - [ ]

Pressure Range
C : Compund -100.0~100.0 kPa
(-14.50~14.50 psi)
V : Vacuum -101.3~10.0 kPa
(-29.9 inHg~1.45 psi)
P : Positive -0.100~1.000 MPa
(-14.5~145.0 psi)

Output Specification
01 : 2 NPN output & 1 Analog output(1-5V)
02 : 2 NPN output
03 : 2 PNP output & 1 Analog output(1-5V)
04 : 2 PNP output

Pressure Port
F1 : Rc1/8"
F2 : NPT1/8"
F3 : G1/8" (BSPP)

Cable Length / Connector
Blank : With 2-meter cable
QD : With M8, 4-Pin male connector
*(Only type AP25 □- 02 -□, AP25 □- 04 -□)

Optional Parts
KM84R-PVC-2M / KM84R-PVC-5M : M8, 4-Pin female cordset
BT-1: Mounting bracket
BT-2 : Mounting bracket
PA-A : Panel adapter
PA-B : Panel adapter+Front protective lid

Optional Parts

M8, 4-Pin female cordset

■ KM84R-PVC-2M
KM84R-PVC-5M

Mounting bracket

■ BT-1 ■ BT-2

Panel adapter

■ PA-A

Panel adapter+Front protective lid

■ PA-B

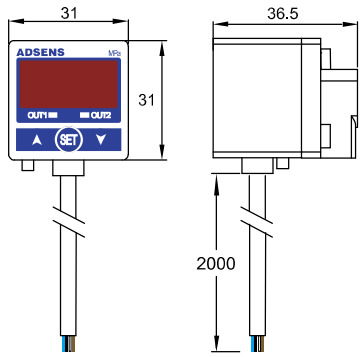
AP25 SERIES

RoHS

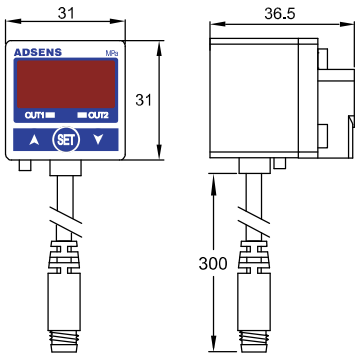
Pressure Sensor

■ DIMENSION

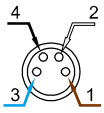
AP25□ - □ - □



AP25□ - □ - □ - QD



QD PINOUT



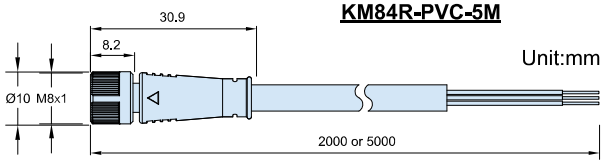
(1) Brown (+)
(2) White (OUT2)
(3) Blue (-)
(4) Black (OUT1)

Unit:mm

■ OPTIONAL PARTS DIMENSIONS

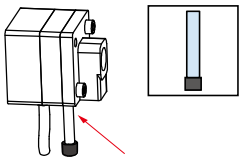
1 M8 Female Cordset

model : KM84R-PVC-2M
KM84R-PVC-5M



Unit:mm

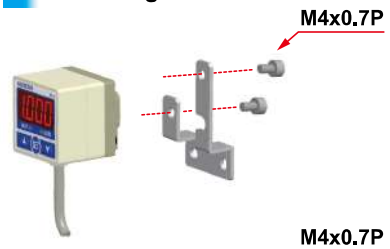
2 IP65 Protector

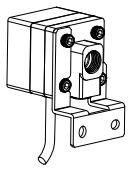


Caution:
This device must be installed to maintain IP65(Dust and splash proof) enclosure rating.

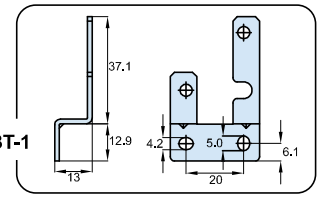
Dustproof protector

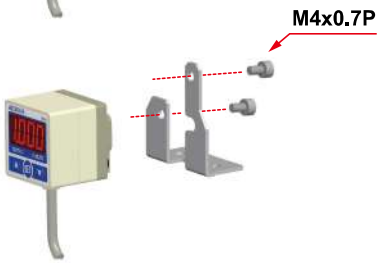
3 Mounting Bracket

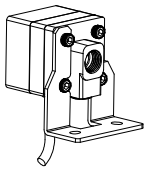




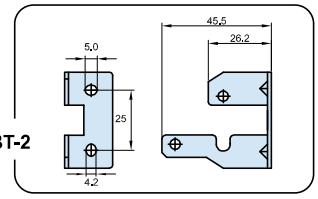
Mounting bracket **BT-1**



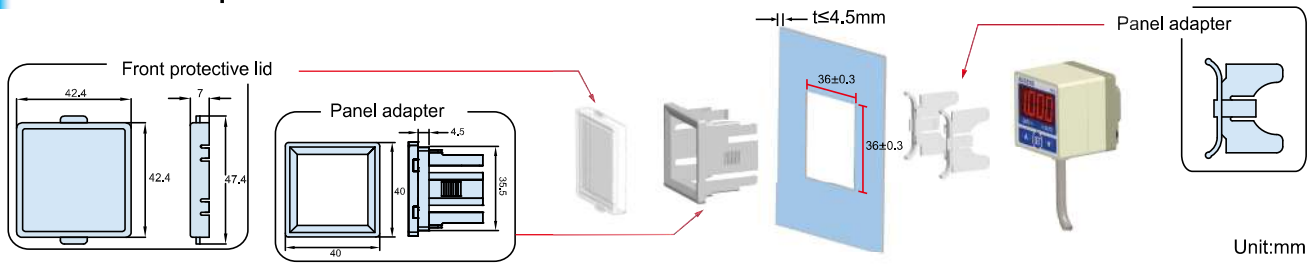




Mounting bracket **BT-2**



4 Panel Mount Adapter + Front Protective Lid



Unit:mm

AP30 SERIES

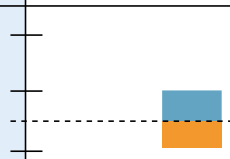
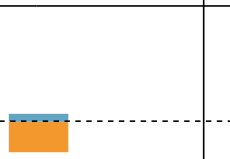
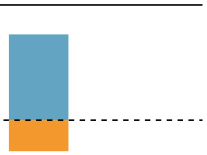
RoHS

Pressure Sensor

Features

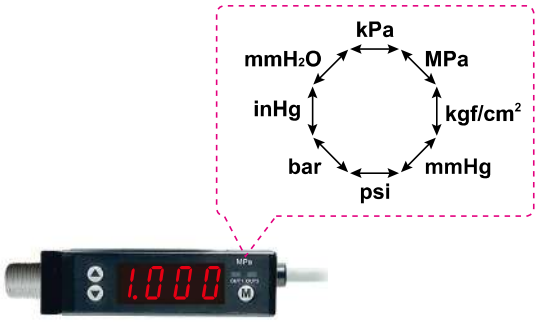
- Setting pressure range :
  Compound : -100.0~100.0 kPa (-14.50~14.50 psi)
  Vacuum : -101.3~10.0 kPa (-29.9 inHg~1.45 psi)
  Positive : -0.100~1.000 MPa (-14.5~145.0 psi)
- Two switch outputs & One analog output (1~5V)
- Hysteresis adjustable
- High display accuracy : ±0.2% F.S.
- Programmable pressure unit :
  kPa、MPa、kgf/cm^2、mmHg、psi、bar、inHg、mmH$_2$O

■ SPECIFICATION

TYPE	Compound	Vacuum	Positive
MODEL	AP30C	AP30V	AP30P
1.000 MPa (145.0 psi) 100.0 kPa (14.5 psi) 0 -101.3 kPa (14.7 psi)			
Rated pressure range	-100.0 ~ 100.0 kPa (-14.50 psi ~ 14.50 psi)	-101.3 ~ 0.0 kPa (-29.9 ~ 0.0 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range	-100.0 ~ 100.0 kPa (-14.50 psi ~ 14.50 psi)	-101.3 ~ 10.0 kPa (-29.9 inHg ~ 1.45 psi)	-0.100 ~ 1.000 MPa (-14.5 psi ~ 145.0 psi)

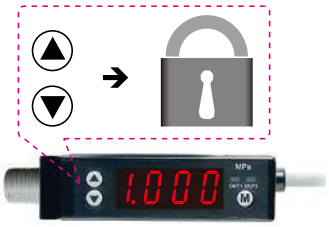
■ FEATURES HIGHLIGHT

1 Programmable pressure unit



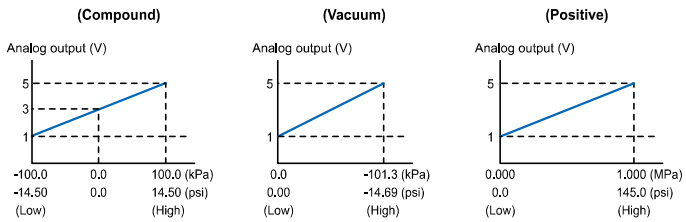
2 Key lock function

Key lock mode to prevent unauthorized adjustments.
Press (M) more than 5 seconds to enter key lock mode.
Use ▲ or ▼ to select key lock status.



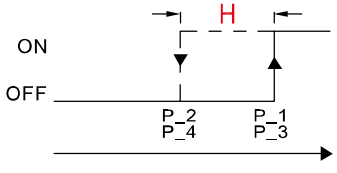
3 Analog output

Two sensor outputs & One analog output
Output range 1 to 5V, proportional to the pressure range



4 Hysteresis adjustable

Output hysteresis (H) is adjustable by user

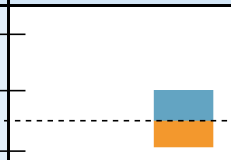
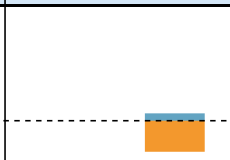
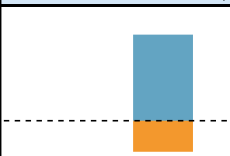


AP30 SERIES

RoHS

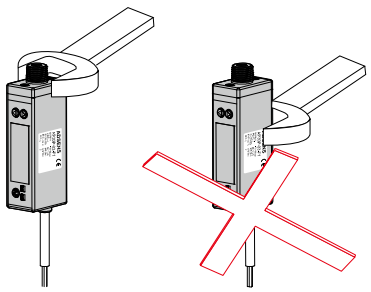
Pressure Sensor

SPECIFICATION

MODEL		AP30C (Compound)	AP30V (Vacuum)	AP30P (Positive)
1.000 MPa (145.0 psi) 100.0 kPa (14.5 psi) 0 -101.3 kPa (-14.7 psi)				
Rated pressure range		-100.0 ~ 100.0 kPa (-14.50 ~14.50 psi)	-101.3 ~ 0.0 kPa (-29.9 ~ 0.00 inHg)	0.000 ~ 1.000 MPa (0.0~145.0 psi)
Setting pressure range		-100.0 ~ 100.0 kPa (-14.50 ~14.50 psi)	-101.3 ~ 10.0 kPa (-29.9 inHg ~ 1.45 psi)	-0.100 ~ 1.000 MPa (-14.5 ~145.0 psi)
Withstand pressure		300.0 kPa (43.5 psi)		1.500 MPa (217.6 psi)
Fluid		Filtered air, Non-corrosive/Non-flammable gas		
Set pressure resolution	kPa	0.1		-
	MPa	-		0.001
	kgf/cm²	0.001		0.01
	bar	0.001		0.01
	psi	0.01		0.1
	inHg	0.1		-
	mmHg	1		-
	mmH₂O	0.1		-
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 60mA		
Switch output		NPN : open collector 2 outputs Max. load current : 100mA Max. supply voltage : 30V DC Residual voltage : ≤ 1V	PNP : open collector 2 outputs Max. load current : 100mA Max. supply voltage : 24V DC Residual voltage : ≤ 1V	
Repeatability(Sensor output)		±0.2% F.S. ±1 digit		
Hysteresis	Hysteresis mode	Adjustable		
	Window comparator mode	Fixed (3 digits)		
Response time		≤ 2.5ms (chattering-proof function: 24ms, 192ms and 768ms selectable)		
Output short circuit protection		Yes		
7 segment LED display		3 ½ digit LED display (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (Ambient temperature: 25 ±3°C)		
Indicator		OUT1 = Green, OUT2 = Red		
Analog output (Only type AP30□-01-□, AP30□-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, 10Hz-55Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z		
	Shock	980m/s² (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:R1/8", M5 ; F2:NPT1/8", M5 ; F3:G1/8"(BSPP), M5		
Lead wire		Oil-resistance cable (0.15mm²)		
Weight		Approx. 67g (with 2-meter lead wire), Approx. 35g (with M8, 4-pin male connector)		

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.



AP30 SERIES

RoHS

Pressure Sensor

■ PANEL DESCRIPTION

OUT1 Indicator (Green)

OUT2 Indicator (Red)

(▲) Button

Use the (▲) button to change setting mode and pre-set desired value.

(▼) Button

Use the (▼) button to change setting mode and pre-set desired value.

Setting Button

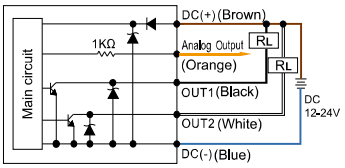
Change setting mode and pre-set final desired value.

3 ½ Digit LED Display

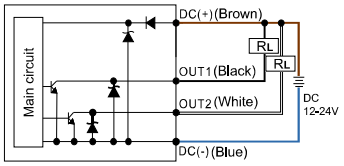
Pressure value display.

■ OUTPUT CIRCUIT WIRING DIAGRAMS

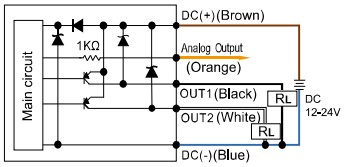
AP30 □- 01 -□-□
NPN Output & Analog Output



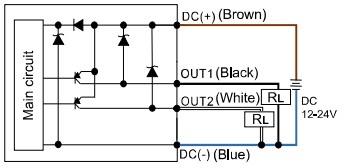
AP30 □- 02 -□-□
NPN Output



AP30 □- 03 -□-□
PNP Output & Analog Output



AP30 □- 04 -□-□
PNP Output



■ ORDERING INFORMATION

A P 3 0 C - 0 1 - F 1 - □

Pressure Range

C : Compound -100.0~100.0 kPa (-14.50~14.50 psi)
V : Vacuum -101.3~10.0 kPa (-29.9 inHg~1.45 psi)
P : Positive -0.100~1.000 MPa (-14.5~145.0 psi)

Output Specification

01 : 2 NPN output & 1 Analog output(1~5V)
02 : 2 NPN output
03 : 2 PNP output & 1 Analog output(1~5V)
04 : 2 PNP output

Pressure Port

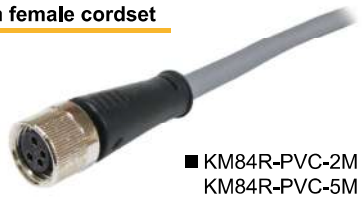
F1 : R1/8", M5
F2 : NPT1/8", M5
F3 : G1/8"(BSPP), M5

Cable Length / Connector

Blank : With 2-meter cable
QD : With M8, 4-Pin male connector
*(Only type AP30 □- 02 -□, AP30 □- 04 -□)

Optional Part

M8, 4-Pin female cordset



■ KM84R-PVC-2M
KM84R-PVC-5M

Optional Part

KM84R-PVC-2M / KM84R-PVC-5M : M8, 4-Pin female cordset

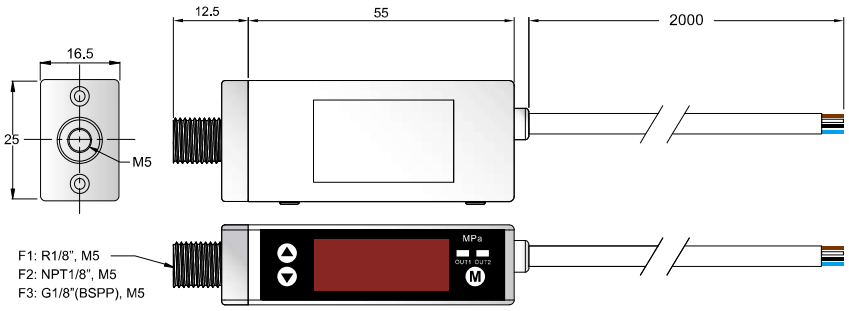
AP30 SERIES

RoHS

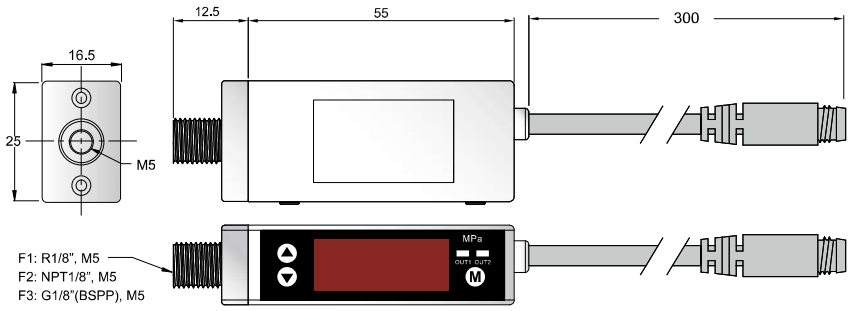
Pressure Sensor

■ DIMENSION

AP30□- □ - □

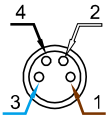


AP30□- □ - □- QD



Unit:mm

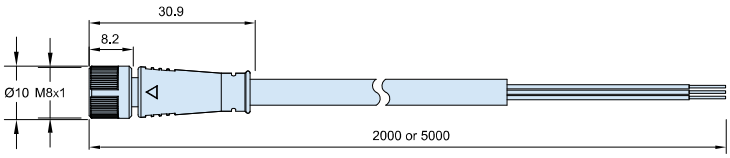
QD PINOUT



(1) Brown (+)
(2) White (OUT2)
(3) Blue (-)
(4) Black (OUT1)

OPTIONAL PART DIMENSIONS

M8 Female Cordset **Model：KM84R-PVC-2M 、 KM84R-PVC-5M**



Unit:mm

AP43 SERIES

RoHS

Pressure Sensor

Features

- 3-color digital LCD display
- Copy function
- 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

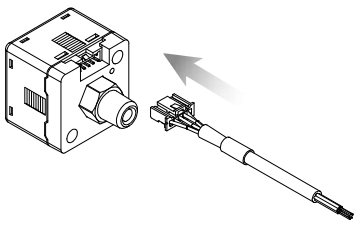
■ SPECIFICATION

TYPE	Compound	Vacuum	Positive
MODEL	AP43C	AP43V	AP43P
	1.000 MPa 100.0 kPa 0 -101.3 kPa		
Rated pressure range	-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range	-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	-101.3 ~ 10.0 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5 ~145.0 psi)

■ FEATURES HIGHLIGHT

1 Quick Installation

- Save Installation Time
- Easy Removal



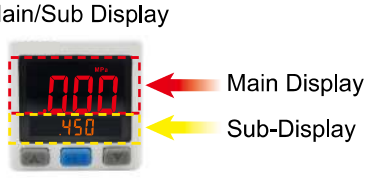
(Connection Mode)

2 Copy Setting

- Avoid setting errors
- Reduce setting time

3 Setting Value Easy Indication

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



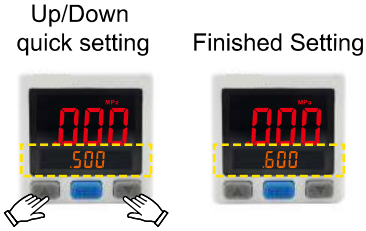
4 3 Color Main Display

- User programmable color mode, for different setting conditions.

	SoU	Sor	trn	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

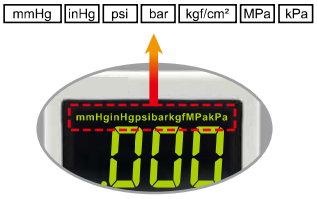
5 OPS Quick Setting

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



6 Easy Unit Identification

- Conversion unit is on display and easy to read.



AP43 SERIES

RoHS

Pressure Sensor

■ SPECIFICATION

MODEL		AP43C (Compound)	AP43V (Vacuum)	AP43P (Positive)
		1.000 MPa 100.0 kPa 0 -101.3 kPa		
Rated pressure range		-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Set pressure range		-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	-101.3 ~ 10.0 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.50 ~ 145.0 psi)
Withstand pressure		300 kPa (43.5 psi)		1.5 MPa (217.6 psi)
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa	0.1		-
	MPa	-		0.001
	kgf/cm^2	0.001		0.01
	bar	0.001		0.01
	psi	0.01		0.1
	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 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. ±1 digit		
Hysteresis	One point set mode	Adjustable(*1)		
	Hysteresis mode			
	Window comparator mode			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
7 segment LCD display		Two color(Red/Green) main & unit display, Orange sub-display (Sampling rate: 5 times/1sec.)		
Indicator accuracy		±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)		
Switch ON Indicator		Orange (OUT1 and OUT2 indicator)		
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	Environment	IP 40		
	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/s² (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; F2 : NPT1/8", #10-32 UNF; F3 : G1/8"(BSPP), M5		
Lead wire		Oil-resistance cable(0.15mm²)		
Weight		Approx. 80g (with 2 meter lead wire)		

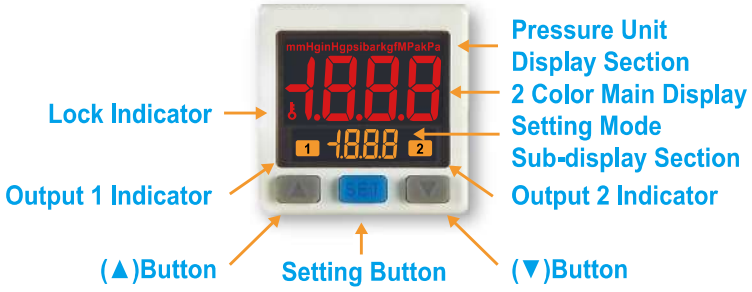
[NOTE] *1 : Hysteresis value is adjustable within 1 ~ 8 digits for one point set mode and window comparator mode.
*2 : If analog voltage output is selected, the analog current output cannot be selected at the same time.
*3 : If analog current output is selected, the analog voltage output cannot be selected at the same time.

AP43 SERIES

RoHS

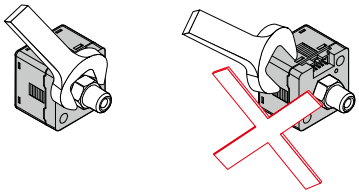
Pressure Sensor

■ PANEL DESCRIPTION



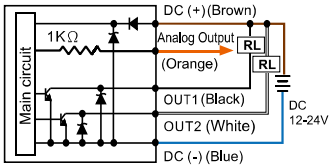
■ INSTALLATION PRECAUTIONS

- 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.

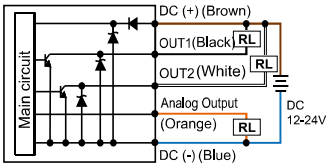


■ OUTPUT CIRCUIT WIRING DIAGRAMS

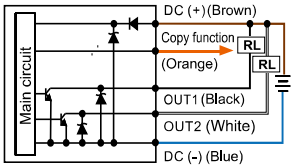
AP43□- 010 -□
2 NPN + Analog Output(1~5V)



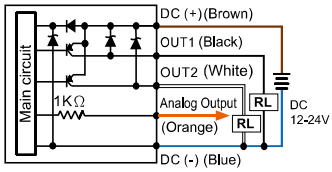
AP43□- 011 -□
2 NPN + Analog Output(4~20mA)



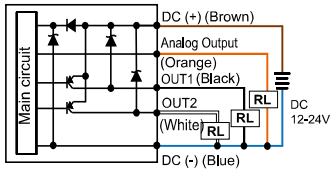
AP43□- 02 - □
2 NPN + Copy Function



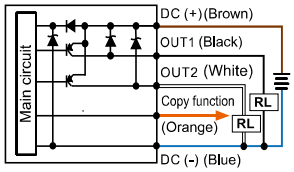
AP43□- 030 -□
2 PNP + Analog Output(1~5V)



AP43□- 031 - □
2 PNP + Analog Output(4~20mA)



AP43□- 04 - □
2 PNP + Copy Function



■ ORDERING INFORMATION

A P 4 3 C - 0 1 0 - F 1

Pressure Range

C : Compound (-101.0 ~ 101.0kPa)
(-14.50 ~ 14.5 psi)
V : Vacuum (10.0 ~ -101.3kPa)
(1.45 psi ~ -29.9 inHg)
P : Positive (-0.100~1.000MPa)
(-14.5 ~145.0 psi)

Output Specifications

010 : 2 NPN Output & Analog Output(1~5V)
011 : 2 NPN Output & Analog Output(4~20mA)
02 : 2 NPN Output & Copy Function
030 : 2 PNP Output & Analog Output(1~5V)
031 : 2 PNP Output & Analog Output(4~20mA)
04 : 2 PNP Output & Copy Function

Pressure Port

F1 : R 1/8", M5
F2 : NPT 1/8", #10-32UNF
F3 : G 1/8"(BSPP), M5

Optional Parts

BT-12 : Mounting bracket
BT-13 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid
CN0048M84QD0.3M: M8, 4-Pin, male conversion cable

Optional Parts

Mounting bracket

■ BT-12 ■ BT-13

Panel adapter

■ PA-C

Panel adapter + Front protective lid

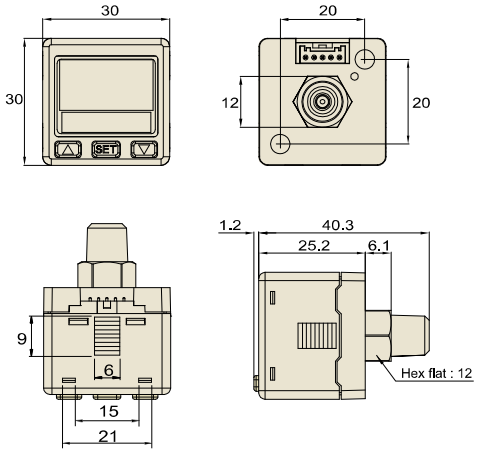
■ PA-D

AP43 SERIES

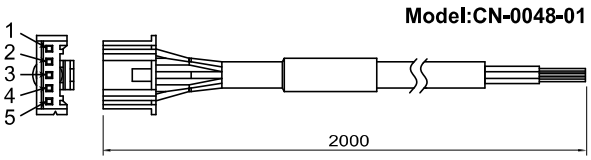
RoHS

Pressure Sensor

■ DIMENSION

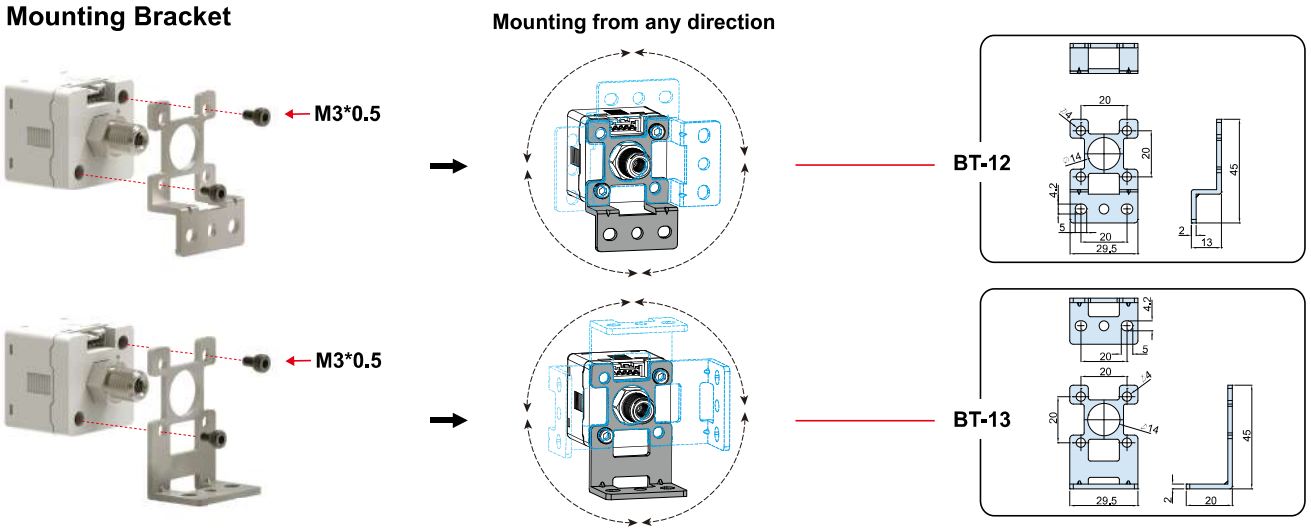


PIN No.	Wire Color
1	DC(+)(Brown)
2	Analog output(Orange)
3	OUT2(White)
4	OUT1(Black)
5	DC(-)(Blue)

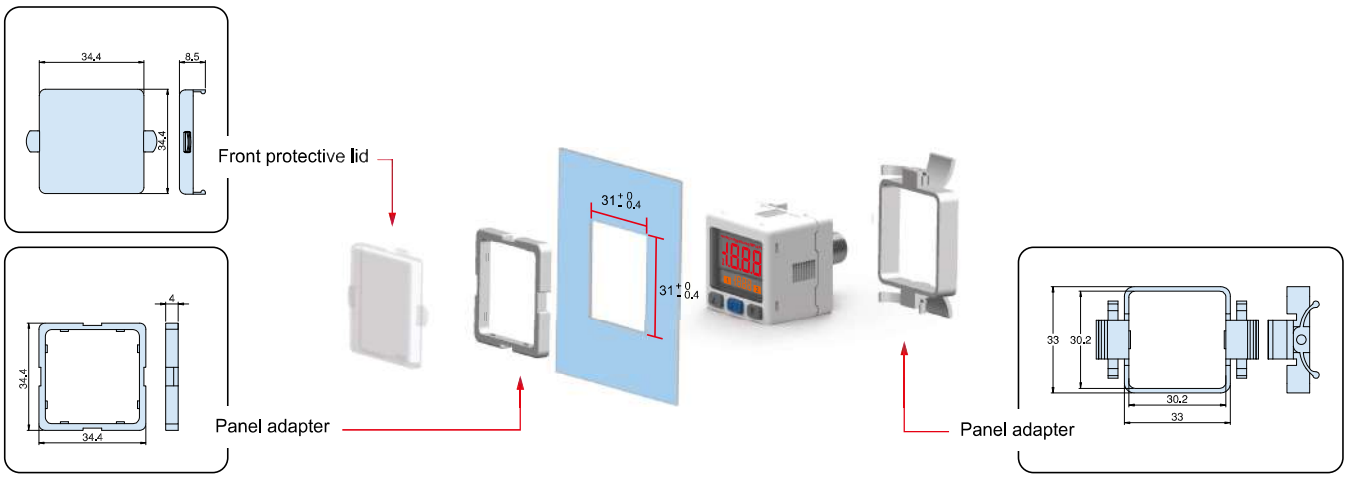


■ OPTIONAL PARTS DIMENSIONS

1 Mounting Bracket



2 Panel Mount Adapter + Front Protective Lid



Unit:mm

AP45 SERIES

RoHS

Pressure Sensor

Features

- 2-color digital LCD display
- Copy function
- Programmable pressure unit :
  kPa、MPa、kgf/cm²、bar、psi、inHg
- IP65 enclosure

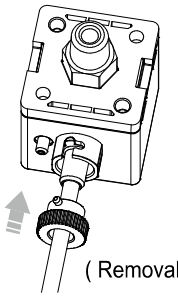
■ SPECIFICATIONS

TYPE	Compound	Vacuum	Positive
MODEL	AP45C	AP45V	AP45P
	1.0 MPa 100.0 kPa 0 -101.3 kPa		
Rated pressure range	-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range	-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~-101.3 kPa (1.45 psi~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5 ~ 145.0 psi)

■ FEATURES HIGHLIGHT

1 Quick Installation

- Save installation time
- Easy removal



(Removable data cable)

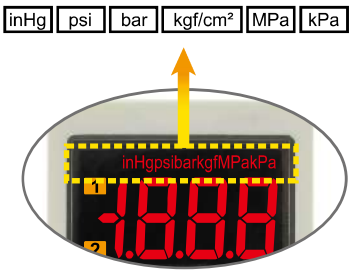
2 Copy Setting

- Avoid setting errors
- Reduce setting time

(Original Parameter) (Copied)

3 Easy Unit Identification

- Conversion unit is on display and easy to read.



4 2-Color Display

- User programmable color mode, for different setting conditions.

	SEt	Set	Unit	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

5 IP65 Compliance

- Protected against water and dust splash from all directions.

6 Environmental Protection Design

- RoHS Compliance / Without Harmful Substance

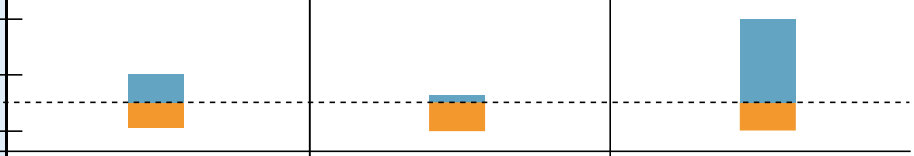
RoHS

AP45 SERIES

RoHS

Pressure Sensor

■ SPECIFICATIONS

MODEL		AP45C (Compound)	AP45V (Vacuum)	AP45P (Positive)
				
Rated pressure range		-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range		-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~ -101.3 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5 ~ 145.0 psi)
Withstand pressure		300 kPa (43.5 psi)		1.5 MPa (217.6 psi)
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa	0.1		-
	MPa	-		0.001
	kgf/cm²	0.001		0.01
	bar	0.001		0.01
	psi	0.01		0.1
	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		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. ±1 digit		
Hysteresis	One point set mode	Adjustable(*1)		
	Hysteresis mode			
	Window comparator mode			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
7 segment LCD display		3½ 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	IP 65		
	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/s² (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		
Port size		F1：R1/8", M5; F2：NPT1/8", #10-32 UNF; F3：G1/8"(BSPP), M5 F1C:Rc1/8" ; F2C:NPT1/8" ; F3C: G1/8"(BSPP)		
Lead wire		Oil-resistance cable(0.15mm²)		
Weight (with 2 meter lead wire)		Approx. 86g (with 2 meter lead wire)		

[NOTE] *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.

AP45 SERIES

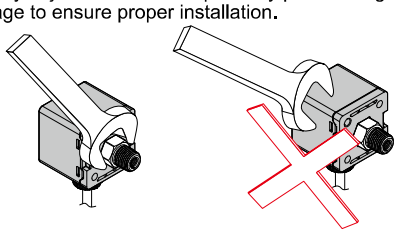
RoHS

Pressure Sensor

■ PANEL DESCRIPTION

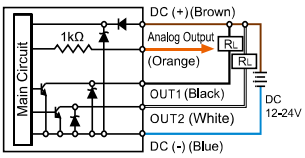
■ INSTALLATION PRECAUTIONS

- 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.

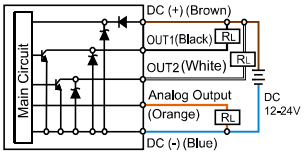


■ OUTPUT CIRCUIT WIRING DIAGRAMS

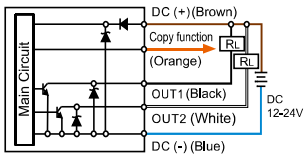
AP45□- 010 -□
2 NPN + Analog Output(1~5V)



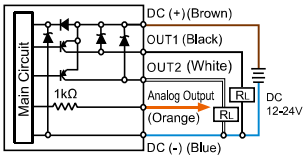
AP45□- 011 -□
2 NPN + Analog Output(4~20mA)



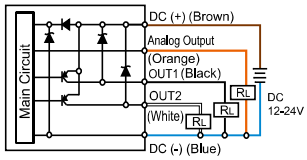
AP45□- 02 - □
2 NPN + Copy Function



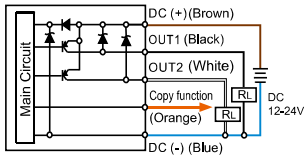
AP45□- 030 -□
2 PNP + Analog Output(1~5V)



AP45 □- 031 - □
2 PNP + Analog Output(4~20mA)



AP45□- 04 - □
2 PNP + Copy Function



■ ORDERING INFORMATION

A P 4 5 C - 0 1 0 - F 1

Pressure Range

C : Compound (-101.0 ~ 101.0kPa)
(-14.50 ~ 14.50 psi)
V : Vacuum (10.0 ~ -101.3kPa)
(1.45 psi ~ -29.9 inhg)
P : Positive(-0.100~1.000MPa)
(-14.5 ~ 145.0 psi)

Output Specifications

010 : 2 NPN Output & Analog Output(1~5V)
011 : 2 NPN Output & Analog Output(4~20mA)
02 : 2 NPN Output & Copy Function
030 : 2 PNP Output & Analog Output(1~5V)
031 : 2 PNP Output & Analog Output(4~20mA)
04 : 2 PNP Output & Copy Function

Pressure Port

F1 : R1/8", M5 ,with external threads
F2 : NPT1/8", #10-32UNF,with external threads
F3 : G1/8"(BSPP), M5,with external threads
F1C : Rc1/8", with internal threads
F2C : NPT1/8", with internal threads
F3C : G1/8"(BSPP), with internal threads

Optional Parts

BT-10 : Mounting bracket (for Pressure Port F1~F3)
BT-11 : Mounting bracket (for Pressure Port F1~F3)
BT- 1 : Mounting bracket (for Pressure Port F1C~F3C)
BT-17 : Mounting bracket (for Pressure Port F1C~F3C)
PA-E : Panel adapter
PA-F : Panel adapter + Front protective lid
CN0054M84QD0.3M: M8, 4-Pin, male conversion cable
CN0054M125QD0.3: M12, 5-Pin male conversion cable

Optional Parts

Mounting bracket

■ BT-10 ■ BT-11 ■ BT-1 ■ BT-17

Panel adapter

■ PA-E

Panel adapter + Front protective lid

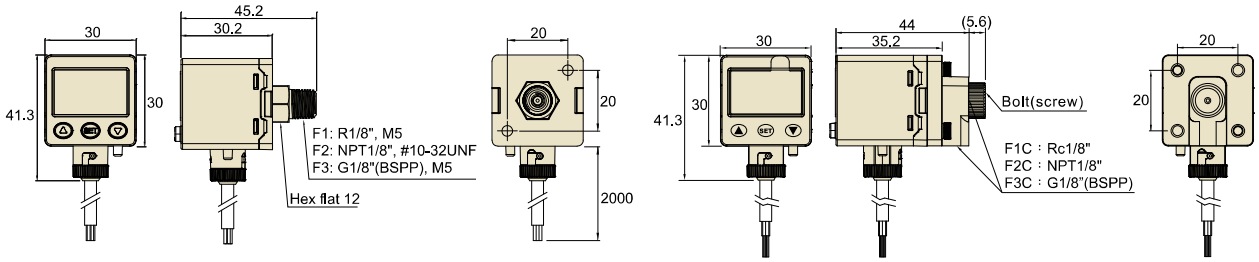
■ PA-F

AP45 SERIES

RoHS

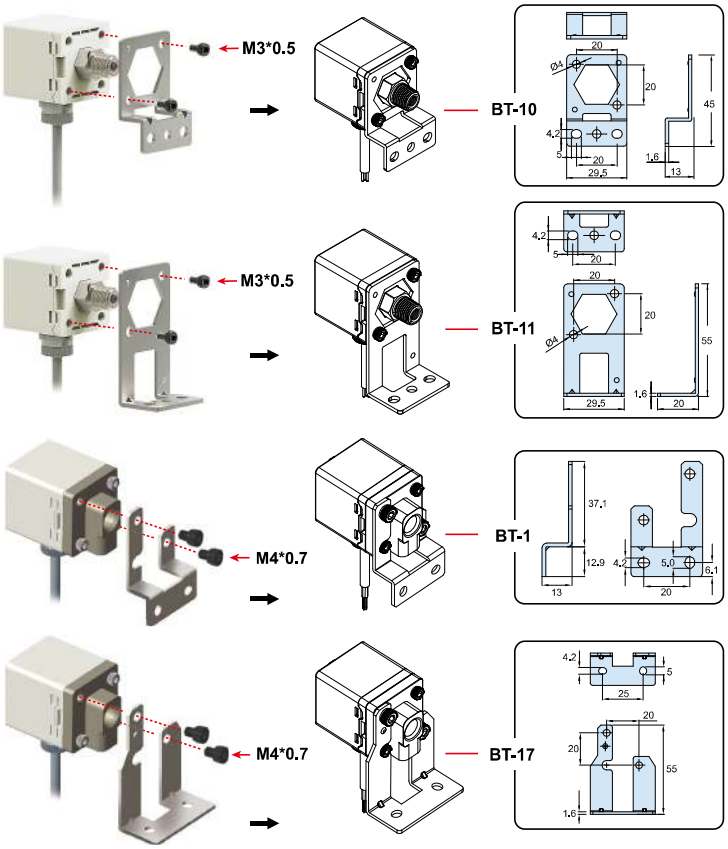
Pressure Sensor

■ DIMENSIONS

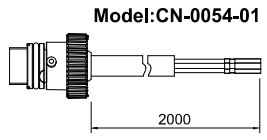


■ OPTIONAL PARTS DIMENSIONS

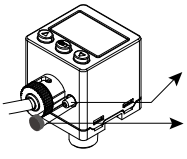
1 Mounting Bracket

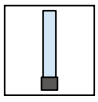


PIN No.	Wire Color
1	DC(-)(Blue)
2	OUT1(Black)
3	OUT2(White)
4	Analog output(Orange)
5	DC(+)(Brown)



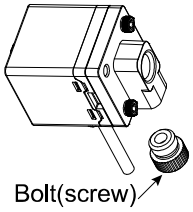
3 IP65 Protector





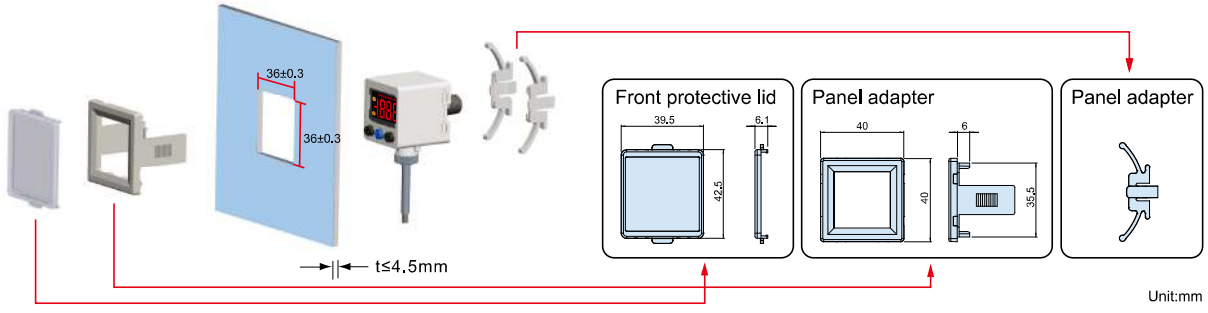
Caution:
This device must be installed to maintain IP 65(Dust and splash proof) enclosure rating.

4 AP45 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.

2 Panel Mount Adapter + Front Protective Lid



Unit:mm

AP45S SERIES

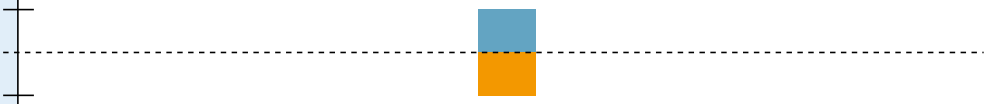
RoHS

Pressure Sensor

Features

- 2-color digital LCD display
- Copy function
- Programmable pressure unit :
  kPa、kgf/cm²、bar、psi、inHg
- IP65 enclosure

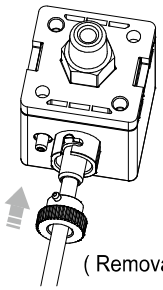
■ SPECIFICATIONS

TYPE	Compound
MODEL	AP45S
10.10 kPa 0 -10.10 kPa	
Rated pressure range	-10.00 ~ 10.00 kPa (-1.45 ~ 1.45 psi)
Setting pressure range	-10.10 ~ 10.10 kPa (-1.46 ~ 1.46 psi)

■ FEATURES HIGHLIGHT

1 Quick Installation

- Save installation time
- Easy removal



(Removable data cable)

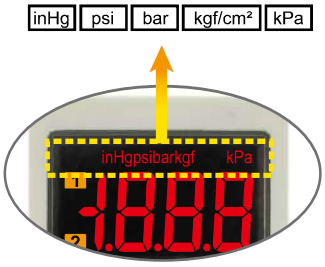
2 Copy Setting

- Avoid setting errors
- Reduce setting time

(Original Parameter) (Copied)

3 Easy Unit Identification

- Conversion unit is on display and easy to read.



4 2-Color Display

- User programmable color mode, for different setting conditions.

	SP0	SP1	Hy1	rE1
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

5 IP65 Compliance

- Protected against water and dust splash from all directions.

6 Environmental Protection Design

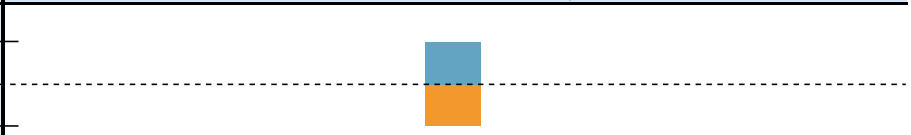
- RoHS Compliance / Without Harmful Substance

AP45S SERIES

RoHS

Pressure Sensor

■ SPECIFICATIONS

MODEL		AP45S (Compound)
		
Rated pressure range		-10.00 ~ 10.00 kPa (-1.45 ~ 1.45 psi)
Setting pressure range		-10.10 ~ 10.10 kPa (-1.46 ~ 1.46 psi)
Withstand pressure		20 kPa (2.9 psi)
Fluid		Filtered air, Non-corrosive / Non-flammable gas
Set pressure resolution	kPa	0.01
	MPa	-
	kgf/cm²	0.001
	bar	0.001
	psi	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)		±0.2% F.S. ±1 digit
Hysteresis	One point set mode	Adjustable(*1)
	Hysteresis mode	
	Window comparator mode	
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)
Output short circuit protection		Yes
7 segment LCD display		3½ 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	IP 65
	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/s² (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
Port size		F1：R1/8", M5; F2：NPT1/8", #10-32 UNF; F3：G1/8"(BSPP), M5 F1C:Rc1/8" ; F2C:NPT1/8" ; F3C: G1/8"(BSPP)
Lead wire		Oil-resistance cable(0.15mm²)
Weight (with 2 meter lead wire)		Approx. 86g (with 2 meter lead wire)

[NOTE] *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.

AP45S SERIES

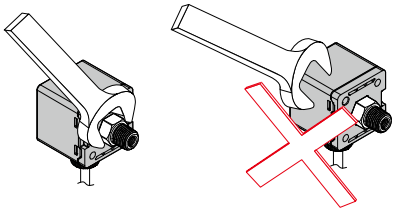
RoHS

Pressure Sensor

■ PANEL DESCRIPTION

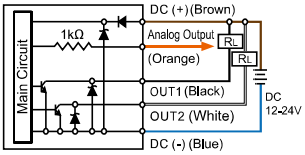
■ INSTALLATION PRECAUTIONS

- 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.

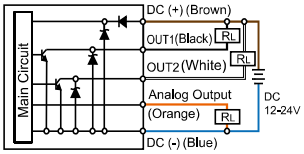


■ OUTPUT CIRCUIT WIRING DIAGRAMS

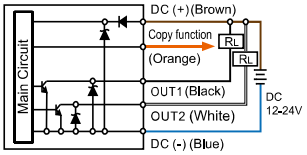
AP45S□-010-□
2 NPN + Analog Output(1~5V)



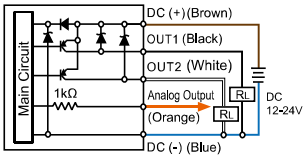
AP45S□-011-□
2 NPN + Analog Output(4~20mA)



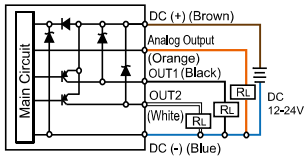
AP45S□-02-□
2 NPN + Copy Function



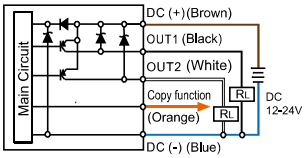
AP45S□-030-□
2 PNP + Analog Output(1~5V)



AP45S□-031-□
2 PNP + Analog Output(4~20mA)



AP45S□-04-□
2 PNP + Copy Function



■ ORDERING INFORMATION

A P 4 5 S - 0 1 0 - F 1

Pressure Range

S：Compound (-10.10 ~ 10.10 kPa)
(-1.46 ~ 1.46 psi)

Output Specifications

010：2 NPN Output & Analog Output(1~5V)
011：2 NPN Output & Analog Output(4~20mA)
02 ：2 NPN Output & Copy Function
030：2 PNP Output & Analog Output(1~5V)
031：2 PNP Output & Analog Output(4~20mA)
04 ：2 PNP Output & Copy Function

Pressure Port

F1：R1/8", M5 ,with external threads
F2：NPT1/8", #10-32UNF,with external threads
F3：G1/8"(BSPP), M5,with external threads
F1C：Rc1/8", with internal threads
F2C：NPT1/8", with internal threads
F3C：G1/8"(BSPP), with internal threads

Optional Parts

BT-10：Mounting bracket (for Pressure Port F1~F3)
BT-11：Mounting bracket (for Pressure Port F1~F3)
BT- 1 ：Mounting bracket (for Pressure Port F1C~F3C)
BT-17：Mounting bracket (for Pressure Port F1C~F3C)
PA-E ：Panel adapter
PA-F ：Panel adapter + Front protective lid
CN0054M84QD0.3M: M8, 4-Pin, male conversion cable
CN0054M125QD0.3: M12, 5-Pin male conversion cable

Optional Parts

Mounting bracket

■ BT-10 ■ BT-11 ■ BT-1 ■ BT-17

Panel adapter

■ PA-E

Panel adapter + Front protective lid

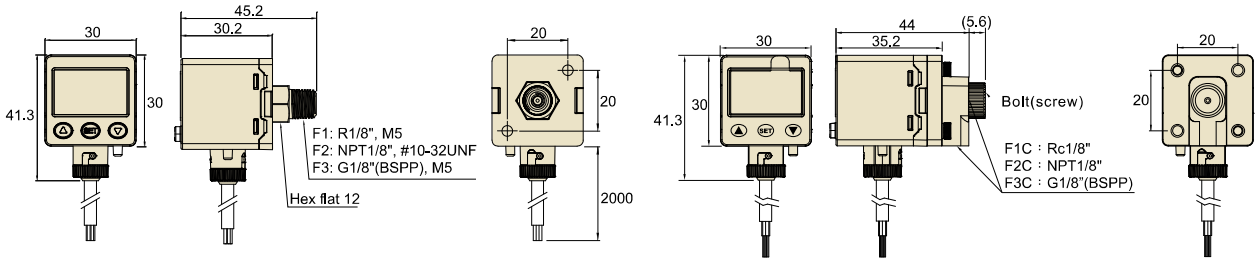
■ PA-F

AP45S SERIES

RoHS

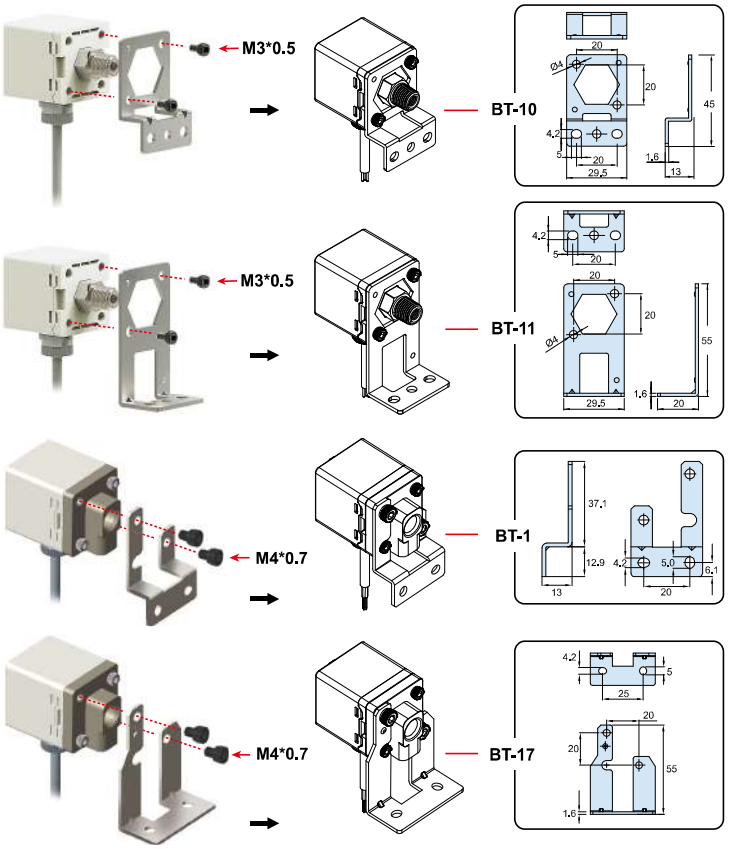
Pressure Sensor

DIMENSIONS

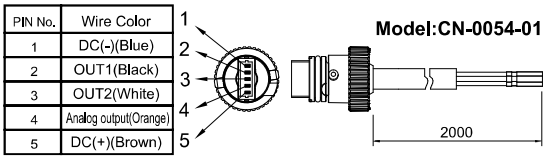


OPTIONAL PARTS DIMENSIONS

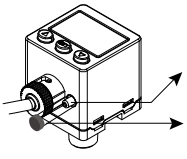
1 Mounting Bracket

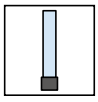


PIN No.	Wire Color
1	DC(-)(Blue)
2	OUT1(Black)
3	OUT2(White)
4	Analog output(Orange)
5	DC(+)(Brown)



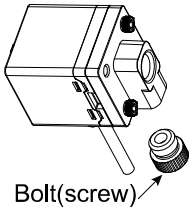
3 IP65 Protector





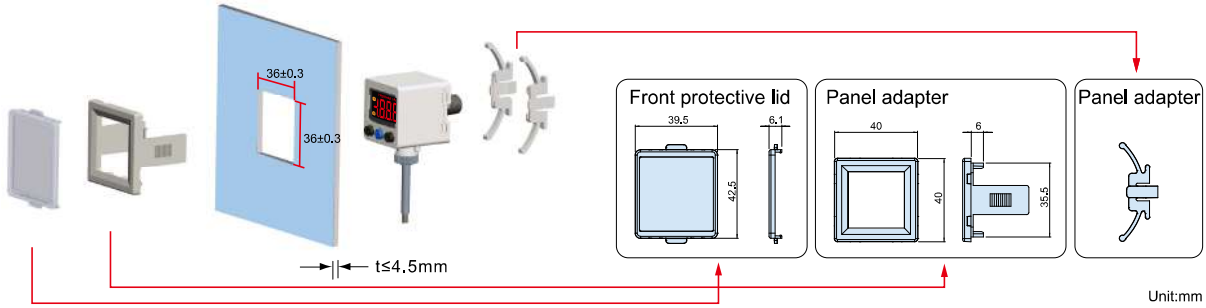
Caution:
This device must be installed to maintain IP 65(Dust and splash proof) enclosure rating.

4 AP45S 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.

2 Panel Mount Adapter + Front Protective Lid



Unit:mm

AP47 SERIES

RoHS

Pressure Sensor

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

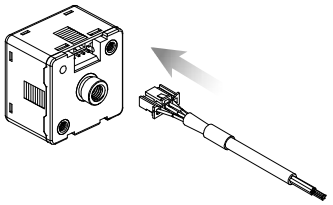
■ SPECIFICATIONS

TYPE	Compound	Vacuum	Positive
MODEL	AP47C	AP47V	AP47P
	1.03 MPa / 103.0 kPa / 0 / -103.0 kPa		
Rated pressure range	-100.0 ~ 100.0 kPa (-14.5 ~ 14.5 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5 ~ -145.0 psi)
Setting pressure range	-103.0 ~ 103.0 kPa (-14.93 ~ 14.93 psi)	10.0 ~ -103.0 kPa (1.45 psi ~ -30.4 inHg)	-0.103 ~ 1.030 MPa (-14.93 ~ 149.3 psi)

■ FEATURES HIGHLIGHT

1 Quick Installation

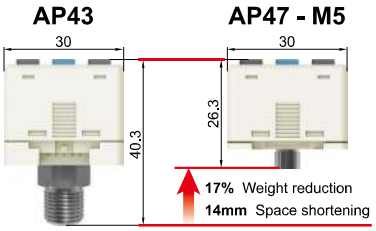
- Save installation time
- Easy removal



(Removable data cable)

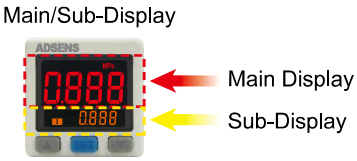
2 Compact design

- Compared with similar products, approx. 35% shorter



3 Setting Value Easy Indication

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



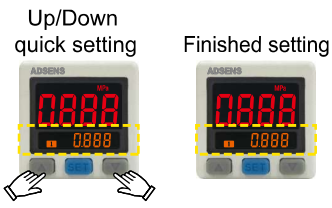
4 2-Color Main Display

- User programmable color mode, for different setting conditions.

	SoU	Sor	Grn	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

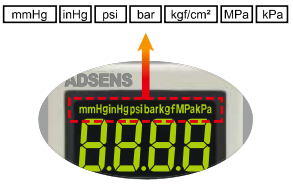
5 OPS Quick Setting

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



6 Easy Unit Identification

- Conversion unit is on display and easy to read.

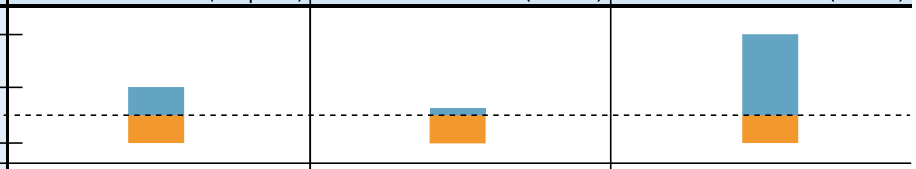


AP47 SERIES

RoHS

Pressure Sensor

■ SPECIFICATIONS

MODEL		AP47C (Compound)	AP47V (Vacuum)	AP47P (Positive)
				
Rated pressure range		-100.0 ~ 100.0 kPa (-14.5 ~ 14.5 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5 ~ -145.0 psi)
Setting pressure range		-103.0 ~ 103.0 kPa (-14.93 ~ 14.93 psi)	10.0 ~ -103.0 kPa (1.45 psi ~ -30.4 inHg)	-0.103 ~ 1.030 MPa (-14.93~ 149.3 psi)
Withstand pressure		500 kPa (72.5 psi)		1.5 MPa (217.6 psi)
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa	0.1		-
	MPa	-		0.001
	kgf/cm²	0.001		0.01
	bar	0.001		0.01
	psi	0.01		0.1
	inHg	0.1		-
	mmHg	1		-
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less		
Current consumption		≤ 30mA (With no load)		
Switch output		NPN: open collector 1 outputs Max. load current: 80mA Max. supply voltage: 30V DC Residual voltage: ≤ 1V		PNP: open collector 1 outputs Max. load current: 80mA Max. supply voltage: 24V DC Residual voltage: ≤ 1V
Repeatability(Switch output)		±0.3% F.S. ±1 digit		
Hysteresis	One point set mode	Adjustable(*1)		
	Hysteresis mode			
	Window comparator mode			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
7 segment LCD display		Three color(Red/Green) main & unit display, Orange sub-display(Sampling rate : 0.2 , 0.5 , 1 seconds/time selectable)		
Indicator accuracy		±1% F.S. ±1 digit (ambient temperature: 25 ±3°C)		
Switch ON Indicator		Orange (1 Indicator) OUT1		
Analog output (Voltage Output)		Output Voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		Output Voltage: 0.6 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ
Environment	Enclosure	IP 40		
	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/s² (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		
Port size		F1 : R1/8",M5; F2: NPT1/8",10-32 UNF ; F3: G1/8"(BSPP),M5 ; M5 female thread		
Lead wire		Oil-resistance cable(0.15mm²)		
Weight		Approx. 67g (with 2 meter lead wire)		

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

AP47 SERIES

RoHS

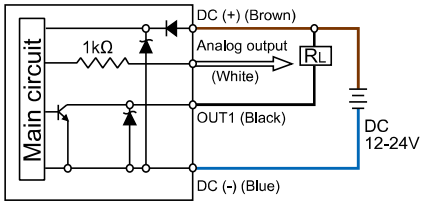
Pressure Sensor

■ PANEL DESCRIPTION

■ OUTPUT CIRCUIT WIRING DIAGRAMS

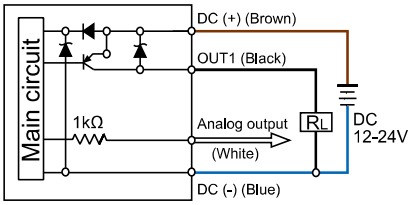
AP47 □ - 01 - □

1 NPN + Analog output (1~5V) (0.6~5V only positive)



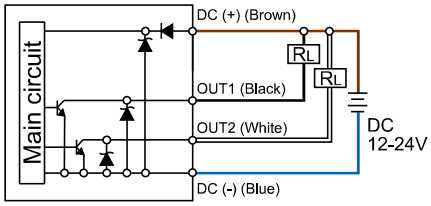
AP47 □ - 03 - □

1 PNP + Analog output (1~5V) (0.6~5V only positive)



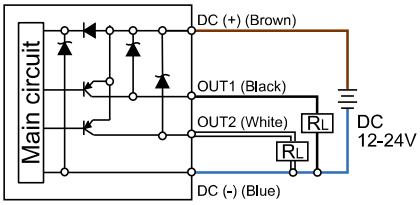
AP47 □ - 02 - □

2 NPN output



AP47 □ - 04 - □

2 PNP output



■ ORDERING INFORMATION

A P 4 7 C - 0 1 - F 1

Pressure Range

C：Compound (-103.0 ~ 103.0 kPa)
(-14.93 ~ 14.93 psi)
V：Vacuum(10.0 ~ -103.0)
(1.45 psi ~ -30.4 inHg)
P：Positive (-0.103 ~ 1.030 MPa)
(-14.93~ 149.3 psi)

Output Specifications

01：1 NPN output + Analog output(1~5V)
02：2 NPN output
03：1 PNP output + Analog output(1~5V)
04：2 PNP output

Pressure Port

F1：R1/8", M5
F2：NPT1/8", #10-32UNF
F3：G1/8"(BSPP), M5
M5：M5 female thread

Optional Parts

BT-22 : Mounting bracket
BT-23 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

Optional Parts

Mounting bracket

■ BT-22 ■ BT-23

Panel adapter

■ PA-C

Panel adapter + Front protective lid

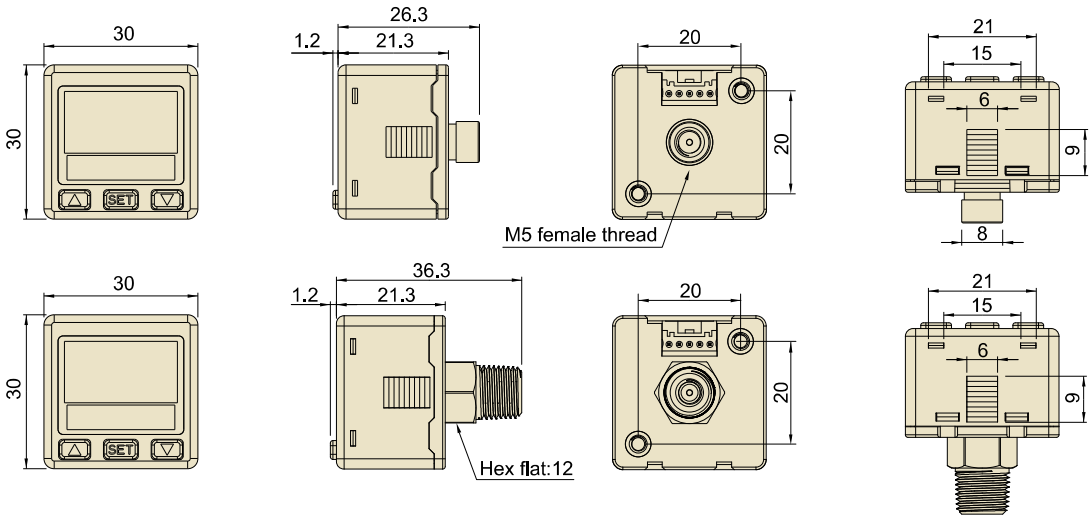
■ PA-D

AP47 SERIES

RoHS

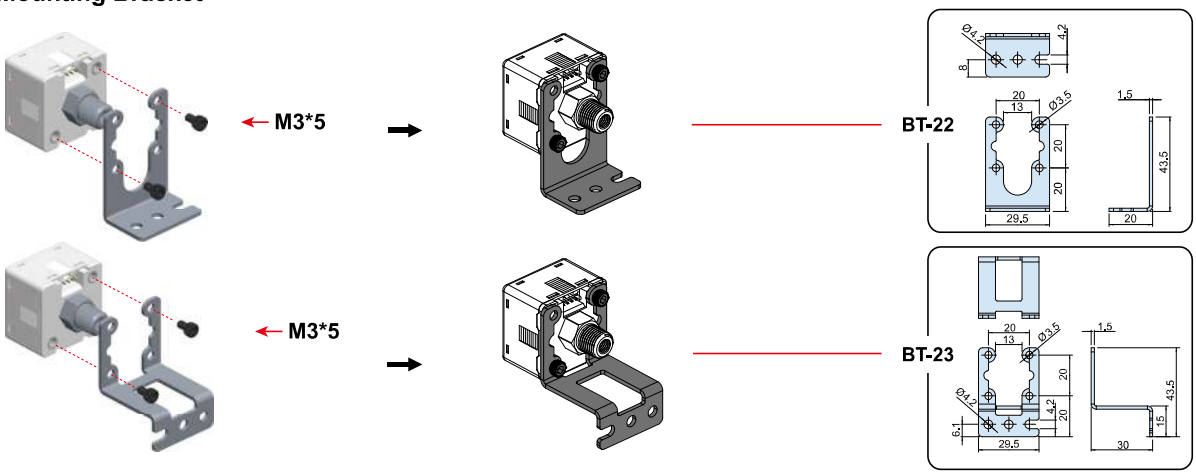
Pressure Sensor

■ DIMENSIONS

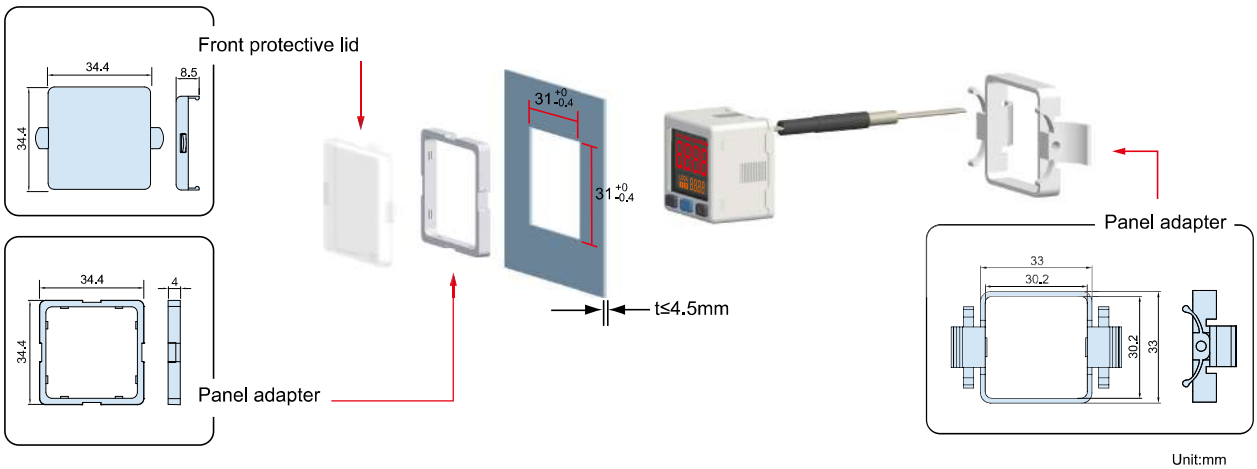


■ OPTIONAL PARTS DIMENSIONS

1 Mounting Bracket



2 Panel Mount Adapter + Front Protective Lid



AP50 SERIES

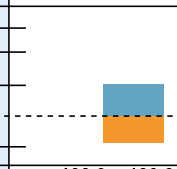
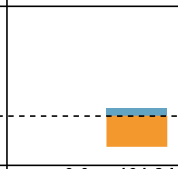
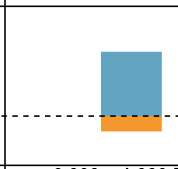
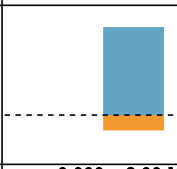
RoHS

Pressure Sensor

Features

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

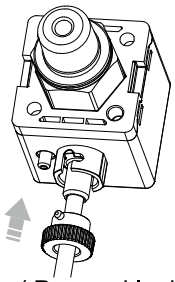
■ SPECIFICATIONS

TYPE	Compound	Vacuum	Positive	High
MODEL	AP50C	AP50V	AP50P	AP50H
2.0 MPa 1.0 MPa 100.0 kPa 0 -101.3 kPa				
Rated pressure range	-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)	0.000 ~ 2.00 MPa (0.0 ~ 290 psi)
Setting pressure range	-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~ -101.3 kPa (-29.9 inHg ~ 1.45 psi)	-0.100 ~ 1.000 MPa (-14.5~ 145.0 psi)	-0.100 ~ 2.00 MPa (-14.5 ~ 290 psi)

■ FEATURES HIGHLIGHT

1 Quick Installation

- Save installation time.
- Easy removal.



(Removable data cable)

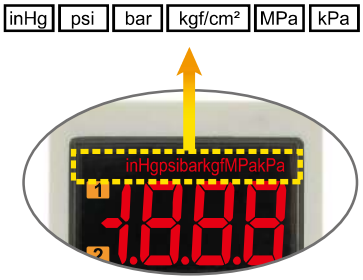
2 Copy Setting

- Avoid setting errors
- Reduce setting time

(Original Parameter) (Copied)

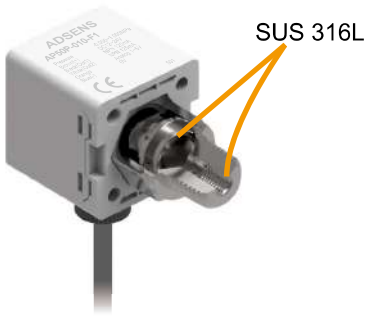
3 Easy Unit Identification

- Conversion unit is on display and easy to read.



4 Applicable for Corrosive Fluid or Gas

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



5 2-Color Display

- User programmable color mode, for different setting conditions.

	SP0	SP1	Fun	rES
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

6 IP65 Compliance

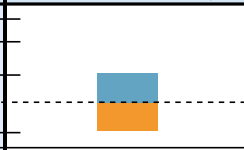
- Protected against water and dust splash from all directions.

AP50 SERIES

RoHS

Pressure Sensor

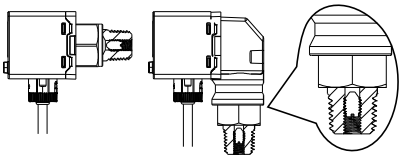
■ SPECIFICATIONS

MODEL		AP50C (Compound)	AP50V (Vacuum)	AP50P (Positive)	AP50H (High)
2.0 MPa 1.0 MPa 100.0 kPa 0 -101.3 kPa					
Rated pressure range		-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)	0.000 ~ 2.00 MPa (0.0 ~ 290 psi)
Setting pressure range		-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~ -101.3 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5~ 145.0 psi)	-0.100 ~ 2.00 MPa (-14.5 ~ 290 psi)
Withstand pressure		300 kPa (43.5 psi)		3 MPa (435 psi)	
Fluid		Fluids do not corrode stainless steel 316L			
Sealed liquid		Silicon oil			
Set pressure resolution	kPa	0.1		-	-
	MPa	-		0.001	0.001(~1.999) 0.01(2.00~)
	kgf/cm²	0.001		0.01	0.01(~19.99) 0.1(20.0~)
	bar	0.001		0.01	0.01(~19.99) 0.1(20.0~)
	psi	0.01		0.1	0.1(~199.9) 1(200~)
	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	One point set mode	Adjustable(*1)			
	Hysteresis mode				
	Window comparator mode				
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)			
Output short circuit protection		Yes			
7 segment LCD display		3½ 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	IP 65			
	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/s² (10G), 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 (*4)		F1：R1/4", M5; F2：NPT1/4", #10-32 UNF; F3：G1/4"(BSPP), M5; F1C：Rc1/8"			
Lead wire		Oil-resistance cable(0.15mm²)			
Weight (with 2 meter lead wire)		Approx. 110g (Rear ported) , Approx. 145g (Bottom ported)			

[NOTE] *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.
*4 : G port O-Ring material is NBR. if any special request, please contact ADSENS.

■ 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.

AP50 SERIES

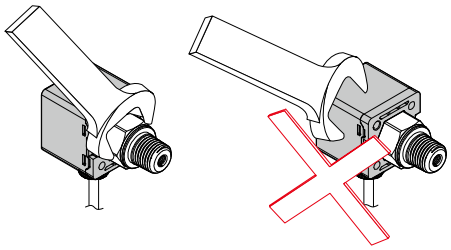
RoHS

Pressure Sensor

■ PANEL DESCRIPTION

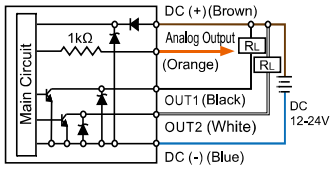
■ INSTALLATION PRECAUTIONS

- 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.

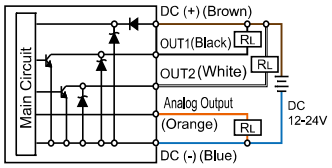


■ OUTPUT CIRCUIT WIRING DIAGRAMS

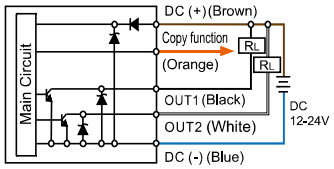
AP50□- 010 -□
2 NPN + Analog Output(1~5V)



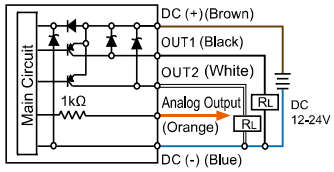
AP50□- 011 -□
2 NPN + Analog Output(4~20mA)



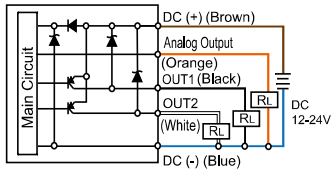
AP50□- 02 -□
2 NPN + Copy Function



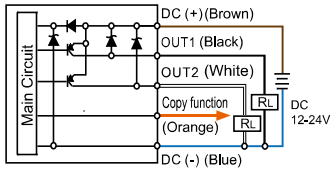
AP50□- 030 -□
2 PNP + Analog Output(1~5V)



AP50□- 031 -□
2 PNP + Analog Output(4~20mA)



AP50□- 04 -□
2 PNP + Copy Function



■ ORDERING INFORMATION

A P 5 0 H - 0 1 0 - F 1 □

Pressure Range

H : High (-0.100 ~ 2.00 MPa)
(-14.5 ~ 290 psi)
C : Compund (-101.0 ~ 101.0kPa)
(-14.50 ~ 14.5 psi)
V : Vacuum (10.0 ~ -101.3kPa)
(1.45 psi ~ -29.9 inHg)
P : Positive (-0.100~1.000MPa)
(-14.5 ~ 145.0 psi)

Output Specifications

010 : 2 NPN Output & Analog Output(1~5V)
011 : 2 NPN Output & Analog Output(4~20mA)
02 : 2 NPN Output & Copy Function
030 : 2 PNP Output & Analog Output(1~5V)
031 : 2 PNP Output & Analog Output(4~20mA)
04 : 2 PNP Output & Copy Function

Pressure Port

F1 : R1/4", M5
F2 : NPT1/4", #10-32UNF
F3 : G1/4"(BSPP), M5
F1C : Rc1/8"

Piping Direction

Blank : Rear ported
L : Bottom ported

Optional Parts

BT-10 : Mounting bracket
BT-11 : Mounting bracket
PA-E : Panel adapter
PA-F : Panel adapter + Front protective lid
CN0054M84QD0.3M: M8, 4-Pin, male conversion cable
CN0054M125QD0.3: M12, 5-Pin male conversion cable

Optional Parts

Mounting bracket

■ BT-10 ■ BT-11

Panel adapter

■ PA-E

Panel adapter + Front protective lid

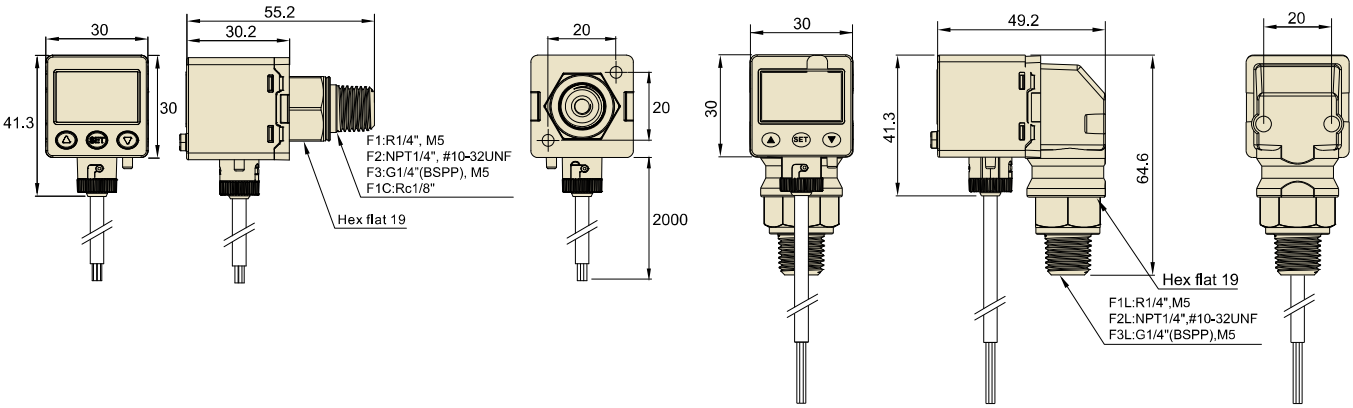
■ PA-F

AP50 SERIES

RoHS

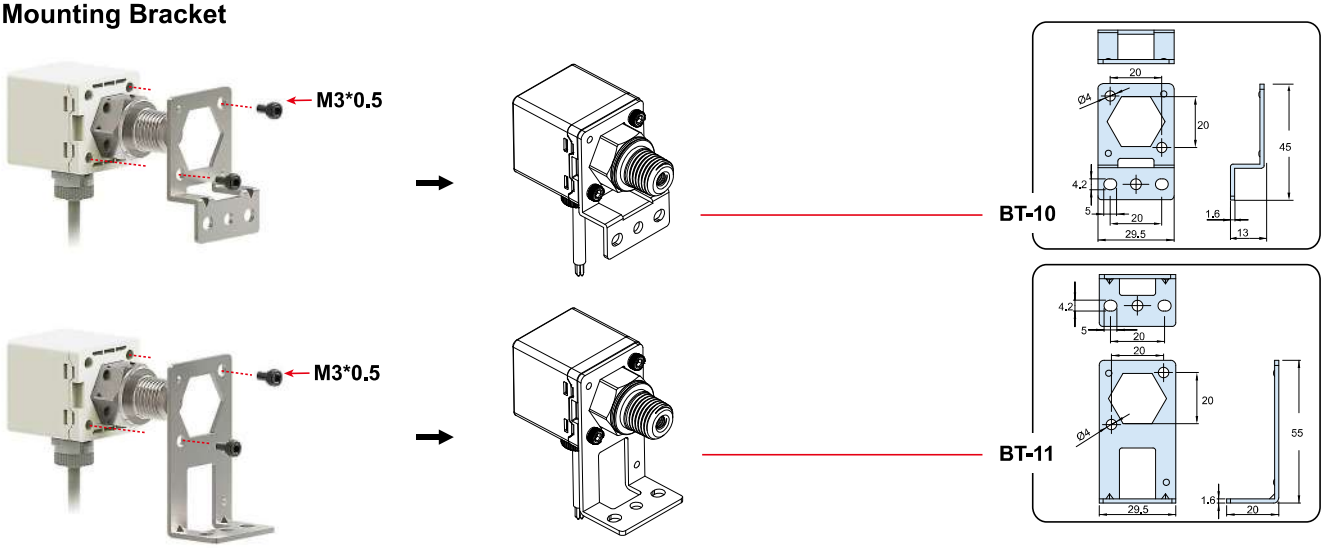
Pressure Sensor

■ DIMENSIONS

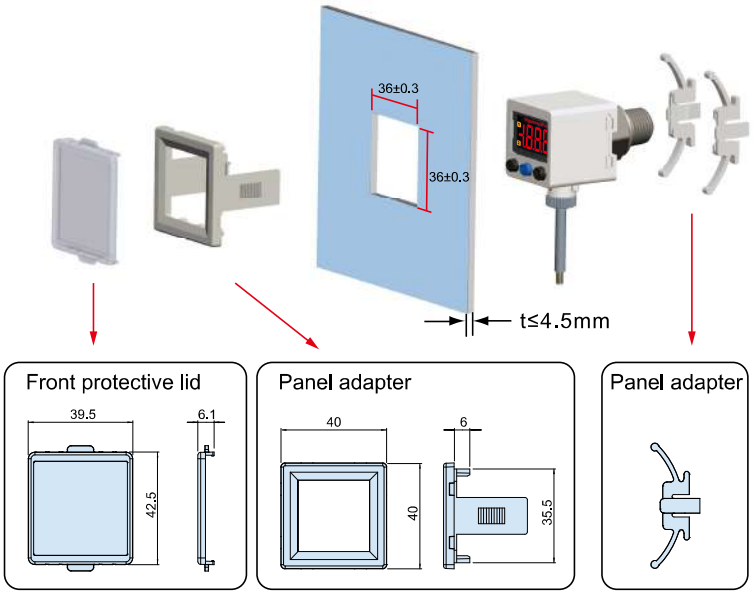


■ OPTIONAL PARTS DIMENSIONS

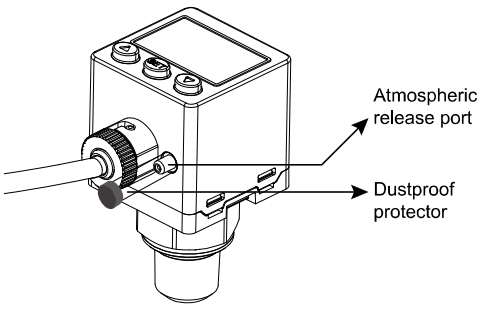
1 Mounting Bracket

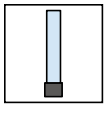


2 Panel Mount Adapter + Front Protective Lid



3 IP65 Protector





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

Unit:mm

AP60 SERIES

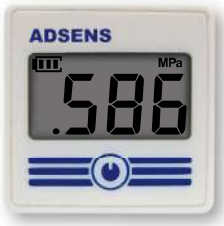
RoHS

Pressure Sensor

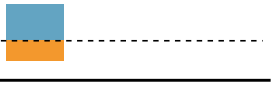
Features

Patented

- Pressure unit on display
- Battery powered
- Accurate digital display with wide viewing angle
- 4 user programmable pressure units available
- Power saving mode
- Back light option
- IP65 enclosure, dust and splash-proof
- 5 units / pack



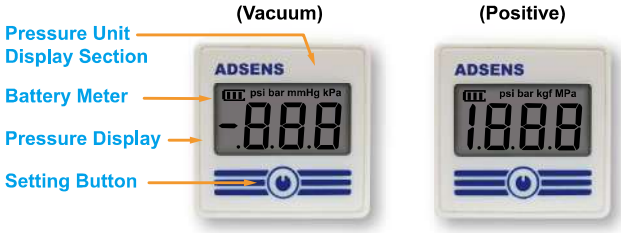
SPECIFICATIONS

TYPE		(Vacuum)		(Positive)	
		AP60V	AP60VL	AP60P	AP60PL
1.0 MPa 0 -101 kPa					
Rated pressure range		0 ~ -101 kPa (-14.7 ~ 0.0 psi)		0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)	
Display pressure range		10 ~ -101 kPa (-14.7 ~ 1.5 psi)		-0.100 ~ 1.000 MPa(*1) (-14.7 ~ 145.0 psi)	
Withstand pressure		300 kPa (43.5 psi)		1.5 MPa (217.6 psi)	
Applicable fluid		Filtered air, incombustible and non-corrosive gases			
Pressure resolution	kPa	1		-	
	MPa	-		0.001	
	kgf/cm²	-		0.01	
	bar	0.01		0.01	
	psi	0.1		0.1	
	mmHg	1		-	
Battery		CR 2032 lithium			
Back light		No	Yes	No	Yes
Battery life		3 years (5 times/day)	1 year (5 times/day)	3 years (5 times/day)	1 year (5 times/day)
Low-power indicator		Yes			
Battery replaceable		Yes			
Turn-on interval		Display turn off after 60 sec.			
Sampling rate		2 Hz (2 times/sec.)			
Programmable pressure unit		psi, bar, mmHg and kPa user selectable		psi, bar, kgf/cm² and MPa user selectable	
Repeatability		±1% F.S. ±1digit		±0.2% F.S. ±1digit	
LCD display		3½ digit, 7 segment			
Indicator accuracy		±2% F.S. ±1 digit (ambient temperature: 25 ±3 °C)			
Environment	Enclosure	IP 65(*1)			
	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/s² (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			
Port size		F1:R1/8", M5; F2:NPT1/8"NPT, #10-32 UNF; F3:G1/8"(BSPP), M5; F4:R1/4", M5; F5:NPT1/4", #10-32 UNF; F6:G1/4"(BSPP), M5			
Weight		Approx. 40g			

[NOTE] *1. When the pressure is -0.1 MPa, LCD displays -100 MPa.
*2. Air tube must be installed to maintain IP65.

Units conversion: 1 MPa = 14.5 psi = 10 bar, 1 kPa = 0.145 psi = 0.2953 inHg = 10mbar, LCD displays

PANEL DESCRIPTION



AP60 SERIES

RoHS

Pressure Sensor

■ ORDERING INFORMATION

A P 6 0 P □ - F 1

Pressure Range

V : Vacuum 10 ~ -101 kPa
(1.5 ~ -14.7 psi)
P : Positive -0.100 ~ 1.000 MPa
(-14.5 ~ 145.0 psi)

Back Light

Blank : Back light unavailable
L : Back light available

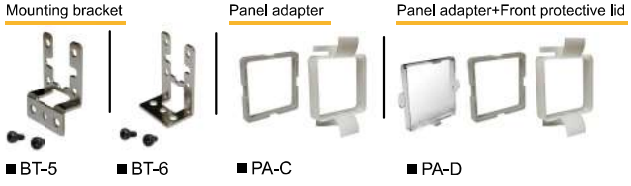
Pressure Port

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

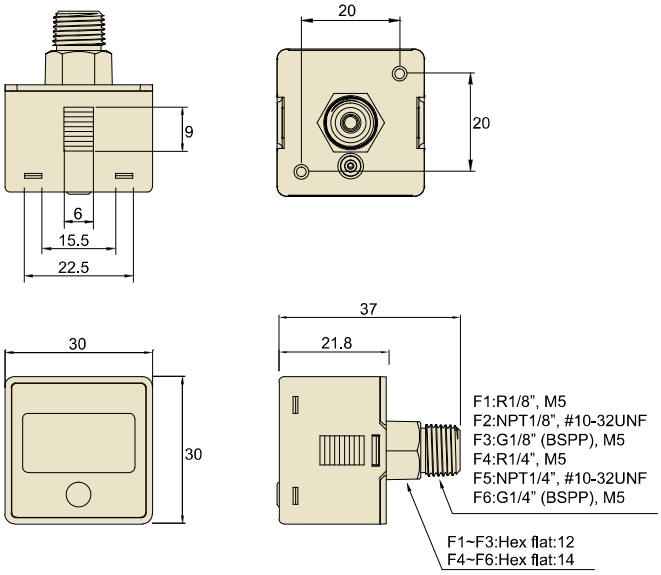
Optional Parts

BT-5 : Mounting bracket
BT-6 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

Optional Parts

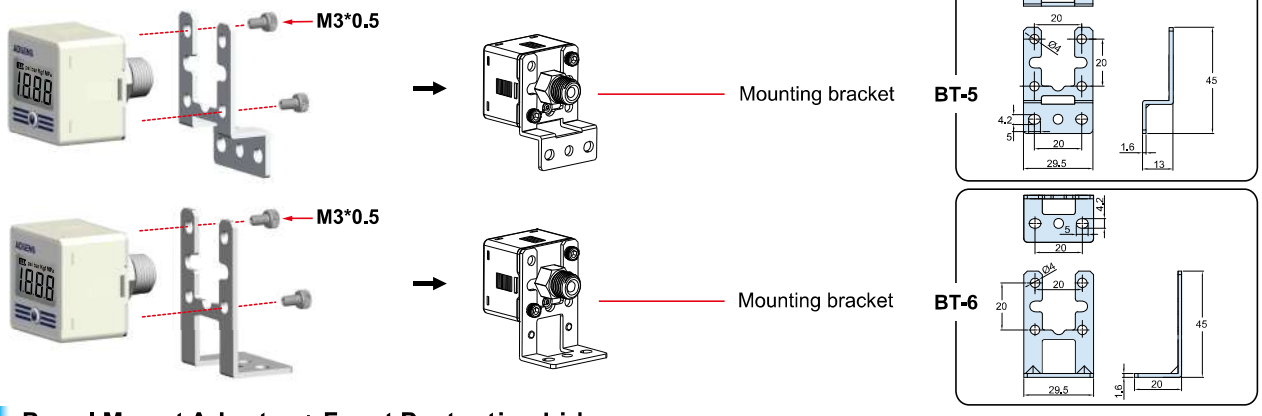


■ DIMENSIONS

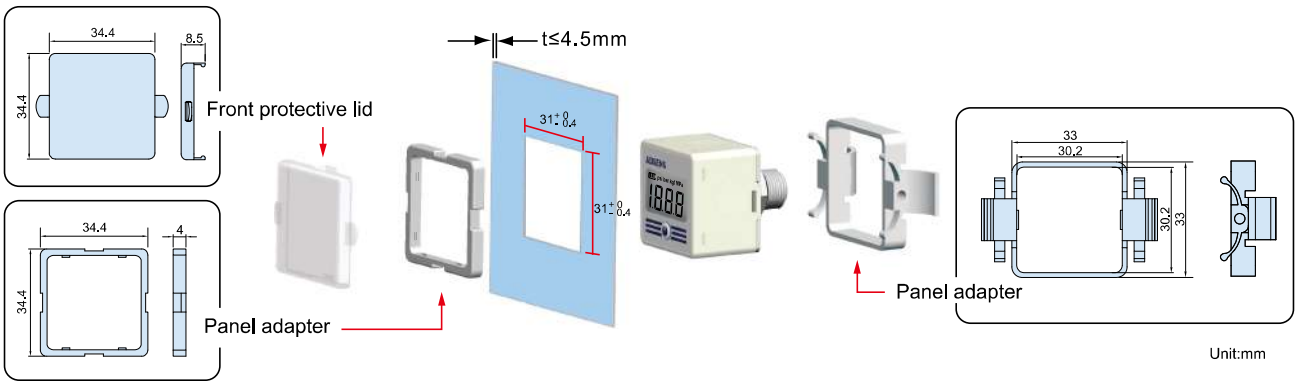


■ OPTIONAL PARTS DIMENSIONS

1 Mounting Bracket



2 Panel Mount Adapter + Front Protective Lid



AP61 SERIES

RoHS

Pressure Sensor

Features

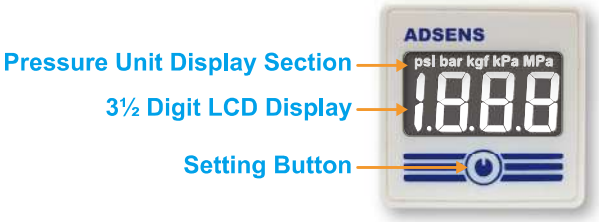
- Pressure unit on display
- User programmable pressure unit : psi、bar、kgf/cm2、kPa and MPa
- Accurate read out with wide viewing angle
- Dust and splash-proof IP65 enclosure
- LCD Display

SPECIFICATIONS

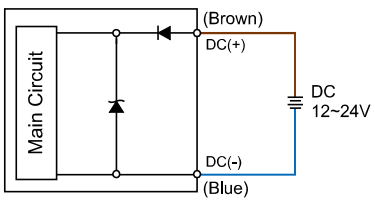
TYPE		AP61V (Vacuum)	AP61P (Positive)
		1.0 MPa 0 -101 kPa	
Rated pressure range		0 ~ -101 kPa (-14.7 ~ 0.0 psi)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Display pressure range		10 ~ -101 kPa (-14.7 ~ 1.5 psi)	-0.100 ~ 1.000 MPa(*1) (-14.7 ~ 145.0 psi)
Withstand pressure		300 kPa (43.5 psi)	1.5 MPa (217.6 psi)
Applicable fluid		Filtered air, incombustible and non-corrosive gases	
Pressure resolution	kPa	1	-
	MPa	-	0.001
	kgf/cm²	0.01	0.01
	bar	0.01	0.01
	psi	0.1	0.1
Power supply voltage		12 to 28V DC ±10%, Ripple (P-P) 10% or less	
Current consumption		10mA	
Sampling rate		2 Hz (2 times/sec.)	
Repeatability		±1% F.S. ±1 digit	±0.2% F.S. ±1 digit
LCD display		3½ digit, 7 segment	
Indicator accuracy		±2% F.S. ±1 digit (ambient temperature: 25 ±3 °C)	
Environment	Enclosure	IP 65(*2)	
	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/s² (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	
Port size		F1:R1/8", M5; F2:NPT1/8", #10-32 UNF; F3:G1/8"(BSPP), M5	
Lead wire		Oil-resistance cable (0.15mm²)	
Weight		Approx. 60g (with 2 meter lead wire), Approx. 40g (with M8 4Pin male connector)	

[NOTE] *1. When the pressure is -0.1 MPa, LCD displays -100 MPa.
*2. Air tube must be installed to maintain IP65.

PANEL DESCRIPTION



CIRCUIT WIRING DIAGRAM



* Pressure display only, no switch output function.

AP61 SERIES

RoHS

Pressure Sensor

ORDERING INFORMATION

A P 6 1 P - F 1 - ☐

Pressure Range

V : Vacuum
10 ~ -101 kPa
(1.5 ~ -14.7psi)
P : Positive
-0.100 ~ 1.000 MPa
(-14.5 ~145.0 psi)

Pressure Port

F1 : R1/8", M5
F2 : NPT1/8", #10-32 UNF
F3 : G1/8"(BSPP), M5

Cable Length / Connector

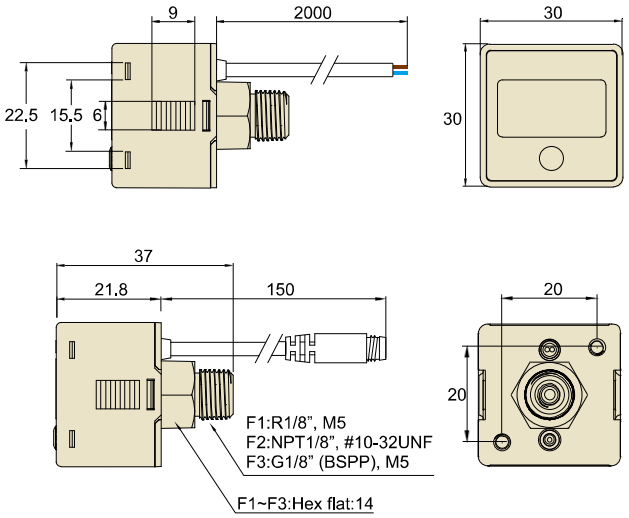
Blank : With 2 meter cable
QD : With M8 4Pin male connector

Optional Parts

KM84R-PVC-2M / KM84R-PVC-5M :
M8, 4-Pin female cordset
BT-5 : Mounting bracket
BT-6 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

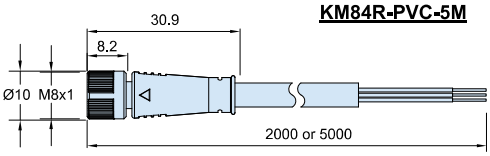
Optional Parts

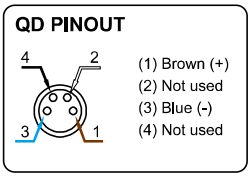
DIMENSIONS



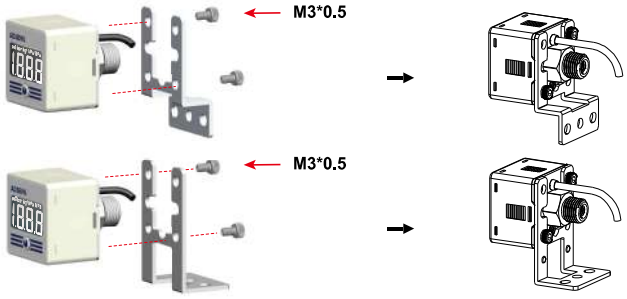
OPTIONAL PARTS DIMENSIONS

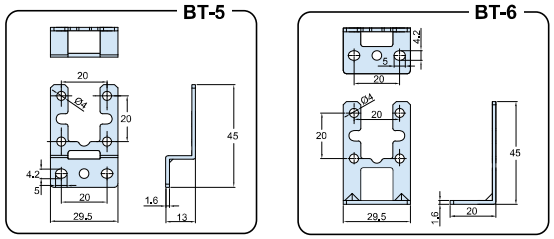
1 M8 Female Cordset model : KM84R-PVC-2M / KM84R-PVC-5M



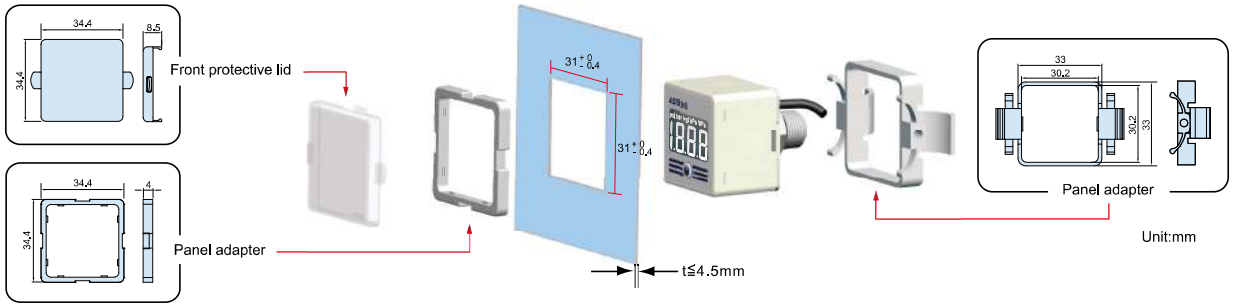


2 Mounting Bracket





3 Panel Mount Adapter + Front Protective Lid



AP70 SERIES

RoHS

Pressure Sensor

Features

- Smart pressure sensor
- Remote control
- Real-time monitoring
- RS-485 Modbus RTU/ASCII
- 4 digits, 7 segment LCD display

■ SPECIFICATIONS

TYPE	Compound	Vacuum	Positive
MODEL	AP70C	AP70V	AP70P
	1.0 MPa 100.0 kPa 0 -101.3 kPa		
Rated pressure range	-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range	-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~ -101.3 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5 ~145.0 psi)

■ FEATURES HIGHLIGHT

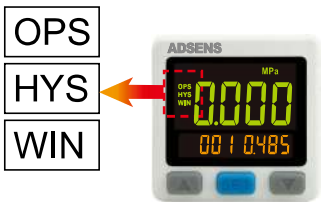
1 Station Setting Display

- Provide 0 ~ 255 station to set the sensor.

ID number display

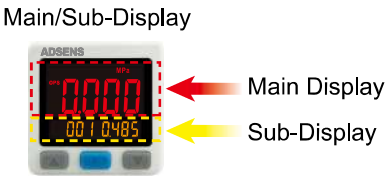
2 Modes Display

- Three modes show on the screen.



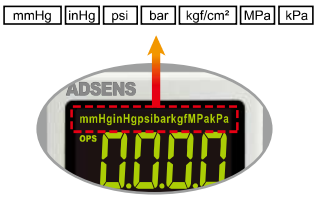
3 Setting Value Easy Indication

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



4 Easy Unit Identification

- Conversion unit is on display and easy to read.



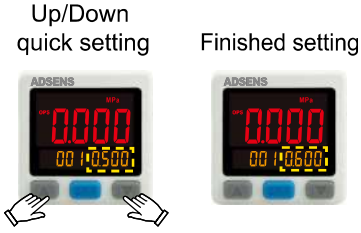
5 2-Color Main Display

- User programmable color mode, for different setting conditions.

	SoU	SoF	Crn	rEd
ON	Green	Red	Green	Red
OFF	Red	Green	Green	Red

6 OPS Quick Setting

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

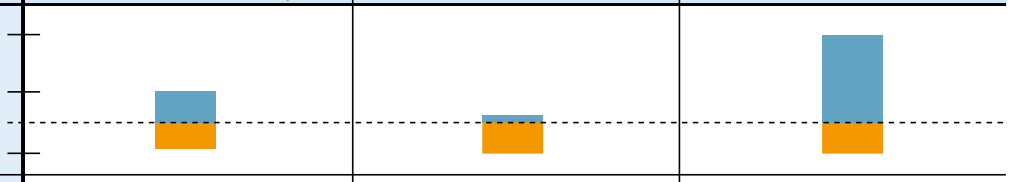


AP70 SERIES

RoHS

Pressure Sensor

■ SPECIFICATIONS

MODEL		AP70C (Compound)	AP70V (Vacuum)	AP70P (Positive)
				
Rated pressure range		-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range		-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~ -101.3 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.50 ~ 145.0 psi)
Withstand pressure		500 kPa (72.5 psi)		1.5 MPa (217.6 psi)
Fluid		Filtered air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa	0.1		-
	MPa	-		0.001
	kgf/cm²	0.001		0.01
	bar	0.001		0.01
	psi	0.01		0.1
	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 outputs Max. load current: 125mA Max. supply voltage: 30V DC Residual voltage: ≤ 1.5V		PNP: open collector 1 outputs Max. load current: 125mA Max. supply voltage: 24V DC Residual voltage: ≤ 1.5V
Repeatability(Switch output)		±0.2% F.S. ±1 digit		
Hysteresis	One point set mode	Adjustable(*1)		
	Hysteresis mode			
	Window comparator mode			
Response time		≤ 2.5ms (chattering-proof function: 25ms, 100ms, 250ms, 500ms, 1000ms, 1500ms, 2000ms and 5000ms selectable)		
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/s² (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		F1：R1/8", M5; F2：NPT1/8", #10-32 UNF; F3：G1/8"(BSPP), M5		
Lead wire		Oil-resistance cable(0.15mm²)		
Weight		Approx. 80g (with 2 meter lead wire)		

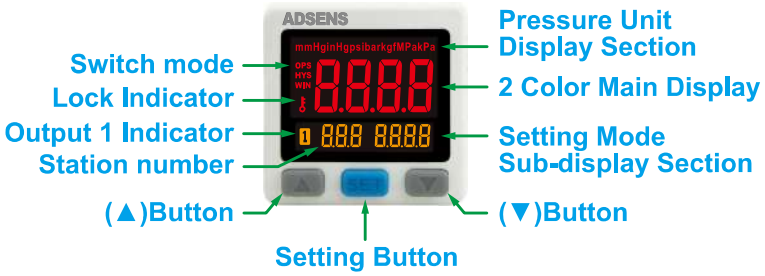
[NOTE] *1 : Hysteresis value is adjustable within 1 ~ 8 digits for one point set mode and window comparator mode.

AP70 SERIES

RoHS

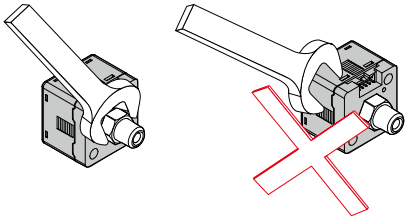
Pressure Sensor

■ PANEL DESCRIPTION



■ INSTALLATION PRECAUTIONS

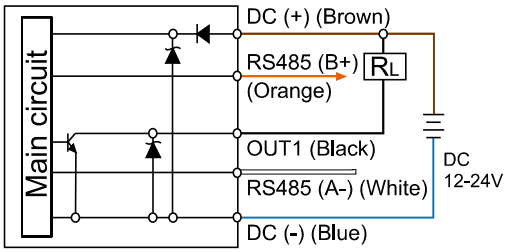
- When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.
- Over tightening may cause damages to the port thread, mounting bracket and pressure sensor. Under tightening may result loosen or leakage.
- Apply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



■ OUTPUT CIRCUIT WIRING DIAGRAMS

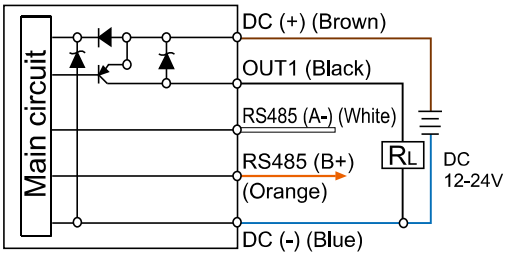
AP70 □ - 02 - □

NPN output + RS485



AP70 □ - 04 - □

PNP output + RS485



■ ORDERING INFORMATION

A P 7 0 C - 0 2 - F 1

Pressure Range

C : **Compound (-101.0 ~ 101.0 kPa) (-14.50 ~ 14.50 psi)**
V : **Vacuum (10.0 ~ -101.3 kPa) (1.45 psi ~ -29.9 inHg)**
P : **Positive (-0.100~1.000 MPa) (-14.5 ~ 145.0 psi)**

Output Specifications

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

Pressure Port

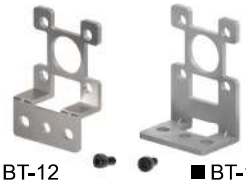
F1 : **R 1/8", M5**
F2 : **NPT 1/8", #10-32UNF**
F3 : **G 1/8"(BSPP), M5**

Optional Parts

BT-12 : Mounting bracket
BT-13 : Mounting bracket
PA-C : Panel adapter
PA-D : Panel adapter + Front protective lid

Optional Parts

Mounting bracket



■ BT-12 ■ BT-13

Panel adapter

■ PA-C

Panel adapter + Front protective lid

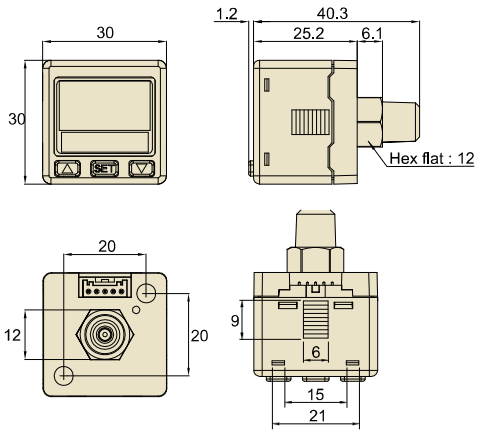
■ PA-D

AP70 SERIES

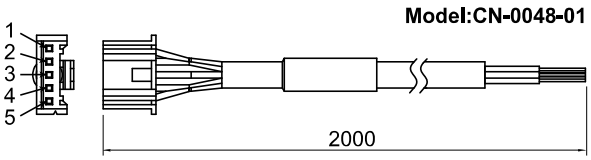
RoHS

Pressure Sensor

■ DIMENSIONS



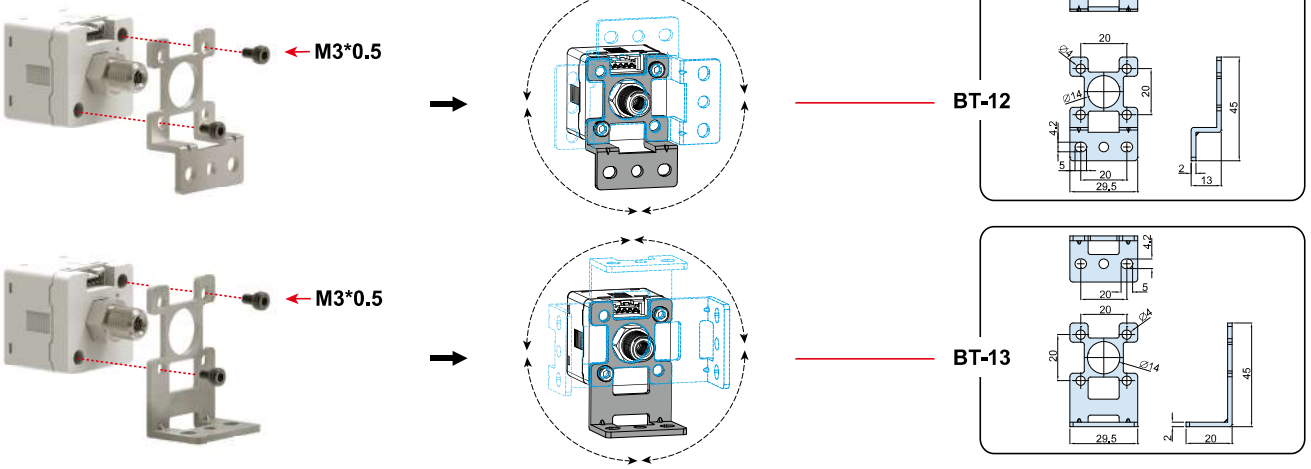
PIN No.	Wire Color
1	DC(+)(Brown)
2	Analog output(Orange)
3	OUT2(White)
4	OUT1(Black)
5	DC(-)(Blue)



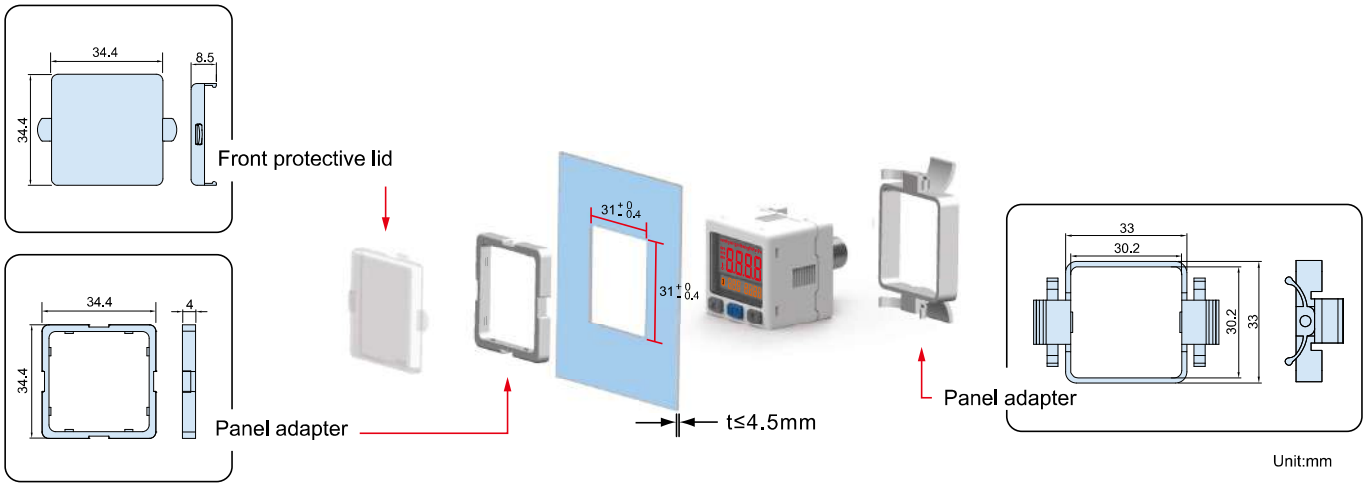
■ OPTIONAL PARTS DIMENSIONS

1 Mounting Bracket

4 mounting directions available



2 Panel Mount Adapter + Front Protective Lid



AP90 SERIES

RoHS

Pressure Sensor

Features

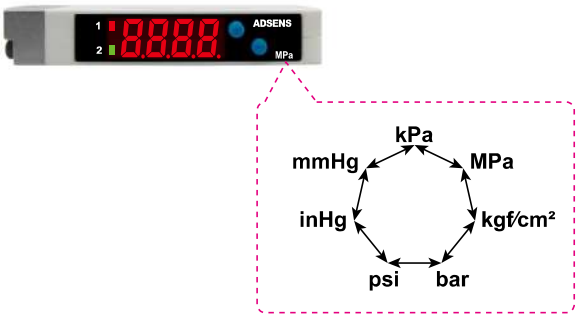
- 2 output & analog output (1~5V)
- 10mm width with compact size
- Key lock function
- Programmable pressure unit :
  kPa、MPa、bar、mmHg、inHg、kgf/cm²、psi

■ SPECIFICATIONS

TYPE	Compound	Vacuum	Positive
MODEL	AP90C	AP90V	AP90P
	1.0 MPa 100.0 kPa 0 -101.3 kPa		
Rated pressure range	-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range	-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~ -101.3 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.5 ~145.0 psi)

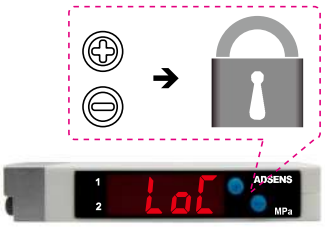
■ FEATURES HIGHLIGHT

1 Programmable pressure unit



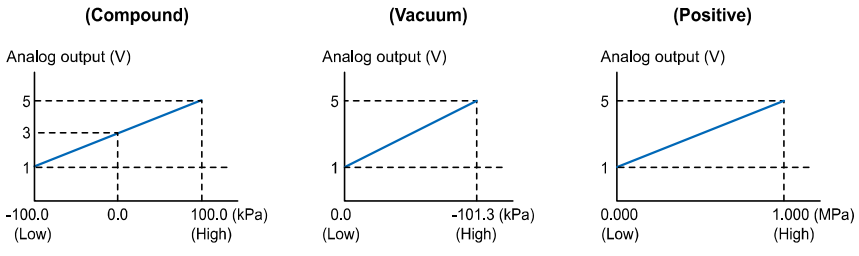
2 Key lock function

Key lock mode to prevent unauthorized adjustments
Press ⊕ and ⊖ button at the same time for 3 sec.



3 Analog output

Output range 1 to 5V, proportional to the pressure range



4 Compact size

KP90

VS.

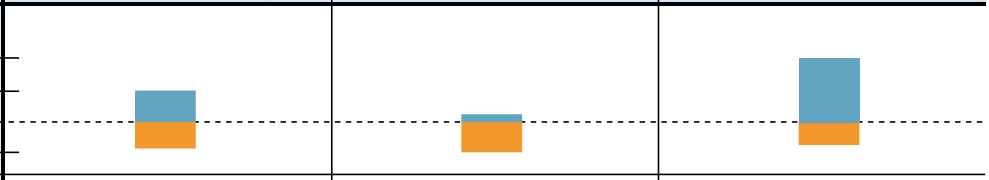
KP30

AP90 SERIES

RoHS

Pressure Sensor

■ SPECIFICATIONS

MODEL		AP90C (Compound)	AP90V (Vacuum)	AP90P (Positive)
				
Rated pressure range		-100.0 ~ 100.0 kPa (-14.50 ~ 14.50 psi)	0.0 ~ -101.3 kPa (0.0 ~ -29.9 inHg)	0.000 ~ 1.000 MPa (0.0 ~ 145.0 psi)
Setting pressure range		-101.0 ~ 101.0 kPa (-14.50 ~ 14.50 psi)	10.0 ~ -101.3 kPa (1.45 psi ~ -29.9 inHg)	-0.100 ~ 1.000 MPa (-14.50 ~ 145.0 psi)
Withstand pressure		500 kPa (72.5 psi)		1.5 MPa (217 psi)
Fluid		Filtered Air, Non-corrosive / Non-flammable gas		
Set pressure resolution	kPa	0.1		-
	MPa	-		0.001
	kgf/cm²	0.001		0.01
	bar	0.001		0.01
	psi	0.01		0.1
	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 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. ±1 digit		
Response time		≤ 2.5ms (chattering proof function: 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)		
Output short circuit protection		Yes		
7 segment LED display		4 digit LED 7display (RED)		
Indicator accuracy		±2% F.S. ±1 digit		
Switch ON Indicator		OUT1=RED , OUT2=GREEN		
Analog output (Voltage Output)		Output Voltage: 1 to 5V ±2.5% F.S. (within rated pressure range) Linearity: ±1% F.S. Output impedance: about 1kΩ		
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-150Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z		
	Shock	980m/s² (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		M5		
Lead wire		Oil-resistance cable(0.14mm²)		
Weight		Approx. 53g (with 2 meter lead wire)		

AP90 SERIES

RoHS

Pressure Sensor

■ PANEL DESCRIPTION

Switch (OUT1)
(Red LED)

(+)Button
Use the (+) button to change setting mode and pre-set desired value.

Switch (OUT2)
(Green LED)

(−)Button
Use the (-) button to change setting mode and pre-set desired value.

4 Digit LED Display
Pressure value display.

■ ORDERING INFORMATION

A P 9 0 P - 0 1 0 - M 5

Pressure Range

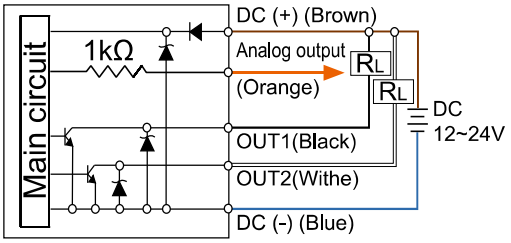
C : Compound (-101.0~101.0 kPa)
(-14.50 ~ 14.50 psi)
V : Vacuum (10.0~-101.3 kPa)
(1.45 psi ~29.9 inHg)
P : Positive (-0.100~1.000 MPa)
(-14.5 ~ 145.0 psi)

Output Specification

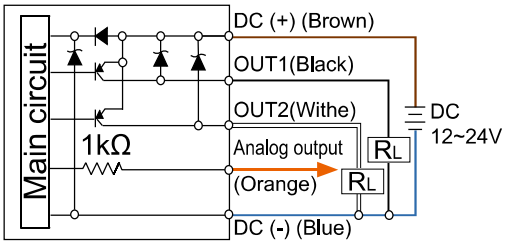
010 : 2 NPN output & Analog output(1~5V)
030 : 2 PNP output & Analog output(1~5V)

■ OUTPUT CIRCUIT WIRING DIAGRAMS

AP90 □- 010 - M5
2 NPN Output & Analog Output (1~5V)



AP90 □- 030 - M5
2 PNP Output & Analog Output (1~5V)



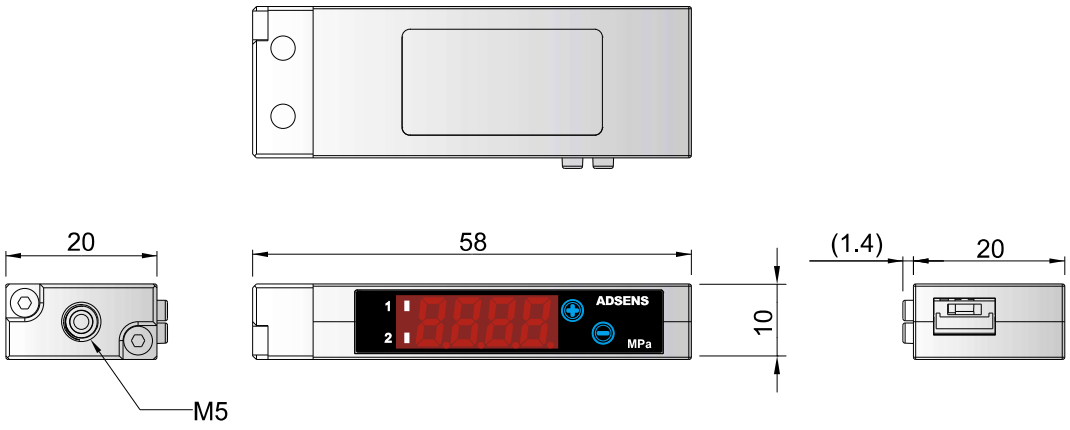
AP90 SERIES

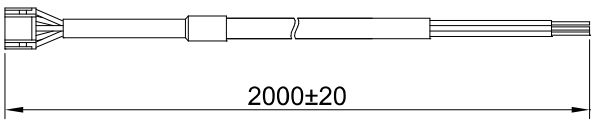
RoHS

Pressure Sensor

■ DIMENSIONS

AP90□- □ - M5



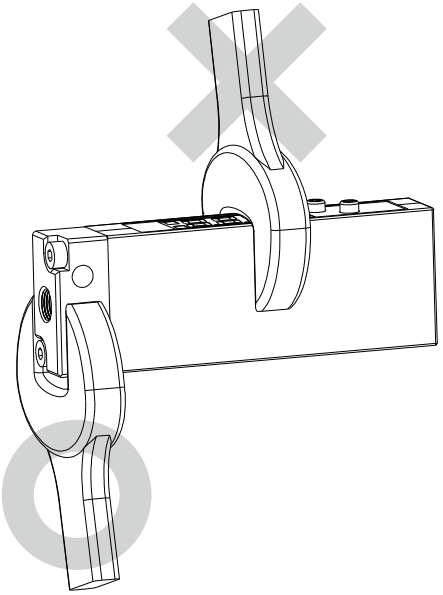


BROWN: +V (24V)
BLUE: 0V
BLACK: OUT1
WHITE: OUT2
ORANGE: ANALOG 1~5V

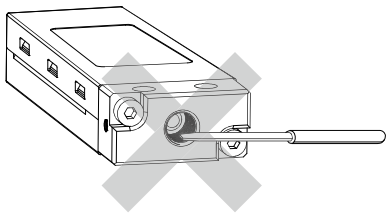
Unit:mm

■ INSTALLATION PRECAUTIONS

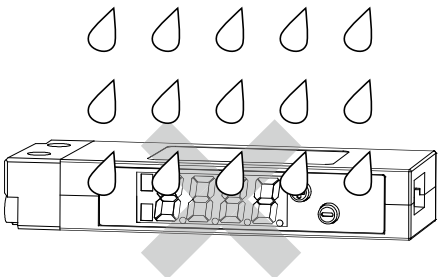
• When mounting, always use the wrench on the metallic area near the pressure port. Never apply a wrench to the plastic body, it will damage the sensor.



• Do not use a sharp tool to insert the pressure inlet to avoid damaging the sensor chip.



• Do not use the product in an environment that is exposed to the splash of water or dust. Otherwise failure or malfunction can result.



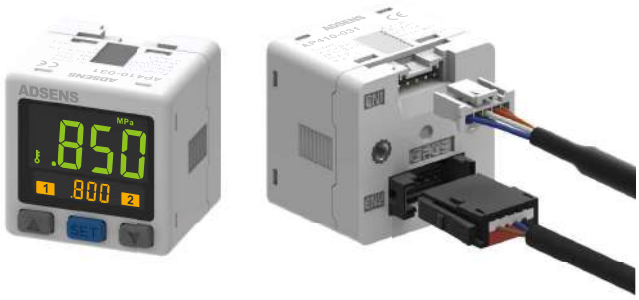
AP400 SERIES

RoHS

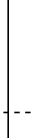
Pressure Sensor

Features

- 3-color digital LCD display, easy readout
- Programmable pressure unit :
  kPa、MPa、kgf/cm²、bar、psi、inHg、mmHg
- Dual LCD display allows setting value to be displayed
- Key lock indicator
- Analog output : 1-5V or 4-20mA
- Sensor input : 1-5V or 4-20mA
- 12 pressure ranges for transducer



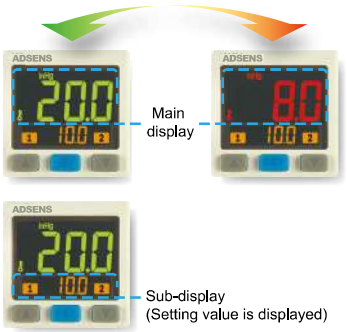
■ SPECIFICATION

MODEL	AP400											
	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12
40.0 MPa 1.0 MPa 100.0 kPa 0 -101.3 kPa												
	-101.3~0.0kPa -14.69~0.00psi	0.0~100.0kPa 0.00~14.50psi	0.0~2.0kPa 0.0~15.0mmHg	0.0~5.0kPa 0.0~37.5mmHg	-100.0~100.0kPa -14.50~14.50psi	-101.0~500.0kPa -14.7~72.5psi	0.000~1.000MPa 0.0~145.0psi	0.00~2.00MPa 0~290psi	0.00~2.50MPa 0~363psi	0.00~10.00MPa 0~1450psi	0.0~25.0MPa 0~362psi	0.0~40.0MPa 0~580psi
	10.0~-101.3kPa -14.69~1.45psi	-10.0~100.0kPa -1.45~14.5psi	-0.2~2.0kPa -1.5~15.0mmHg	-0.5~5.0kPa -3.75~37.5mmHg	-100.0~100.0kPa -14.50~14.50psi	-101.0~500.0kPa -14.7~72.5psi	-0.100~1.000MPa -14.5~145.0psi	-0.10~2.00MPa -15~290psi	-0.100~2.5MPa -15~363psi	0.00~10.00MPa 0~1450psi	0.0~25.0MPa 0~362psi	0.0~40.0MPa 0~580psi
	-101.3~101.3kPa -14.69~14.69psi	-100.0~100.0kPa -14.50~14.50psi	-2.0~2.0kPa -15.0~15.0mmHg	-5.0~5.0kPa -37.5~37.5mmHg	-100.0~100.0kPa -14.50~14.50psi	-500.0~500.0kPa -72.5~72.5psi	-1.000~1.000MPa -145.0~145.0psi	-2.0~2.0MPa -290~290psi	-2.5~2.5MPa -363~363psi	-10.00~10.00MPa -1450~1450psi	-25.0~25.0MPa -362~362psi	-40.0~40.0MPa -580~580psi

■ FEATURES HIGHLIGHT

1 3-color digital LCD display

Main display color change with output status
Green <-> Red
Red <-> Green

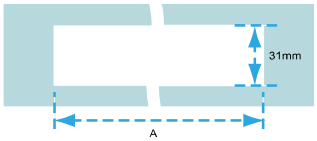


2 Programmable pressure unit

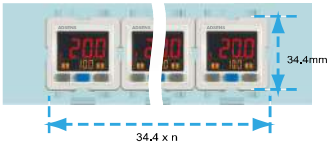
- User selectable pressure unit is indicated on the sub-display section, eliminate pressure unit label
- 7 user programmable pressure units available

3 Save installation space

One panel opening suitable for side-by-side mounting.

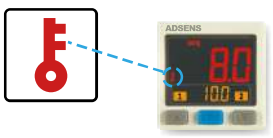


Calculation factor (A) = (34.4 x n) - 3.4
n = number of switches
Actual dimension after installation

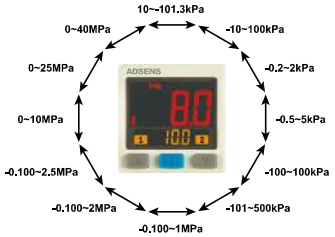


4 Key lock function

Key lock icon is shown on the display when the function is enabled.

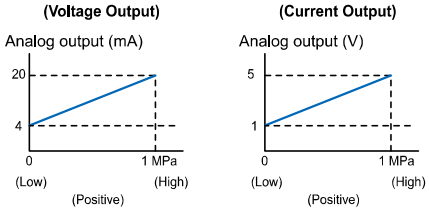


5 12 pressure ranges for transducer



6 Analog output / Sensor input

Current output or voltage output is available

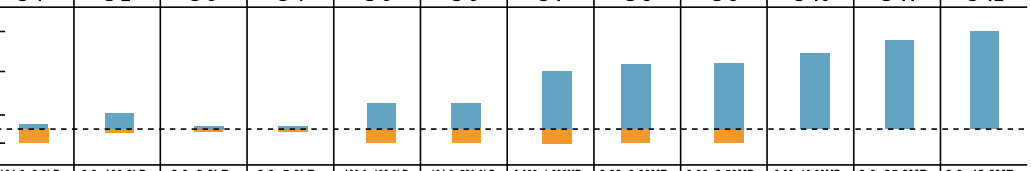


AP400 SERIES

RoHS

Pressure Sensor

■ SPECIFICATION

MODEL		AP400											
SENSOR TYPE		S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12
													
Rated pressure range		-101.3~0.0kPa -14.69~0.00psi	0.0~100.0kPa 0.00~14.50psi	0.0~2.0kPa 0.0~15.0mmHg	0.0~5.0kPa 0.0~37.5mmHg	-100.0~100.0kPa -14.50~14.50psi	-101.0~500.0kPa -14.7~72.5psi	0.000~1.000MPa 0.0~145.0psi	0.00~2.00MPa 0~290psi	0.00~2.50MPa 0~363psi	0.00~10.00MPa 0~1450psi	0.0~25.0MPa 0~362psi	0.0~40.0MPa 0~580psi
Setting pressure range		-10.0~-101.3kPa -14.69~1.45psi	-10.0~100.0kPa -1.45~14.5psi	-0.2~2.0kPa -1.5~15.0mmHg	-0.5~5.0kPa -3.75~37.5mmHg	-100.0~100.0kPa -14.50~14.50psi	-101.0~500.0kPa -14.7~72.5psi	-0.100~1.000MPa -14.5~145.0psi	-0.10~2.00MPa -15~290psi	-0.100~2.5MPa -15~363psi	0.00~10.00MPa 0~1450psi	0.0~25.0MPa 0~362psi	0.0~40.0MPa 0~580psi
Setting pressure range (Auto-shift input)		-101.3~101.3kPa -14.69~14.69psi	-100.0~100.0kPa -14.50~14.50psi	-2.0~2.0kPa -15.0~15.0mmHg	-5.0~5.0kPa -37.5~37.5mmHg	-100.0~100.0kPa -14.50~14.50psi	-500.0~500.0kPa -72.5~72.5psi	-1.000~1.000MPa -145.0~145.0psi	-2.0~2.0MPa -290~290psi	-2.5~2.5MPa -363~363psi	-10.00~10.00MPa -1450~1450psi	-25.0~25.0MPa -362~362psi	-40.0~40.0MPa -580~580psi
Set pressure resolution	kPa	0.1	0.1	0.01	0.01	0.1	1	-	-	-	-	-	-
	MPa	-	-	-	-	-	-	0.001	0.01	0.01	0.01	0.1	0.1
	kgf/cm^2	0.001	0.001	-	-	0.001	0.01	0.01	0.1	0.1	0.1	1	1
	bar	0.001	0.001	-	-	0.001	0.01	0.01	0.1	0.1	0.1	1	1
	psi	0.01	0.01	-	-	0.01	0.1	0.1	1	1	1	1*4	1*4
	inHg	0.1	-	-	-	0.1	-	-	-	-	-	-	-
	mmHg	1	-	0.1	0.1	1	-	-	-	-	-	-	-
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less											
Current consumption		≤ 40mA (With no load)											
Sensor input		1~5V or 4~20mA											
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)		±0.1% F.S. ±1 digit											
Hysteresis	One point set mode	Adjustable (*1)											
	Hysteresis mode												
	Window comparator mode												
Response time		≤ 2.5ms (chattering-proof function : 25ms, 100ms, 250ms, 500ms, 1000ms and 1500ms selectable)											
Output short circuit protection		Yes											
7 segment LCD display		Three color (Red/Green) main & unit display, Orange sub-display (Sampling rate : 5 times/1sec.)											
Indicator accuracy		±1% F.S. ±1 digit (Ambient temperature: 25 ±3°C)											
Switch ON Indicator		Orange (OUT1 and OUT2 indicator)											
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	IP 40											
	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		±0.5% F.S. of detected pressure (25°C) at temp. Range of 0~50°C											
Lead wire		Oil-resistance cable (0.15mm^2)											
Weight		Approx. 67g (with 2-meter lead wire)											

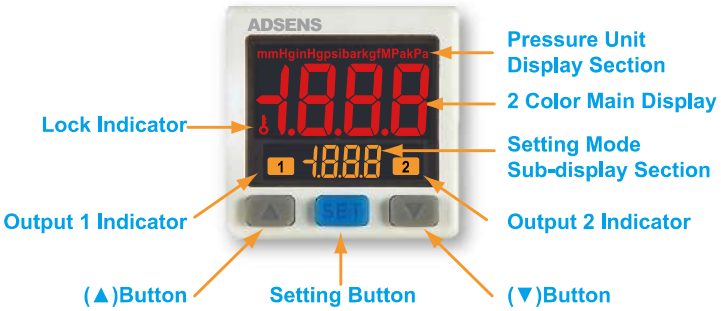
*1. Hysteresis value is adjustable within 1 ~ 8 digits for one point set mode and window comparator mode.
*2. If analog voltage output is selected, the analog current output cannot be selected at the same time.
*3. If analog current output is selected, the analog voltage output cannot be selected at the same time.
*4. If set pressure unit is psi, the value requires to ten multiply by display value.

AP400 SERIES

RoHS

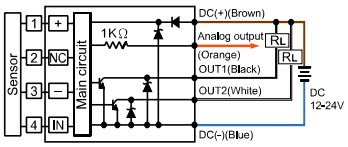
Pressure Sensor

■ PANEL DESCRIPTION

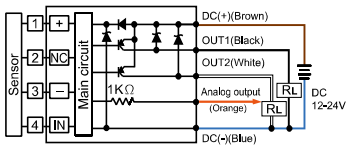


■ OUTPUT CIRCUIT WIRING DIAGRAMS

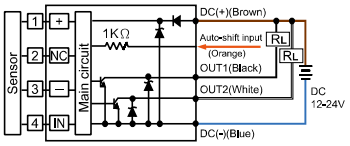
AP4□0 - 010
2 NPN + Analog (Voltage) Output (1-5V)



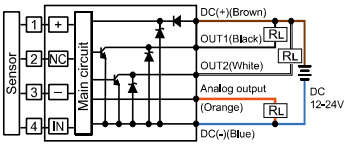
AP4□0 - 030
2 PNP + Analog (Voltage) Output (1-5V)



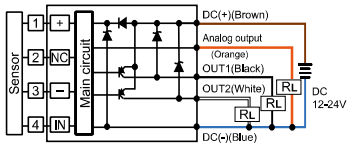
AP4□0 - 05
2 NPN output & Auto-shift input



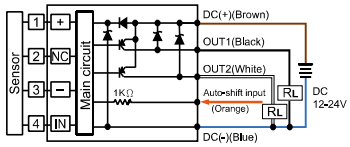
AP4□0 - 011
2 NPN + Analog (Current) Output (4-20mA)



AP4□0 - 031
2 PNP + Analog (Current) Output (4-20mA)



AP4□0 - 07
2 PNP output & Auto-shift input



■ ORDERING INFORMATION

A P 4 1 0 - 0 1 0

Input Specifications
1: Voltage input
2: Current input

Output Channel
0: 1 Channel

Standard Part
CN-0048-01:
Power supply / Output connection cable

Standard Part

Input / Output Specifications
010: 2 NPN outputs & 1 Analog output (1-5V)
011: 2 NPN outputs & 1 Analog output (4-20mA)
05: 2 NPN outputs & 1 Auto-shift input
030: 2 PNP outputs & 1 Analog output (1-5V)
031: 2 PNP outputs & 1 Analog output (4-20mA)
07: 2 PNP outputs & 1 Auto-shift input

Optional Parts
BT-8: Mounting bracket
BT-9: Mounting bracket
PA-C: Panel adapter
PA-D: Panel adapter + Front protective lid
CN-0046A: Sensor connector Ø0.8 ~ Ø1.0 mm, 26~24AWG
CN-0046B: Sensor connector Ø1.0 ~ Ø1.2 mm, 26~24AWG
CN-0046C: Sensor connector Ø1.2 ~ Ø1.6 mm, 26~24AWG
AP10□-01: Transducer

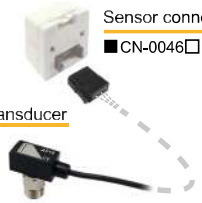
Optional Parts

Mounting bracket

■ BT-8 ■ BT-9

Sensor connector
■ CN-0046□

Transducer



■ AP10□-01

Panel adapter

■ PA-C

Panel adapter+Front protective lid

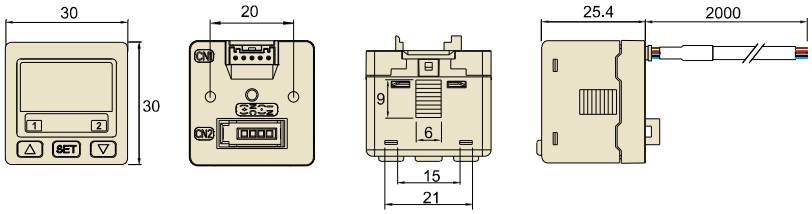
■ PA-D

AP400 SERIES

RoHS

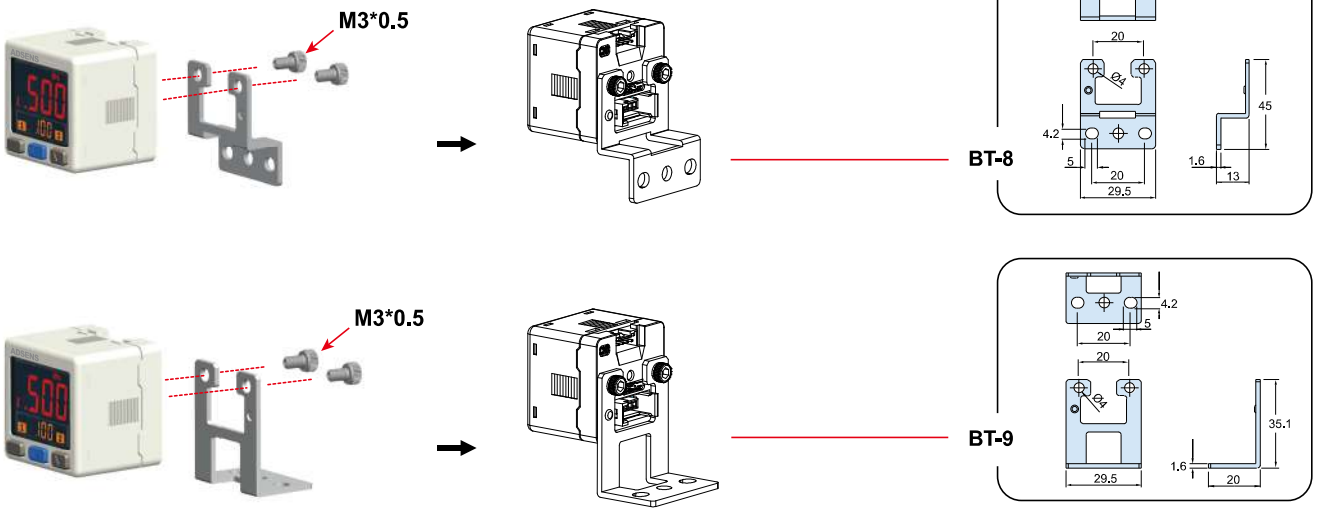
Pressure Sensor

■ DIMENSION

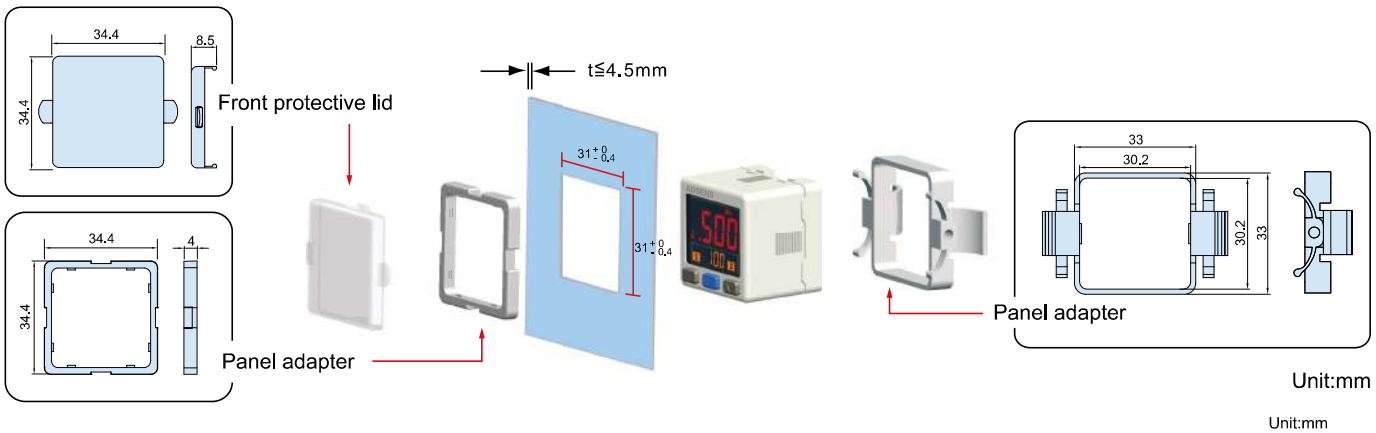


■ OPTIONAL PARTS DIMENSIONS

1 Mounting Bracket



2 Panel Mount Adapter + Front Protective Lid



Unit:mm

AP610 SERIES

RoHS

Pressure Sensor

Features

- Differential pressure sensor
- Analog output : 1~5V or 4~20mA
- Pressure range : 0~2 kPa or 0~5 kPa
  (0~0.29 psi or 0~0.725 psi)
- Simple installation, applicable to ø6 air tubing
- IP40 enclosure

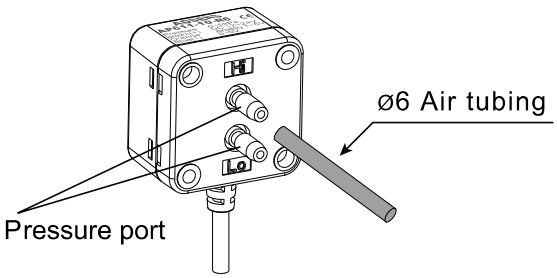
■ SPECIFICATIONS

MODEL	AP611	AP612
	5 kPa 2 kPa 0	
Rated differential pressure range	0 ~ 5 kPa (0 ~ 0.72 psi)	0 ~ 2 kPa (0 ~ 0.29 psi)

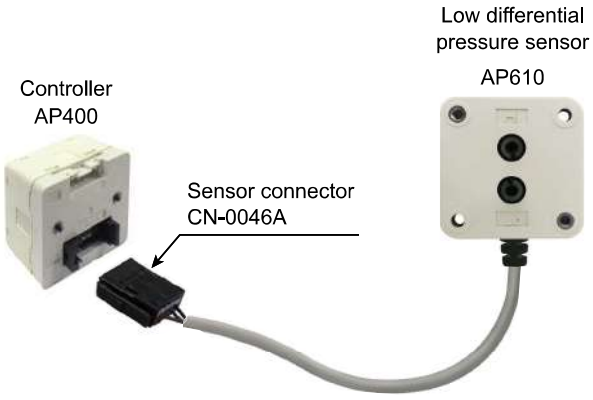
■ FEATURES HIGHLIGHT

1 Simple installation

Plug-in port for air tubing

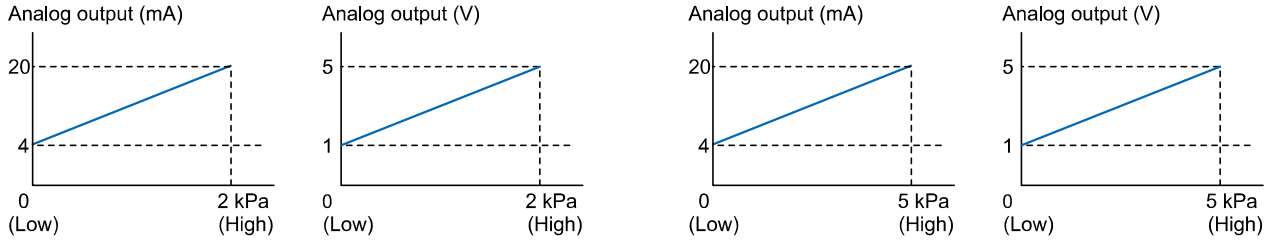


Plug connect with controller



2 Analog output

1 Analog output
Output range 1 to 5V or 4 to 20mA, proportional to the pressure range



AP610 SERIES

RoHS

Pressure Sensor

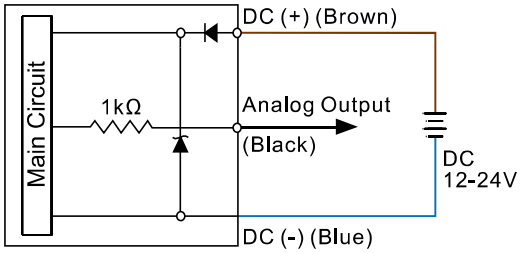
■ SPECIFICATIONS

MODEL		AP611	AP612
		5 kPa 2 kPa 0	
Rated differential pressure range		0 ~ 5 kPa (0 ~ 0.72 psi)	0 ~ 2 kPa (0 ~ 0.29 psi)
Operating pressure range		-50 ~ 50 kPa (-7.25 ~ 7.25 psi) (*1)	
Withstand pressure		65 kPa (9.42 psi)	
Fluid		Filtered air, Non-corrosive / Non-flammable gas	
Power supply voltage		12 to 24V DC ±10%, Ripple (P-P) 10% or less	
Current consumption		≤ 15mA(With no load)	
Analog output (Voltage Output)		Output Voltage: 1 to 5V ±1% F.S. (within rated pressure range) Linearity: ±0.5% F.S. Output impedance: about 1kΩ	
Analog output (Current Output)		Output Current: 4 to 20mA ±1% F.S.(within rated pressure range) Linearity: ±0.5% F.S. Max.Load Impedance: 250Ω at power supply of 12V 600Ω at power supply of 24V	
Environment	Enclosure	IP 40	
	Ambient temp. range	Operation: 0 ~ 50°C, Storage:-20 ~ 70°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-150Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z	
	Shock	300m/s² (30G), 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		Ø4.8 (Ø4.4 in the end) resin pipe (Applicable to Ø6 air tubing)	
Lead wire		Oil-resistance cable (0.15mm²)	
Weight		Approx. 75g (with 2-meter lead wire)	

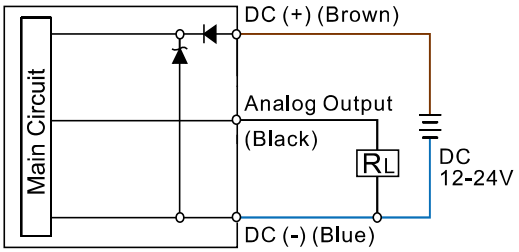
[NOTE] *1 : To detect differential pressure from 0~2 kPa or 0~5 kPa within the range of -50~50 kPa

■ OUTPUT CIRCUIT WIRING DIAGRAMS

AP61□-10-R6
Analog Output(1~5V)



AP61□-11-R6
Analog Output(4~20mA)



AP610 SERIES

RoHS

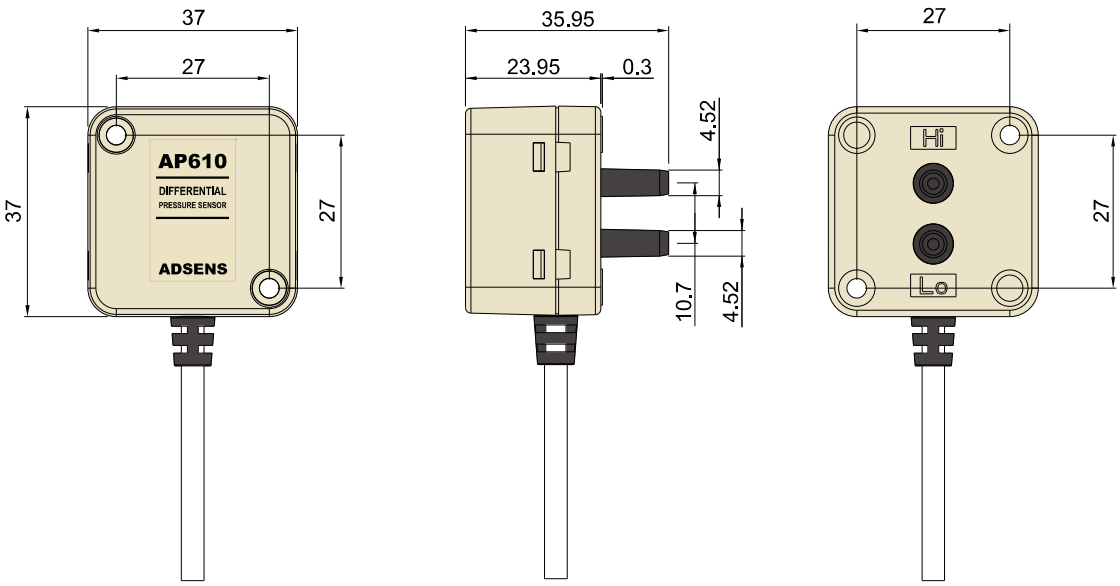
Pressure Sensor

■ ORDERING INFORMATION

A P 6 1 1 - 1 0 - R 6

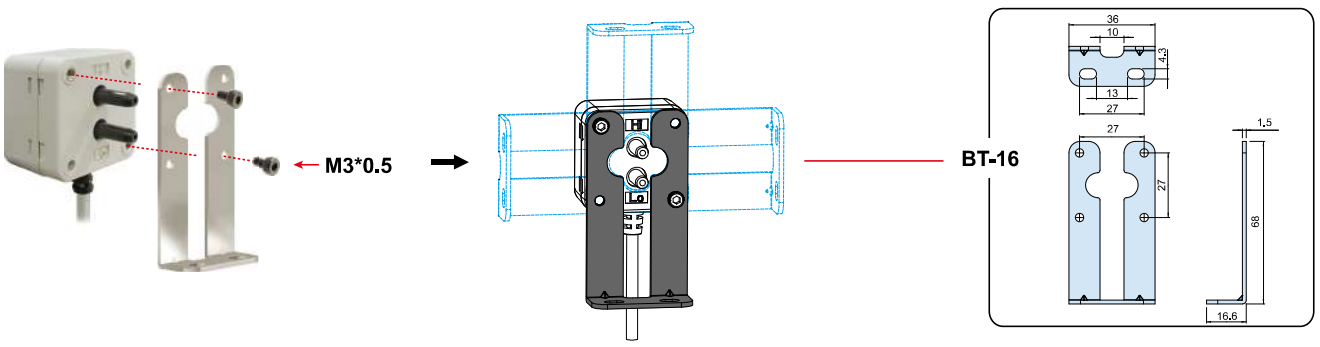
Pressure Range	*Output Specifications*	*Optional Parts*
1：0~5 kPa (0 ~ 0.72 psi)	10：Analog output (1~5V)	BT-16：Mounting bracket
2：0~2 kPa (0 ~ 0.29 psi)	11：Analog output (4~20mA)	

■ DIMENSIONS



■ OPTIONAL PARTS DIMENSIONS

Mounting Bracket



Unit:mm

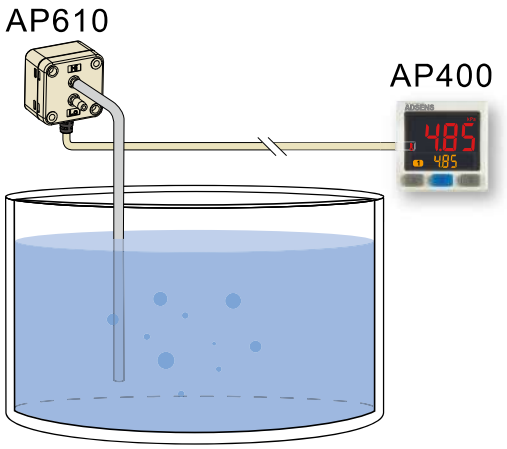
AP610 SERIES

RoHS

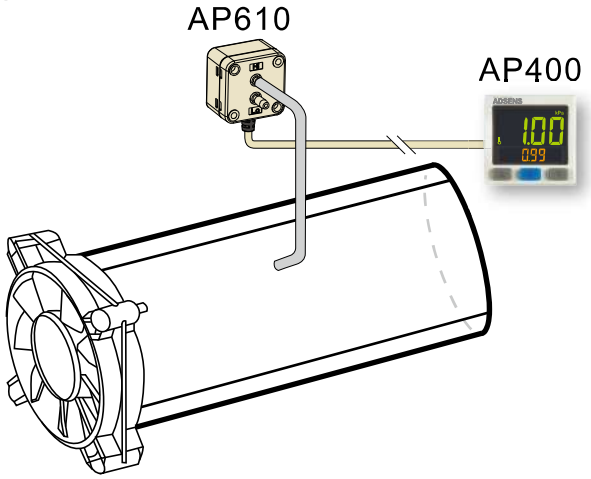
Pressure Sensor

■ APPLICATION

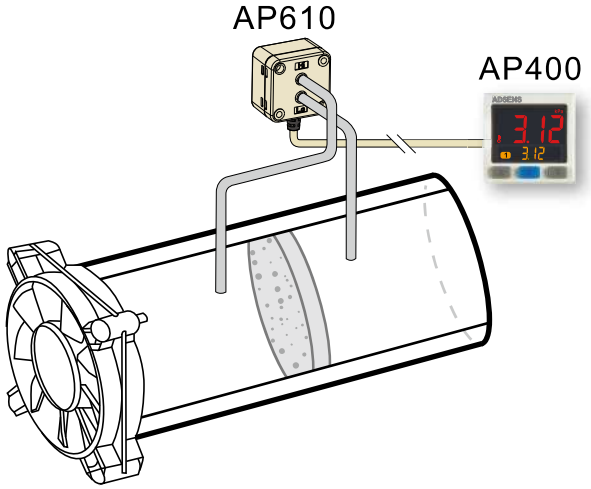
1. Liquid level detection
   To detect the liquid level by sensing the change of line pressure.



2. Air Flow detection



3. Filter air monitoring
   To monitor the clogging of filter by detecting the differential pressure.



AP800 SERIES

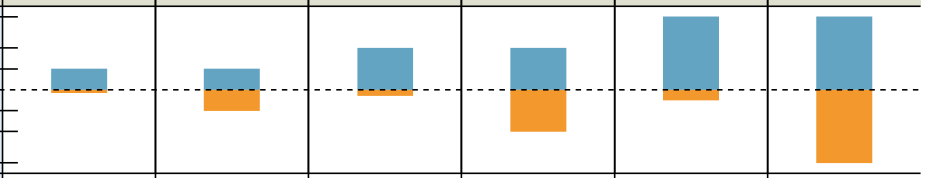
RoHS

Pressure Sensor

Features

- Digital LCD display, easy readout
- Analog output：1~5V, 4~20mA
- IP40 enclosure
- Pressure range 0~1kPa, 0~2kPa, 0~5kPa
  -1~1kPa, -2~2kPa, -5~5kPa

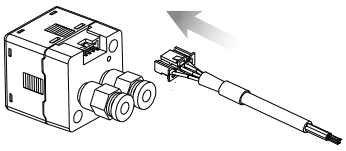
■ SPECIFICATIONS

MODEL	AP801	AP811	AP802	AP812	AP805	AP815
5 kPa 2 kPa 1 kPa 0 -1 kPa -2 kPa -5 kPa						
Rated pressure range	0 ~ 1000 Pa (0 ~ 0.145 psi)	-1000 ~ 1000 Pa (-0.145 ~ 0.145 psi)	0.00 ~ 2.00 kPa (0 ~ 0.29 psi)	-2.00 ~ 2.00 kPa (0.29 ~ 0.29 psi)	0.0 ~ 5.00 kPa (0 ~ 0.725 psi)	-5.00 ~ 5.00 kPa (-0.725 ~ 0.725 psi)
Setting pressure range	-100 ~ 1000 Pa (-14.5 ~ 145 psi)	-1000 ~ 1000 Pa (-145 ~ 145 psi)	-0.20 ~ 2.00 kPa (-0.029 ~ 0.29 psi)	-2.00 ~ 2.00 kPa (-0.29 ~ 0.29 psi)	-0.50 ~ 5.00 kPa (-0.0725 ~ 0.725 psi)	-5.00 ~ 5.00 kPa (-0.725 ~ 0.725 psi)

■ FEATURES HIGHLIGHT

1 Quick Installation

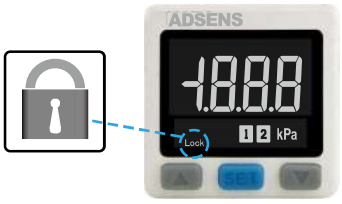
- Save Installation Time.
- Easy Removal.



(Removable data cable)

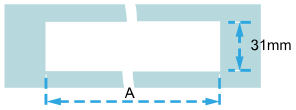
2 Key lock function

- Key lock icon is shown on the display when the function is enabled.



3 Save installation space

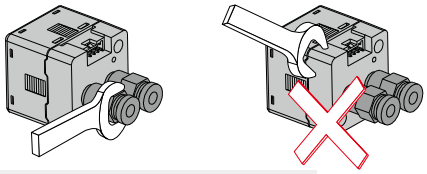
- Panel opening for multiple pressure controller



- Calculation factor (A) = (34.4 x n) - 3.4
  n = number of controller
- Actual dimension after installation

■ 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.



■ PANEL DESCRIPTION

AP800 SERIES

RoHS

Pressure Sensor

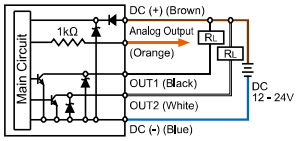
■ SPECIFICATIONS

MODEL		AP801	AP811	AP802	AP812	AP805	AP815
		5 kPa 2 kPa 1 kPa 0 -1 kPa -2 kPa -5 kPa					
Rated pressure range		0 ~ 1000 Pa (0 ~ 0.145 psi)	-1000 ~ 1000 Pa (-0.145 ~ 0.145 psi)	0.00 ~ 2.00 kPa (0 ~ 0.29 psi)	-2.00 ~ 2.00 kPa (0.29 ~ 0.29 psi)	0.0 ~ 5.00 kPa (0 ~ 0.725 psi)	-5.00 ~ 5.00 kPa (-0.725 ~ 0.725 psi)
Setting pressure range		-100 ~ 1000 Pa (-14.5 ~ 145 psi)	-1000 ~ 1000 Pa (-145 ~ 145 psi)	-0.20 ~ 2.00 kPa (-0.029 ~ 0.29 psi)	-2.00 ~ 2.00 kPa (-0.29 ~ 0.29 psi)	-0.50 ~ 5.00 kPa (-0.0725 ~ 0.725 psi)	-5.00 ~ 5.00 kPa (-0.725 ~ 0.725 psi)
Withstand pressure		3 kPa (0.435 psi)		6 kPa (0.87 psi)		15 kPa (2.175 psi)	
Fluid		Filtered air, Non-corrosive / Non-flammable gas					
Set pressure resolution	Pa	1		-			
	kPa	-		0.01			
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)		±0.5% F.S. ±1 digit					
Hysteresis	Hysteresis mode	Adjustable					
	Window comparator mode						
Response time		≤ 2.0ms (chattering-proof function: 32ms, 128ms, 1024ms selectable)					
Output short circuit protection		Yes					
7 segment LCD display		One color(White) (Sampling rate: 0.1 ~ 3 sec select)					
Indicator accuracy		±2% F.S. ±1 digit (ambient temperature: 25 ±3°C)					
Switch ON Indicator		White (1&2 Indicator) OUT1 OUT2					
Analog output (Voltage Output) (*1)		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) (*2)		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	IP 40					
	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-150Hz-10Hz scan for 1 minute, two hours each direction of X, Y and Z					
	Shock	100m/s² (10G), 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		M5					
Lead wire		Oil-resistance cable(0.15mm²)					
Weight		Approx. 75g (with 2 meter lead wire)					

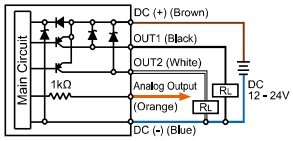
[NOTE] *1 : If analog voltage output is selected, the analog current output cannot be selected at the same time.
*2 : If analog current output is selected, the analog voltage output cannot be selected at the same time.

■ OUTPUT CIRCUIT WIRING DIAGRAMS

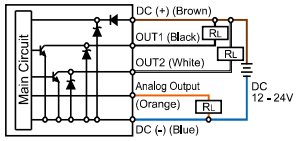
AP8□- 010 - M5
2 NPN + Analog Output(1~5V)



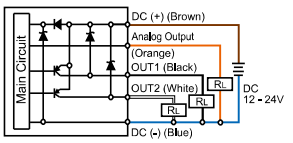
AP8□- 030 - M5
2 PNP + Analog Output(1~5V)



AP8□- 011 - M5
2 NPN + Analog Output(4~20mA)



AP8□- 031 - M5
2 PNP + Analog Output(4~20mA)



AP800 SERIES

RoHS

Pressure Sensor

■ ORDERING INFORMATION

A P 8 0 1 - 0 1 0 - M 5

Pressure Range

01 : (-100 ~ 1000 Pa) (-14.5 ~ 145 psi)
02 : (-0.20 ~ 2.00 kPa) (-0.029 ~ 0.29 psi)
05 : (-0.50 ~ 5.00 kPa) (-0.725 ~ 0.725 psi)
11 : (-1000 ~ 1000 Pa) (-145 ~ 145 psi)
12 : (-2.00 ~ 2.00 kPa) (-0.0725 ~ 0.725 psi)
15 : (-5.00 ~ 5.00 kPa) (-0.725 ~ 0.725 psi)

Output Specifications

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

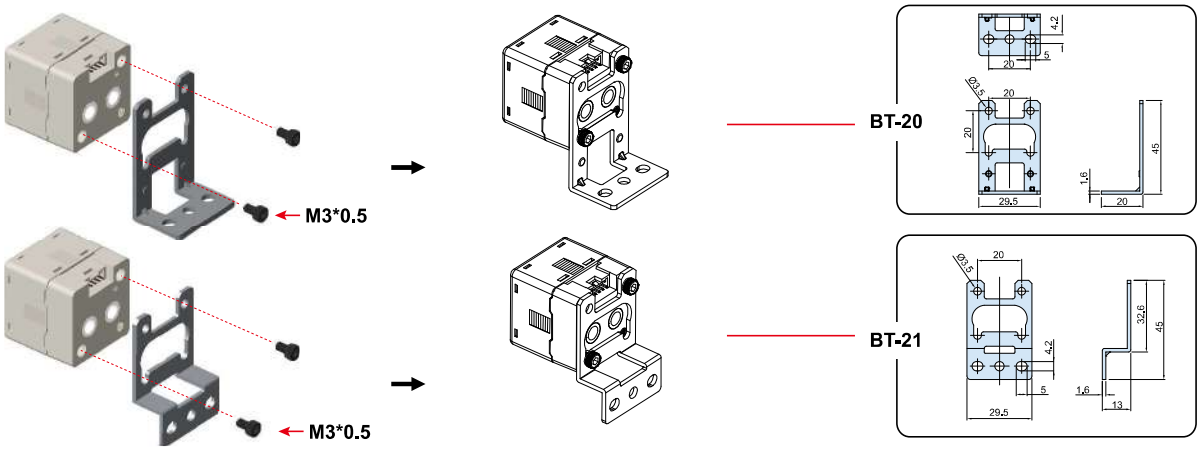
Optional Parts

Mounting bracket | Panel adapter | Panel adapter + Front protective lid

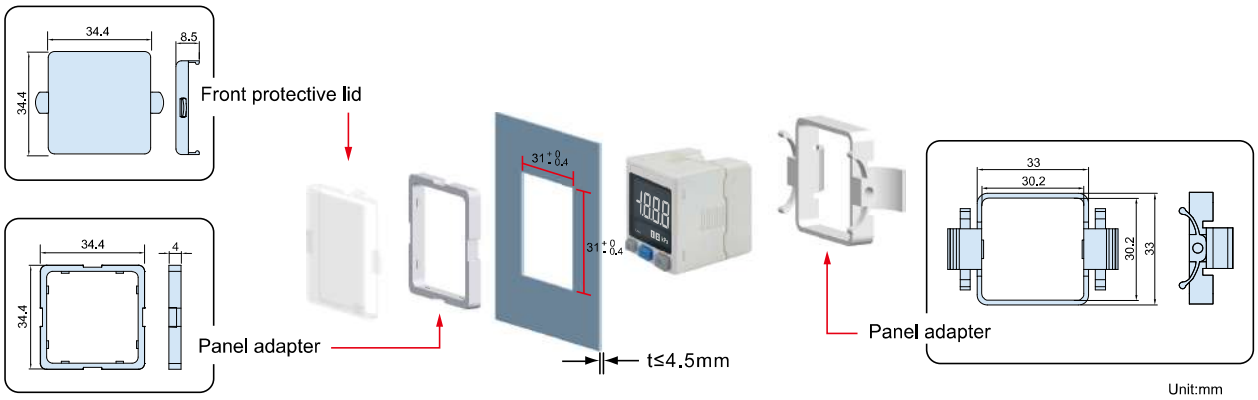
■ BT-20 ■ BT-21 ■ PA-C ■ PA-D

■ OPTIONAL PARTS DIMENSIONS

1 Mounting Bracket



2 Panel Mount Adapter + Front Protective Lid

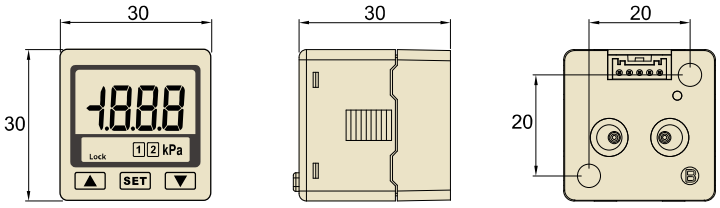


AP800 SERIES

RoHS

Pressure Sensor

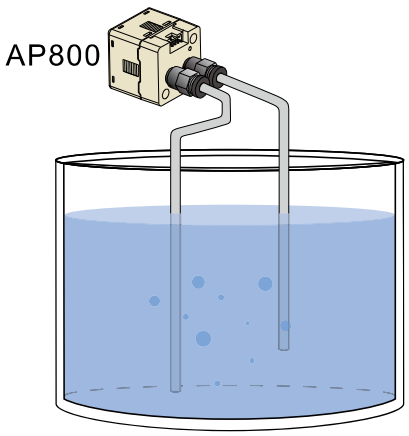
■ DIMENSIONS



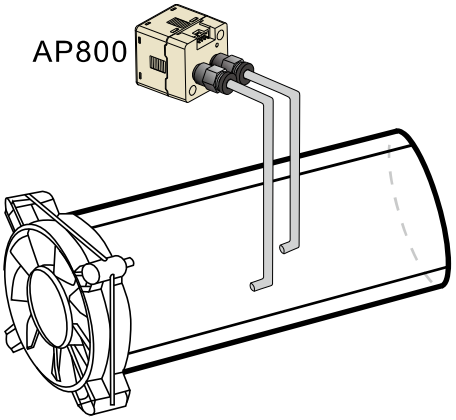
■ APPLICATION

1. Liquid level detection

   To detect the liquid level by sensing the change of line pressure.

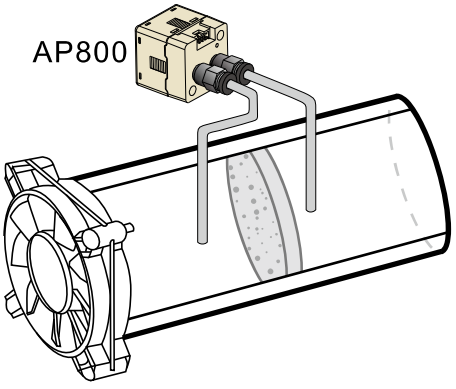


2. Air Flow detection



3. Filter air monitoring

   To monitor the clogging of filter by detecting the differential pressure.



Magnetic Sensor

CS-05 series

2-06

CS-06 series

2-07

CS-07 series

2-08

CS-11 series

2-09

CS-15 series

2-10

CS-16 series

2-11

CS-18 series

2-12

CS-21 series

2-13

CS-30 series

2-15

CS-31 series

2-16

CS-33 series

2-17

CS-36 series

2-18

CS-37 series

2-19

CS-38 series

2-20

CS-40 series

2-21

CS-47 series

2-22

CS-48 series

2-23

CS-50 series

2-24

CS-53 series

2-25

CS-58 series

2-26

CS-59 series

2-27

CS-65 series

2-29

CS-71 series

2-32

CS-75 series

2-33

CS-77 series

2-34

CS-6100 series

2-35

CS-6200 series

2-36

Bracket

2-40

Clamp

2-43

Magnet

2-49

CS-65-EX & CS-65-UL

Patented

2-30/31

CS-28

Magnetic Proximity Sensor

2-14

CS-1000D

Weld-field Immune Sensor

2-37

CS-1001D

Weld-field Immune Sensor

2-39

ORDERING INFORMATION

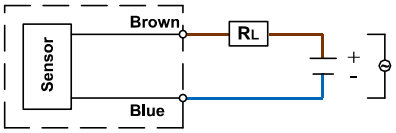
C S- 0 6 R H- 2 M

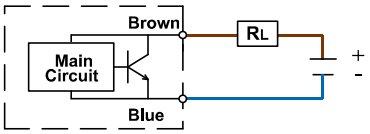
- SENSOR MODEL
- SWITCH TYPE
  - R=Reed Switch 2 wire type
  - RP=Reed Switch 3 wire current sourcing
  - RN=Reed Switch 3 wire current sinking
  - P=Solid state type, Current sourcing(PNP output)
  - N=Solid state type, Current sinking(NPN output)
  - D=Solid state type, 2-Wire
  - T=TRIAC output
  - R-NC=REED/N.C
  - P-NC=PNP/N.C
  - N-NC=NPN/N.C
- SPECIAL MARK
  - None=Standard Sensitivity
  - H=High Sensitivity
  - L=Low Sensitivity
  - X=NO Indicator
- CABLE LENGTH / QD PINOUT
  - QD=M8 male connector
  - EQD=M8 male connector for ²-wire type
  - ¹M=The length of cable is ¹ meter
  - ²M=The length of cable is ² meters
  - ³M=The length of cable is ³ meters
  - ⁵M=The length of cable is ⁵ meters
  - ¹⁰M=The length of cable is ¹⁰ meters

CONNECTION METHOD

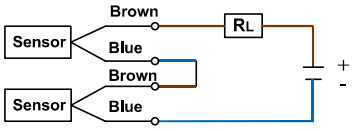
2 wire sensor connection

▶ General connection



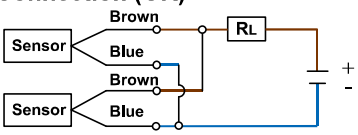


▶ Series Connection (AND)



When connecting 2-wire sensors in series (AND), don't exceed more than two sensors due to the internal voltage drop (Typical V drop=2.5~4V per switch). Excessive Voltage drop will cause non-operation of the load.

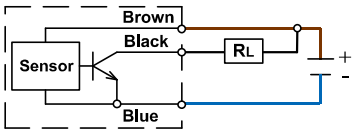
▶ Parallel Connection (OR)



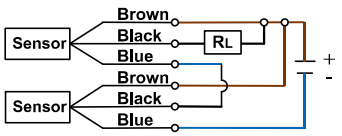
1. When connecting non-contact 2-wire sensors in parallel (OR), leakage current will increase and cause improper load operation.
2. When connecting 2-wire reed sensors in parallel(OR), possible concurrent operation will cause dim LED illumination due to lower current distribution.

3 wire NPN connection

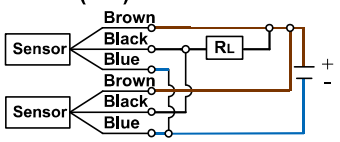
▶ General connection



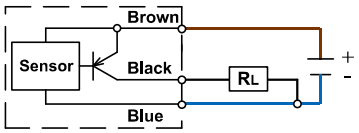
▶ Series connection (AND)

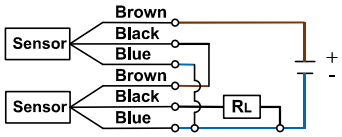


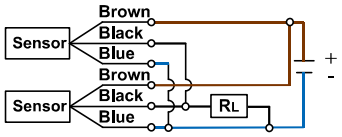
▶ Parallel connection (OR)



3 wire PNP connection



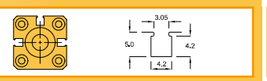
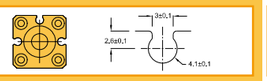
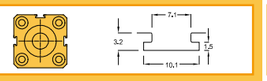
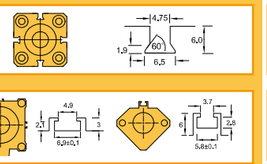
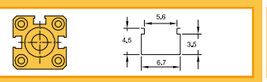
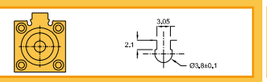
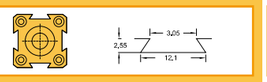
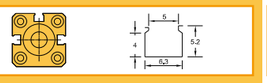
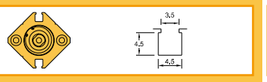




Cylinder / Magnetic SW. Cross Index

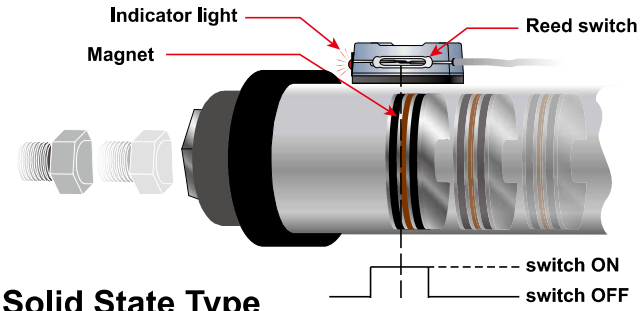
CS-05 CS-06 CS-07 CS-11 CS-15 CS-16 CS-18 CS-21 CS-30 CS-31 CS-33 CS-36

CS-37 CS-38 CS-40 CS-47 CS-48 CS-50 CS-53 CS-58 CS-59 CS-65 CS-65-EX CS-65-UL CS-71 CS-75 CS-77 CS-6100 CS-6200 CS-1000D CS-1001D

	CS-05	CS-06	CS-07	CS-11	CS-15	CS-16	CS-18	CS-21	CS-30	CS-31	CS-33	CS-36
Round cylinder 	BK P. 2-43		BKC-1 P. 2-43		BK P. 2-43			PN PH PAB P. 2-42		PAB P. 2-42		BKC-1 P. 2-45
ISO profile cylinder 			PF7 P. 2-41			PF7 P. 2-41		PI P. 2-39		PI P. 2-39		PF7 P. 2-41
Tie-rod cylinder 			DT7 P. 2-41			DT7 P. 2-41		PM P. 2-39		PM P. 2-39		DT7 P. 2-41
												
												
												
												
												
												
												
												
												
												

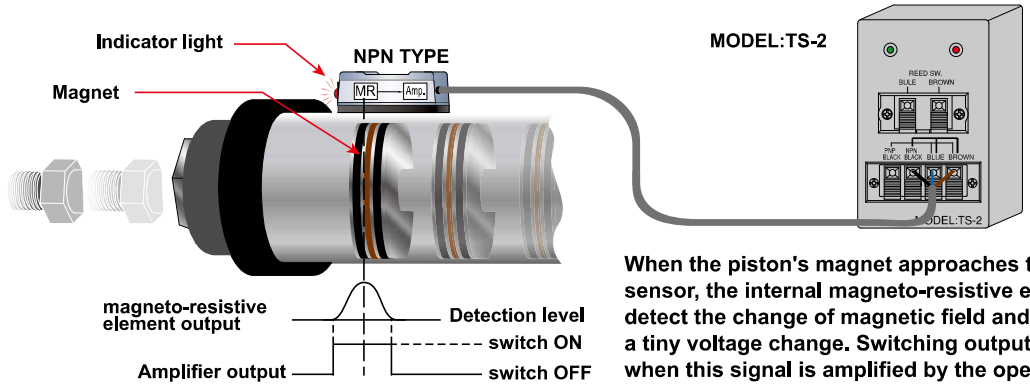
	CS-37	CS-38	CS-40	CS-47	CS-48	CS-50	CS-53	CS-58	CS-59	CS-65 CS-65-EX CS-65-UL	CS-71	CS-75	CS-77	CS-6100	CS-6200	CS-1000D	CS-1001D
Round cylinder			BL-1 P. 2-44		BS P. 2-43	BL-1 P. 2-44				BKT-1 P. 2-46		BP P. 2-36 BKT-1 P. 2-46	BL-1 P. 2-44			BP PMB P. 2-36	
ISO profile cylinder	PF7 P. 2-41	PF7 P. 2-41	PF P. 2-40			PF P. 2-40				PF P. 2-40		PF P. 2-40	PF P. 2-40				
Tie-rod cylinder	DT7 P. 2-41	DT7 P. 2-41	DT P. 2-40 FST P. 2-47			DT P. 2-40 FST P. 2-47				DT P. 2-40 FST P. 2-47		DT P. 2-40 FST P. 2-47	DT P. 2-40				

Reed SW. Type



When the piston's magnet approaches the magnetic sensor, the internal reed switch will detect the change of magnetic field and close the contacts.

Solid State Type

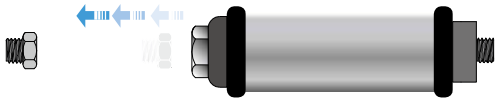


When the piston's magnet approaches the magnetic sensor, the internal magneto-resistive element can detect the change of magnetic field and cause a tiny voltage change. Switching output is achieved when this signal is amplified by the operation amplifier circuit in the magnetic sensor.

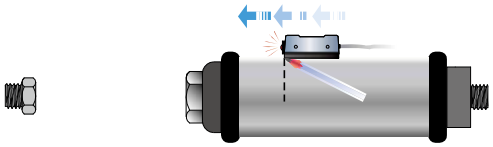
How to install the Magnetic sensor

END OF STROKE DETECTION

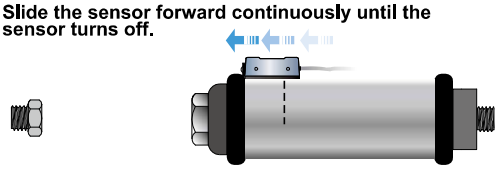
STEP 1 Set the piston to the end of stroke position.



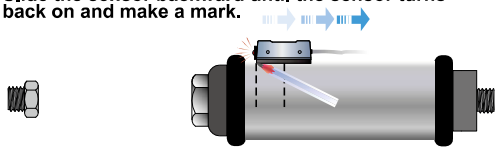
STEP 2 Slide the magnetic sensor forward and keep it close to the cylinder wall. Make a mark at the sensor turn-on point.



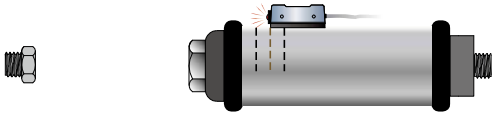
STEP 3 Slide the sensor forward continuously until the sensor turns off.



STEP 4 Slide the sensor backward until the sensor turns back on and make a mark.

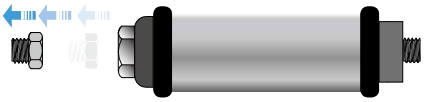


STEP 5 The intermediate position between the 2 marks will be the most ideal position.

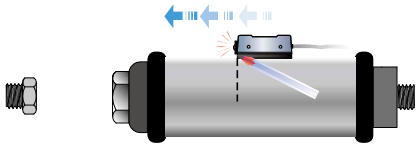


INTERMEDIATE STROKE POSITION

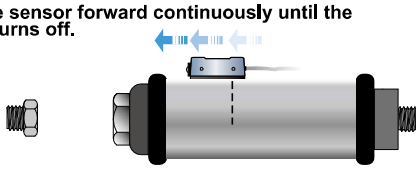
STEP 1 Set the piston to the required position.



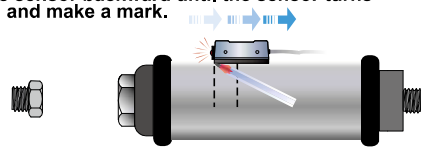
STEP 2 Slide the magnetic sensor forward and keep it close to the cylinder wall. Make a mark at the sensor turn-on point.



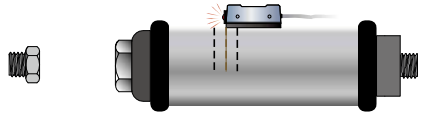
STEP 3 Slide the sensor forward continuously until the sensor turns off.



STEP 4 Slide the sensor backward until the sensor turns back on and make a mark.



STEP 5 The intermediate position between the 2 marks will be the most ideal position.

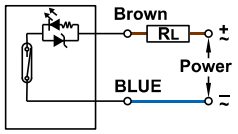


CAUTION ⚠

Magnetic Sensor

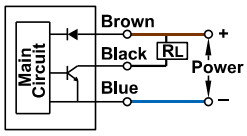
1.Do not exceed specification, permanent damage to the sensor may occur.

2.For reed switch type sensors, polarity must also be observed for the proper function of LED. Connect the brown wire in series with load positive (+) and the blue wire to negative (-) of power source. If the polarity is reversed, reed sensor remain functional but LED will remain in "OFF" state.

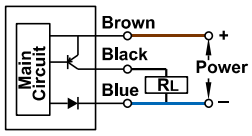


3.For solid-state type sensors , polarity must also be observed . Connect brown wire to the positive (+) and the blue to the negative (-) of DC power source. The black wire must connect to the load only. If the black wire is accidentally connected to the power source, permanent damage to the sensor may occur.

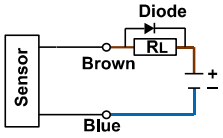
(NPN Output)

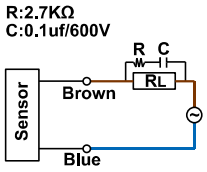


(PNP Output)



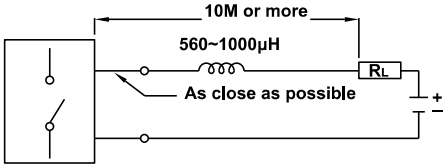
4.An external protection circuit may be required if the reed sensor is used with inductive load, such as relay or solenoid . For DC inductive load , attach an external diode parallel to the load and use R-C circuit parallel with AC inductive load as illustrated below.



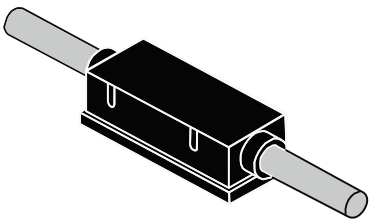


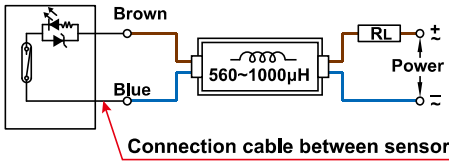
5.Keep sensors away form strong magnetic field to prevent malfunctions.

6.When using reed sensor with capacitive load or if the lead wire length exceed 10-meter, an inductor (560 ~ 1000 μH) or SR-1 (surge suppressor) must be installed in series with the sensor to prevent damage (Sticking effect).



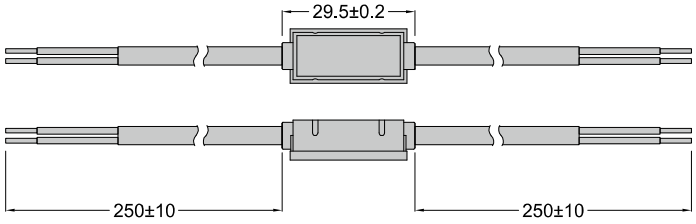
MODEL:SR-1 (Surge Suppressor)

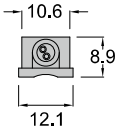




Connection cable between sensor and SR-1 must be as close as possible.

DIMENSION





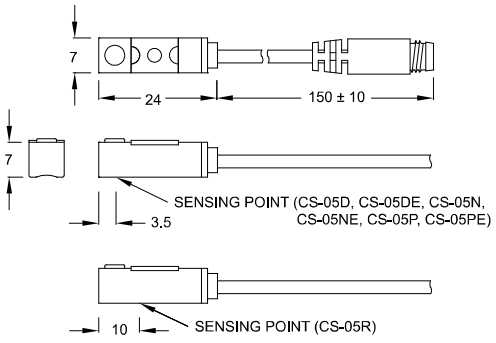
CS-05 SERIES

RoHS

Magnetic Sensor

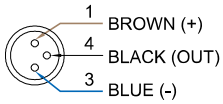
■ DIMENSIONS

CS-05R, CS-05D, CS-05DE, CS-05N, CS-05NE, CS-05P, CS-05PE / CS-05R-QD, CS-05D-QD, CS-05DE-QD, CS-05N-QD, CS-05NE-QD, CS-05P-QD, CS-05PE-QD

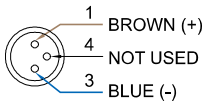


■ QD PINOUT

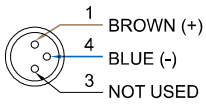
***3 wire QD wiring**



***2 wire QD wiring**

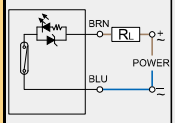
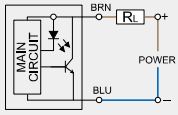
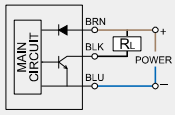
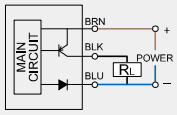


***2 wire EQD wiring**



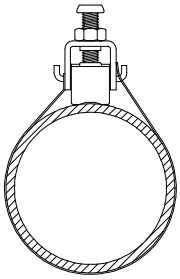
■ SPECIFICATIONS

Unit:mm

TYPE	CS-05R	CS-05D	CS-05DE	CS-05N	CS-05NE	CS-05P	CS-05PE
CONNECT DIAGRAM / CHARACTERISTICS							
Wiring Method	2-Wire type			3-Wire type			
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open					
Sensor Type	Reed Switch	-		NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	5~240V DC/AC	10~28V DC	5~30V DC				
Switching Current	100mA max.	50mA max.	200mA max.				
Contact Rating (*1)	10W max.	1.5W max.	6W max.				
Current Consumption	-			8mA @ 24V DC max.	6mA @ 24V DC max.	8mA @ 24V DC max.	6mA @ 24V DC max.
Voltage Drop	3.5V max.		3.7V max.	1V @ 200mA max.	0.5V @ 200mA max.	1V @ 200mA max.	0.5V @ 200mA max.
Leakage Current	-	0.8mA max.	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED					Green LED	
Cable	ø2.8, 2C, PVC			ø2.8, 3C, PVC			
Operating Frequency	200Hz	1000Hz max.					
Magnet Requirement (*2)	55Gauss	80Gauss	40~1000Gauss	80Gauss	40~1000Gauss	80Gauss	40~1000Gauss
Temperature Range	-10~70˚C (+14~158˚F)						
Shock (*3)	30G	50G					
Vibration (*4)	9G						
Enclosure Classification	IEC 60529 IP67 (NEMA 6)						
Protection Circuit (*5)	1	2,4	3,4	2,3,4	3,4	2,3,4	3,4

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ MOUNTING CLAMPS



BK Series
(See Page 2-43)

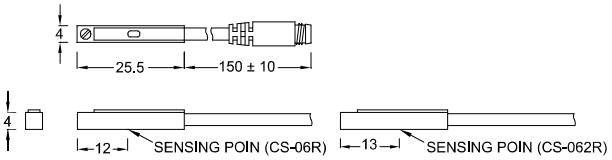
CS-06 SERIES

RoHS

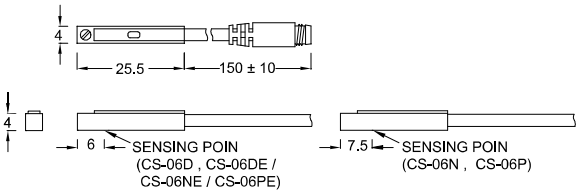
Magnetic Sensor

■ DIMENSIONS

CS-06R, CS-062R / CS-06R-QD, CS-062R-QD



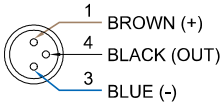
CS-06D, CS-06DE, CS-06N, CS-06NE, CS-06P, CS-06PE / CS-06D-QD, CS-06DE-QD, CS-06N-QD, CS-06NE-QD, CS-06P-QD, CS-06PE-QD



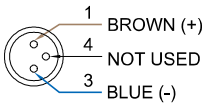
Unit:mm

■ QD PINOUT

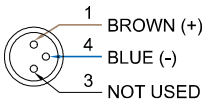
***3 wire QD wiring**



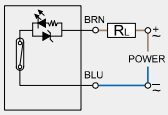
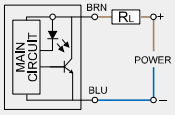
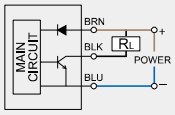
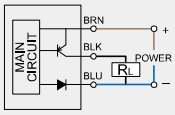
***2 wire QD wiring**



***2 wire EQD wiring**

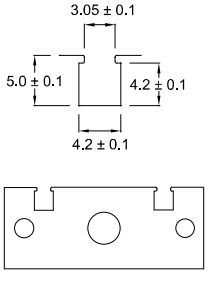


■ SPECIFICATIONS

TYPE	CS-06R	CS-062R	CS-06D	CS-06DE	CS-06N	CS-06NE	CS-06P	CS-06PE
CONNECT DIAGRAM								
CHARACTERISTICS								
Wiring Method	2-Wire Type				3-Wire Type			
Switching Logic	SPST, Normally Open		Solid State Output, Normally Open					
Sensor Type	Reed Switch		-		NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	5~120V DC/AC	5~240V DC/AC	10~28V DC	5~30V DC				
Switching Current	100mA max.		4~40mA max.	50mA max.	200mA max.			
Contact Rating (*1)	10W max.		1.1W max.	1.5W max.	6W max.			
Current Consumption	-				8mA @ 24V DC max.	6mA @ 24V DC max.	8mA @ 24V DC max.	6mA @ 24V DC max.
Voltage Drop	3.5V max.			3.7V max.	1V @ 200mA max.	0.5V @200mA max.	1V @200mA max.	0.5V @200mA max.
Leakage Current	-		1mA max.	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED	Green LED	Red LED				Green LED	
Cable	ø2.8, 2C, PUR				ø2.8, 3C, PUR			
Operating Frequency	200Hz		1000Hz max.					
Magnet Requirement (*2)	70Gauss		40Gauss	40~1000Gauss	40Gauss	40~1000Gauss	40Gauss	40~1000Gauss
Temperature Range	-10~70˚C (+14~158˚F)							
Shock (*3)	30G		50G					
Vibration (*4)	9G							
Enclosure Classification	IEC 60529 IP67 (NEMA 6)							
Protection Circuit (*5)	1		4	3,4	2,3,4	3,4	2,3,4	3,4

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

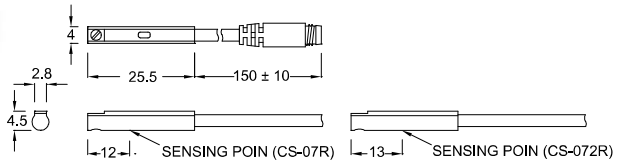
CS-07 SERIES

RoHS

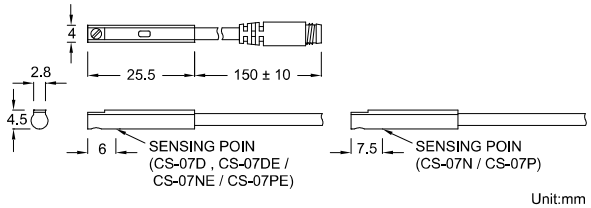
Magnetic Sensor

■ DIMENSIONS

CS-07R, CS-072R / CS-07R-QD, CS-072R-QD



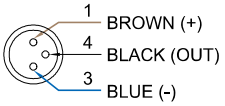
CS-07D, CS-07DE, CS-07N, CS-07NE, CS-07P, CS-07PE / CS-07D-QD, CS-07DE-QD, CS-07N-QD, CS-07NE-QD, CS-07P-QD, CS-07PE-QD



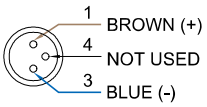
Unit:mm

■ QD PINOUT

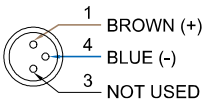
***3 wire QD wiring**



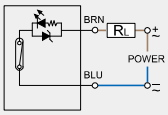
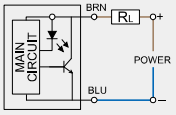
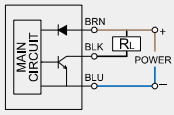
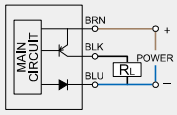
***2 wire QD wiring**



***2 wire EQD wiring**

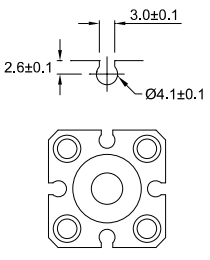


■ SPECIFICATIONS

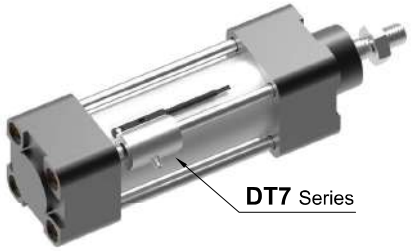
TYPE	CS-07R	CS-072R	CS-07D	CS-07DE	CS-07N	CS-07NE	CS-07P	KT-07PE
CONNECT DIAGRAM								
Wiring Method	2-Wire Type				3-Wire Type			
Switching Logic	SPST, Normally Open		Solid State Output, Normally Open					
Sensor Type	Reed Switch		-		NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	5~120V DC/AC	5~240V DC/AC	10~28V DC	5~30V DC				
Switching Current	100mA max.		4~40mA max.	50mA max.	200mA max.			
Contact Rating (*1)	10W max.		1.1W max.	1.5W max.	6W max.			
Current Consumption	-				8mA @ 24V DC max.	6mA @ 24V DC max.	8mA @ 24V DC max.	6mA @ 24V DC max.
Voltage Drop	3.5V max.			3.7V max.	1V @ 200mA max.	0.5V @200mA max.	1V @200mA max.	0.5V @200mA max.
Leakage Current	-		1mA max.	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED	Green LED	Red LED				Green LED	
Cable	ø2.8, 2C, PUR				ø2.8, 3C, PUR			
Operating Frequency	200Hz		1000Hz max.					
Magnet Requirement (*2)	70Gauss		40Gauss	40~1000Gauss	40Gauss	40~1000Gauss	40Gauss	40~1000Gauss
Temperature Range	-10~70˚C (+14~158˚F)							
Shock (*3)	30G		50G					
Vibration (*4)	9G							
Enclosure Classification	IEC 60529 IP67 (NEMA 6)							
Protection Circuit (*5)	1		4	3,4	2,3,4	3,4	2,3,4	3,4

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



■ BRACKET



Unit:mm

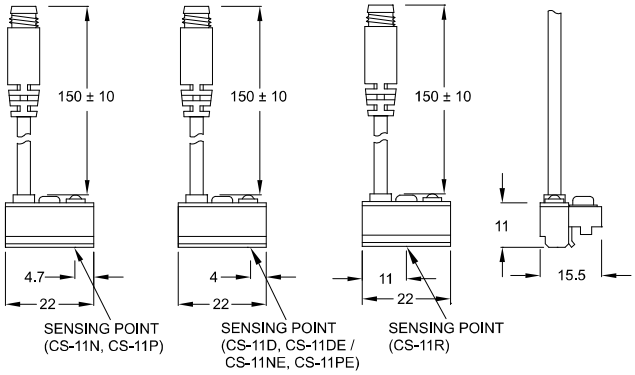
CS-11 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

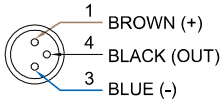
CS-11R, CS-11D, CS-11DE, CS-11N, CS-11NE, CS-11P, CS-11PE / CS-11R-QD, CS-11D-QD, CS-11DE-QD, CS-11N-QD, CS-11NE-QD, CS-11P-QD, CS-11PE-QD



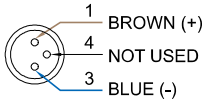
Unit:mm

■ QD PINOUT

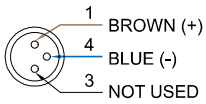
***3 wire QD wiring**



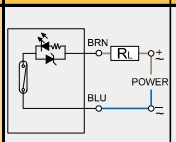
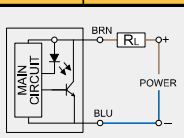
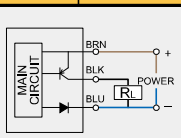
***2 wire QD wiring**



***2 wire EQD wiring**

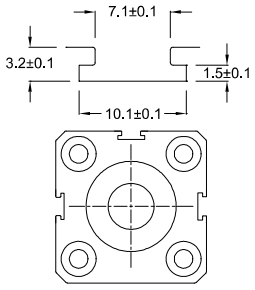


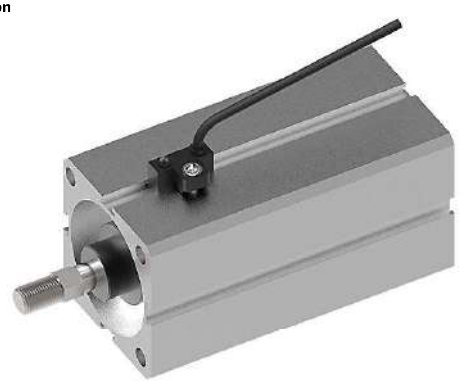
■ SPECIFICATIONS

TYPE	CS-11R	CS-11D	CS-11DE	CS-11N	CS-11NE	CS-11P	CS-11PE
CONNECT DIAGRAM							
CHARACTERISTICS							
Wiring Method	2-Wire type			3-Wire type			
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open					
Sensor Type	Reed Switch	-		NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	5~240V DC/AC	10~28V DC	5~30V DC				
Switching Current	100mA max.	4~40mA max.	50mA max.	200mA max.			
Contact Rating (*1)	10W max.	1.1W max.	1.5W max.	6W max.			
Current Consumption	-			22mA @ 24V DC max.	6mA @ 24V DC max.	20mA @ 24V DC max.	6mA @ 24V DC max.
Voltage Drop	3.5V max.		3.7V max.	0.5V max.			
Leakage Current	-	1mA max.	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED	Green LED		Red LED		Green LED	
Cable	ø3.3, 2C, PVC			ø3.3, 3C, PVC			
Operating Frequency	200Hz	1000Hz max.					
Magnet Requirement (*2)	70Gauss	60Gauss	40~1000Gauss	60Gauss	40~1000Gauss	60Gauss	40~1000Gauss
Temperature Range	-10~70°C (+14~158°F)						
Shock (*3)	30G	50G					
Vibration (*4)	9G						
Enclosure Classification	IEC 60529 IP67 (NEMA 6)						
Protection Circuit (*5)	1	4	3,4				

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS





Unit:mm

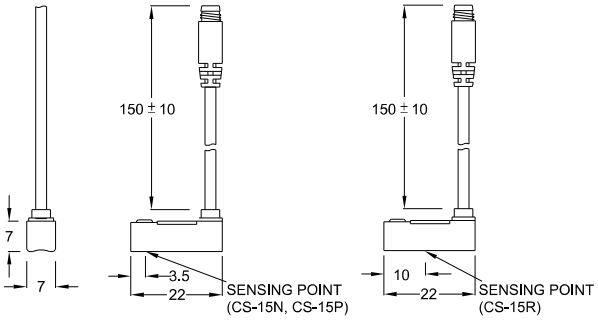
CS-15 SERIES

RoHS

Magnetic Sensor

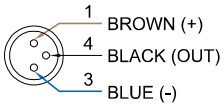
■ DIMENSIONS

CS-15R, CS-15N, CS-15P /
CS-15R-QD, CS-15N-QD, CS-15P-QD

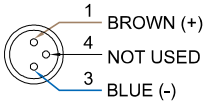


■ QD PINOUT

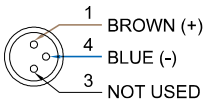
***3 wire QD wiring**



***2 wire QD wiring**

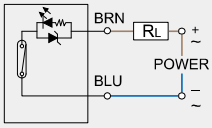
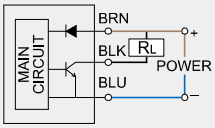
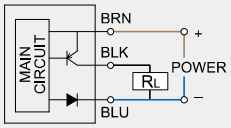


***2 wire EQD wiring**



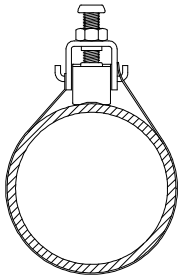
■ SPECIFICATIONS

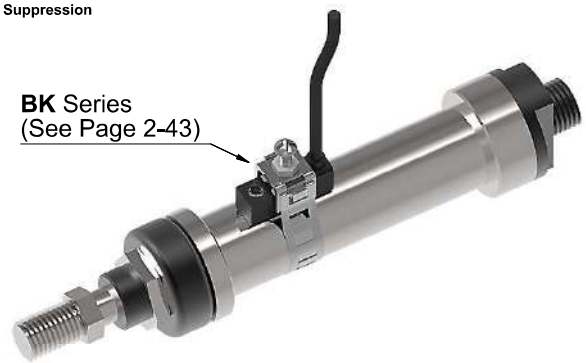
Unit:mm

TYPE	CS-15R	CS-15N	CS-15P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~240V DC/AC	5~30V DC	
Switching Current	100mA max.	200mA max.	
Contact Rating (*1)	10W max.	6W max.	
Current Consumption	-	20mA @ 24V DC max.	
Voltage Drop	3.5V max.	0.5 V max.	
Leakage Current	-	0.01 mA max.	
Indicator	Red LED		Green LED
Cable	ø2.8, 2C, PVC	ø2.8, 3C, PVC	
Operating Frequency	200 Hz	1000 Hz	
Magnet Requirement (*2)	50Gauss	40Gauss	
Temperature Range	-10~70˚C (+14~158˚F)		
Shock (*3)	30G	50G	
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	1	3,4	

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ MOUNTING CLAMPS





Unit:mm

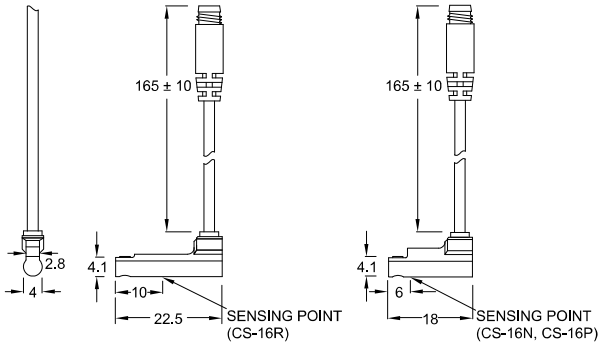
CS-16 SERIES

RoHS

Magnetic Sensor

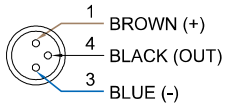
■ DIMENSIONS

CS-16R, CS-16N, CS-16P /
CS-16R-QD, CS-16N-QD, CS-16P-QD

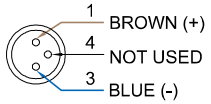


■ QD PINOUT

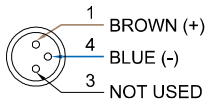
***3 wire QD wiring**



***2 wire QD wiring**

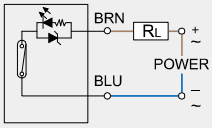
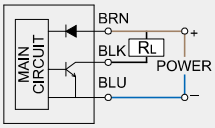
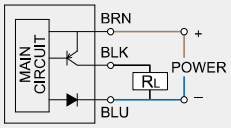


***2 wire EQD wiring**



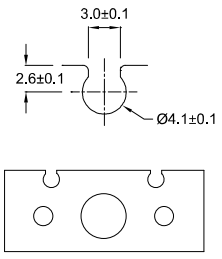
■ SPECIFICATIONS

Unit:mm

TYPE	CS-16R	CS-16N	CS-16P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~120V DC/AC	5~30V DC	
Switching Current	100mA. max.	50mA max.	
Contact Rating (*1)	6W max.	1.5W max.	
Current Consumption	-	7mA @ 24V DC max.	9mA @ 24V DC max.
Voltage Drop	3.5 V max.	1.5V @ 50mA max.	
Leakage Current	-	0.01 mA max.	
Indicator	Red LED		Green LED
Cable	ø2.8, 2C, PUR	ø2.8, 3C, PUR	
Operating Frequency	200 Hz	1000 Hz	
Magnet Requirement (*2)	70 Gauss	40 Gauss	
Temperature Range	-10~70˚C (+14~158˚F)		
Shock (*3)	30G	50G	
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	1	3,4	

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

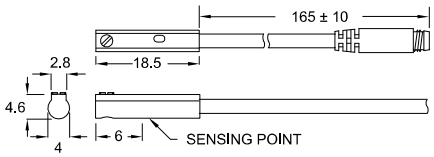
CS-18 SERIES

RoHS

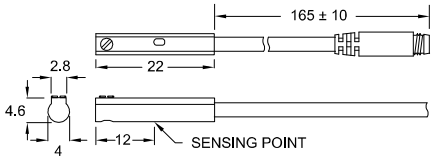
Magnetic Sensor

■ DIMENSION

CS-18N, CS-18P, CS-18N-NC, CS-18P-NC / CS-18N-QD, CS-18P-QD,CS-18N-NC-QD, CS-18P-NC-QD

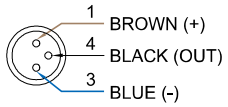


CS-18R, CS-18RH / CS-18R-QD,CS-18RH-QD

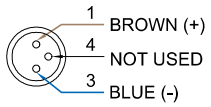


■ QD PINOUT

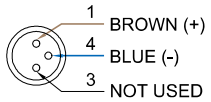
***3 wire QD wiring**



***2 wire QD wiring**

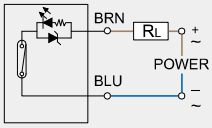
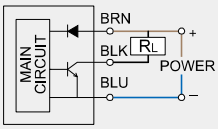
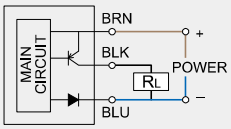


***2 wire EQD wiring**



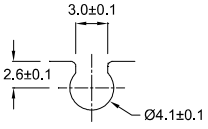
■ SPECIFICATIONS

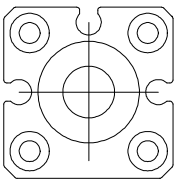
Unit:mm

TYPE	CS-18RH	CS-18R	CS-18N	CS-18N-NC	CS-18P	CS-18P-NC
CONNECT DIAGRAM / CHARACTERISTICS						
Wiring Method	2-Wire Type		3-Wire Type			
Switching Logic	SPST, Normally Open		Solid State Output, Normally Open	Solid State Output, Normally Close	Solid State Output, Normally Open	Solid State Output, Normally Close
Sensor Type	Reed Switch		NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	5~120V DC/AC		5~28V DC			
Switching Current	50mA max.		100mA max.			
Contact Rating (*1)	6W max.		3W max.			
Current Consumption	-		10mA @ 24V DC max.			
Voltage Drop	3.0 V max.		0.5 V @ 50mA max.			
Leakage Current	-		0.05 mA max.			
Indicator	Red LED				Green LED	
Cable	ø2.8, 2C, PUR		ø2.8, 3C, PUR			
Operating Frequency	200 Hz		1000 Hz			
Magnet Requirement (*2)	40Gauss Parallel	60Gauss Parallel	30Gauss Parallel			
Temperature Range	-10~70˚C (+14~158˚F)					
Shock (*3)	30G		50G			
Vibration (*4)	9G					
Enclosure Classification	IEC 60529 IP67 (NEMA 6)					
Protection Circuit (*5)	1		3,4			
Set Screw Max. Torque	1.77 in-lbs (0.2 N-m)					

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS





Unit:mm

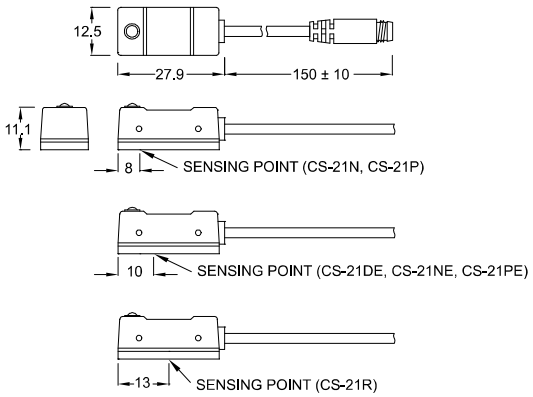
CS-21 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

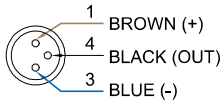
CS-21R, CS-21DE, CS-21N, CS-21NE, CS-21P, CS-21PE / CS-21R-QD, CS-21DE-QD, CS-21N-QD, CS-21NE-QD, CS-21P-QD, CS-21PE-QD



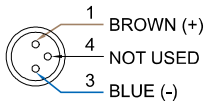
Unit:mm

■ QD PINOUT

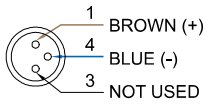
***3 wire QD wiring**



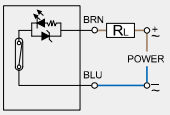
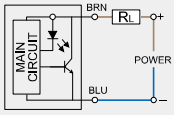
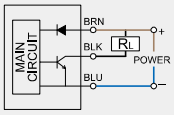
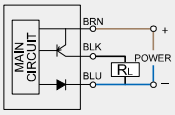
***2 wire QD wiring**



***2 wire EQD wiring**



■ SPECIFICATIONS

TYPE	CS-21R	CS-21DE	CS-21N	CS-21NE	CS-21P	CS-21PE
CONNECT DIAGRAM / CHARACTERISTICS						
Wiring Method	2-Wire type		3-Wire type			
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open				
Sensor Type	Reed Switch	-	NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	5~240V DC/AC	5~30V DC				
Switching Current	100mA max.	50mA max.	200mA max.			
Contact Rating (*1)	10W max.	1.5W max.	6W max.			
Current Consumption	-		15mA @ 24V DC max.	6mA @ 24V DC max.	15mA @ 24V DC max.	6mA @ 24V DC max.
Voltage Drop	3.5V max.	3.7V max.	1.5V max.	0.5V max.	1.5V max.	0.5V max.
Leakage Current	-	0.1mA(40uA) max.	0.01mA max.			
Indicator	Green LED	Red LED			Green LED	
Cable	ø4, 2C, PVC		ø4, 3C, PVC			
Operating Frequency	200Hz	1000Hz max.				
Magnet Requirement (*2)	80Gauss	40~1000Gauss	70Gauss	40~1000Gauss	70Gauss	40~1000Gauss
Temperature Range	-10~70˚C (+14~158˚F)					
Shock (*3)	30G	50G				
Vibration (*4)	9G					
Enclosure Classification	IEC 60529 IP67 (NEMA 6)					
Protection Circuit (*5)	1	3,4	2,3,4	3,4	2,3,4	3,4

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ CLAMPS / BRACKET

CS-21 series can be applied to many kind of cylinders

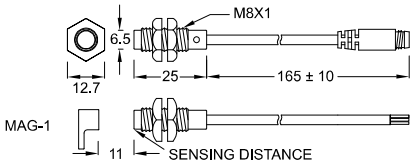
CS-28 SERIES

RoHS

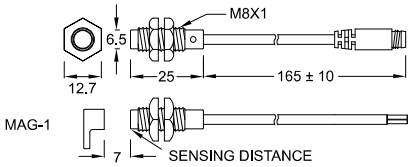
Magnetic Sensor

■ DIMENSION

CS-28N, CS-28P,CS-28N-NC
CS-28N-QD, CS-28P-QD, CS-28N-NC-QD



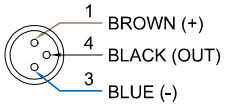
CS-28R / CS-28R-QD



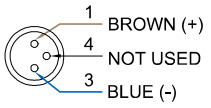
Unit:mm

■ QD PINOUT

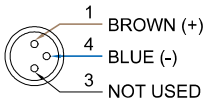
***3 wire QD wiring**



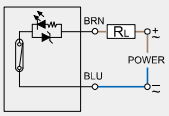
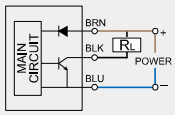
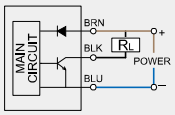
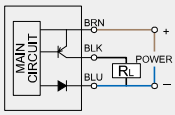
***2 wire QD wiring**



***2 wire EQD wiring**

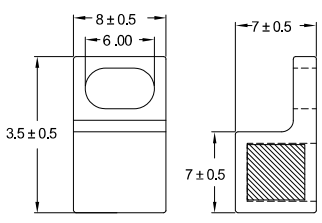


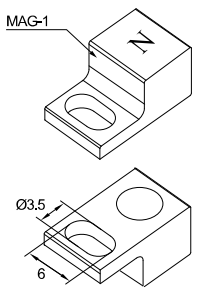
■ SPECIFICATION

TYPE	CS-28R	CS-28N	CS-28N-NC	CS-28P
CONNECT DIAGRAM / CHARACTERISTICS				
Wiring Method	2-Wire Type	3-Wire Type		
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	Normally Close	Solid State Output, Normally Open
Sensor Type	Reed Switch	NPN Current Sinking		PNP Current Sourcing
Operating Voltage	5~120V DC/AC	5~30V DC		
Switching Current	40mA max.	100mA max.		
Contact Rating (*1)	5W max.	6W max.		
Current Consumption	-	18mA @ 24V DC max.		
Voltage Drop	2.5 V max.	0.5 V max.		
Leakage Current	-	0.01 mA max.		
Indicator	Red LED			Green LED
Cable	ø3.3, 2C, PVC	ø3.3, 3C, PVC		
Operating Frequency	200 Hz	1000 Hz		
Sensing Distance (*2)	7 mm max.	11 mm max.		
Temperature Range	-10~70˚C (+14~158˚F)			
Shock (*3)	30G	50G		
Vibration (*4)	9G			
Enclosure Classification	IEC 60529 IP67 (NEMA 6)			
Protection Circuit (*5)	1	3,4		

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ NdFeB MAGNET





Unit:mm

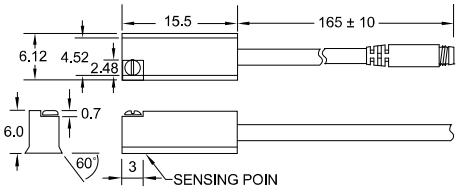
CS-30 SERIES

RoHS

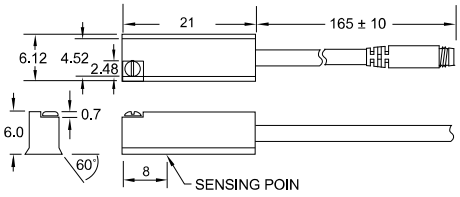
Magnetic Sensor

■ DIMENSION

CS-30N, CS-30P / CS-30N-QD, CS-30P-QD



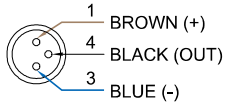
CS-30R / CS-30R-QD



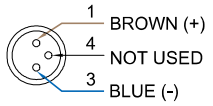
Unit:mm

■ QD PINOUT

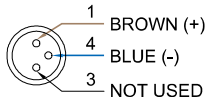
***3 wire QD wiring**



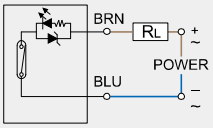
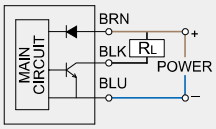
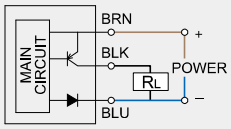
***2 wire QD wiring**



***2 wire EQD wiring**

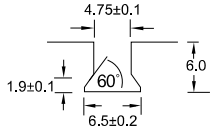


■ SPECIFICATION

TYPE	CS-30R	CS-30N	CS-30P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~120V DC/AC	5~30V DC	
Switching Current	50mA max.	200mA max.	
Contact Rating (*1)	6W max.	6W max.	
Current Consumption	-	17mA @ 24V DC max.	
Voltage Drop	2.5 V max.	0.5 V @ 25mA max.	
Leakage Current	-	0.01 mA max.	
Indicator	Red LED		
Cable	ø2.8, 2C, PUR	ø2.8, 3C, PUR	ø3, 3C, PUR
Operating Frequency	200 Hz	1000 Hz	
Magnet Requirement (*2)	40 Gauss Parallel		
Temperature Range	-10~70˚C (+14~158˚F)		
Shock (*3)	30G	50G	
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	1	3,4	
Set Screw Max. Torque	1.77 in-lbs (0.2 N-m)		

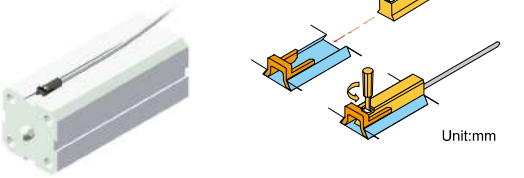
NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



1/4" dovetail

3/8" dovetail adaptor(Included)



Unit:mm

CS-31 SERIES

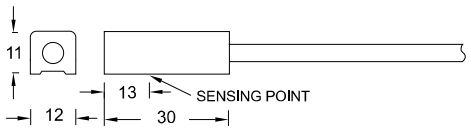
RoHS

Magnetic Sensor

HIGH TEMP. RESISTANT
MAX 140˚C

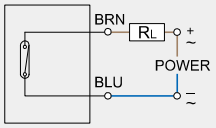
■ DIMENSIONS

■ M8 Connector option is not available



■ SPECIFICATIONS

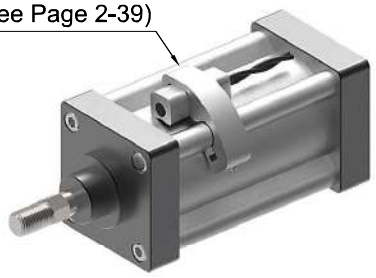
Unit:mm

TYPE	CS-31R
CONNECT DIAGRAM / CHARACTERISTICS	
Wiring Method	2-Wire Type
Switching Logic	SPST, Normally Open
Sensor Type	Reed Switch
Operating Voltage	5~240V DC/AC
Switching Current	500mA max.
Contact Rating (*1)	10W max.
Current Consumption	-
Voltage Drop	0.5V max.
Leakage Current	-
Indicator	-
Cable	ø3, 2C, Teflon
Operating Frequency	200Hz
Magnet Requirement (*2)	40Gauss
Temperature Range	-10~140˚C (+14~284˚F)
Shock (*3)	30G
Vibration (*4)	9G
Enclosure Classification	IEC 60529 IP67 (NEMA 6)
Protection Circuit (*5)	1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ BRACKET

PI Series
(See Page 2-39)



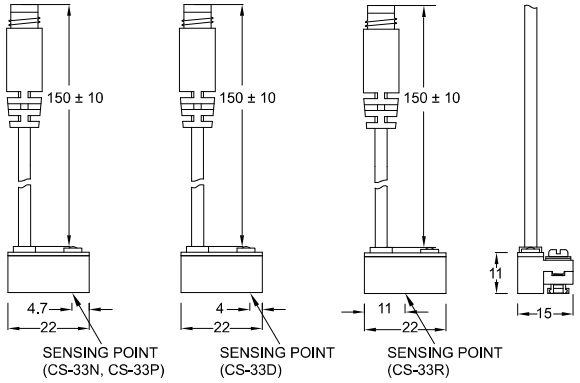
CS-33 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

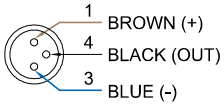
CS-33R, CS-33D, CS-33N, CS-33P /
CS-33R-QD, CS-33D-QD, CS-33N-QD, CS-33P-QD



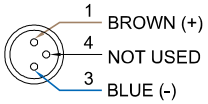
Unit:mm

■ QD PINOUT

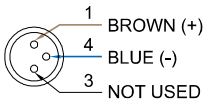
***3 wire QD wiring**

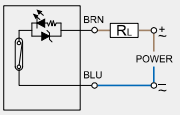
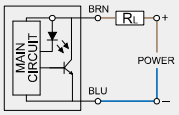
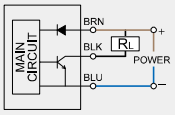
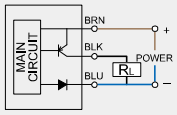


***2 wire QD wiring**



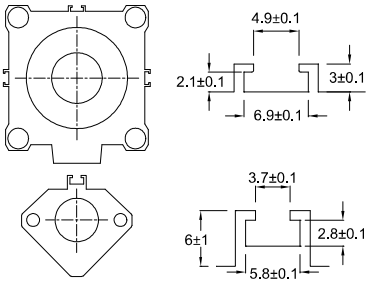
***2 wire EQD wiring**



TYPE	CS-33R	CS-33D	CS-33N	CS-33P
CONNECT DIAGRAM / CHARACTERISTICS				
Wiring Method	2-Wire Type		3-Wire Type	
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open		
Sensor Type	Reed Switch	-	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~240V DC/AC	10~28V DC	5~30V DC	
Switching Current	100mA max.	4~40mA max.	200mA max.	
Contact Rating (*1)	10W max.	1.5W max.	6W max.	
Current Consumption	-		22mA @ 24V DC max.	20mA @ 24V DC max.
Voltage Drop	3.5V max.		0.5V max.	
Leakage Current	-	1mA max.	0.01mA max.	
Indicator	Red LED	Green LED	Red LED	Green LED
Cable	ø3.3, 2C, PVC		ø3.3, 3C, PVC	
Operating Frequency	200Hz	1000Hz		
Magnet Requirement (*2)	80Gauss	70Gauss		
Temperature Range	-10~70˚C (+14~158˚F)			
Shock (*3)	30G	50G		
Vibration (*4)	9G			
Enclosure Classification	IEC 60529 IP67 (NEMA 6)			
Protection Circuit (*5)	1	4	3,4	

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

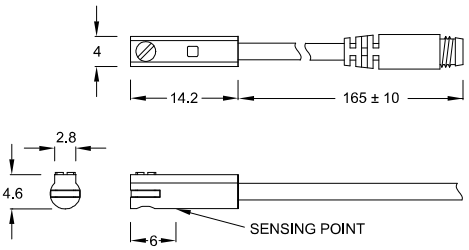
CS-36 SERIES

RoHS

Magnetic Sensor

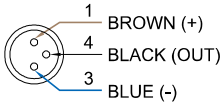
■ DIMENSIONS

CS-36D, CS-36DE, CS-36N, CS-36NE, CS-36P, CS-36PE, / CS-36D-QD, CS-36DE-QD, CS-36N-QD, CS-36NE-QD, CS-36P-QD, CS-36PE-QD

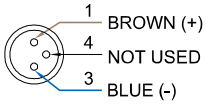


■ QD PINOUT

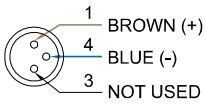
***3 wire QD wiring**



***2 wire QD wiring**

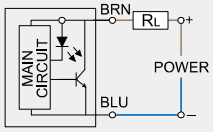
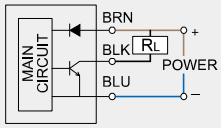
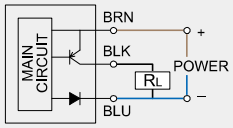


***2 wire EQD wiring**



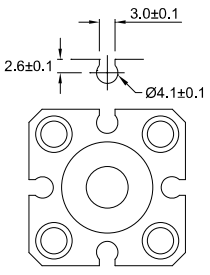
■ SPECIFICATIONS

Unit:mm

TYPE	CS-36D	CS-36DE	CS-36N	CS-36NE	CS-36P	CS-36PE
CONNECT DIAGRAM / CHARACTERISTICS						
Wiring Method	2-Wire type		3-Wire type			
Switching Logic	Solid State Output, Normally Open					
Sensor Type	-		NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	10~28V DC	5~30V DC	4.5~28V DC	5~30V DC	4.5~28V DC	5~30V DC
Switching Current	4~20mA max.	50mA max.				
Contact Rating (*1)	0.6W max.	1.5W max.				
Current Consumption	-	10mA @ 24V DC max.				
Voltage Drop	3.5V max.	0.5V @ 50mA max.				
Leakage Current	0.8mA max.	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED					
Cable	ø2.8, 2C, PU	ø2.8, 3C, PU				
Operating Frequency	1000Hz max.					
Magnet Requirement (*2)	40Gauss	40~1000Gauss	40Gauss	40~1000Gauss	40Gauss	40~1000Gauss
Temperature Range	-10~70˚C (+14~158˚F)					
Shock (*3)	50G					
Vibration (*4)	9G					
Enclosure Classification	IEC 60529 IP67 (NEMA 6)					
Protection Circuit (*5)	4	3,4				

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

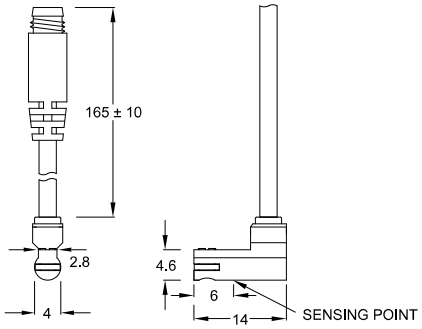
CS-37 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

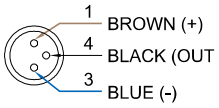
CS-37D, CS-37DE, CS-37N, CS-37NE, CS-37P, CS-37PE, / CS-37D-QD, CS-37DE-QD, CS-37N-QD, CS-37NE-QD, CS-37P-QD, CS-37PE-QD



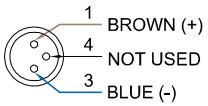
Unit:mm

■ QD PINOUT

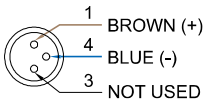
***3 wire QD wiring**



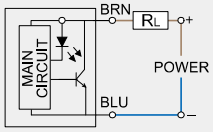
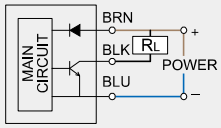
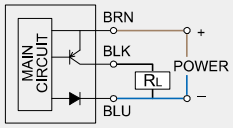
***2 wire QD wiring**



***2 wire EQD wiring**

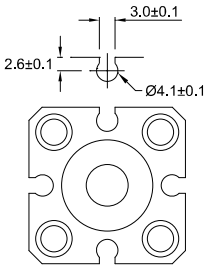


■ SPECIFICATIONS

TYPE	CS-37D	CS-37DE	CS-37N	CS-37NE	CS-37P	CS-37PE
CONNECT DIAGRAM / CHARACTERISTICS						
Wiring Method	2-Wire type		3-Wire type			
Switching Logic	Solid State Output, Normally Open					
Sensor Type	-		NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	10~28V DC	5~30V DC	4.5~28V DC	5~30V DC	4.5~28V DC	5~30V DC
Switching Current	4~20mA max.	50mA max.				
Contact Rating (*1)	0.6W max.	1.5W max.				
Current Consumption	-	10mA @ 24V DC max.				
Voltage Drop	3.5V max.	0.5V @ 50mA max.				
Leakage Current	0.8mA max.	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED					
Cable	ø2.6, 2C, PVC	ø2.6, 3C, PVC				
Operating Frequency	1000Hz max.					
Magnet Requirement (*2)	40Gauss	40~1000Gauss	40Gauss	40~1000Gauss	40Gauss	40~1000Gauss
Temperature Range	-10~70˚C (+14~158˚F)					
Shock (*3)	50G					
Vibration (*4)	9G					
Enclosure Classification	IEC 60529 IP67 (NEMA 6)					
Protection Circuit (*5)	4	3,4				

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

CS-38 SERIES

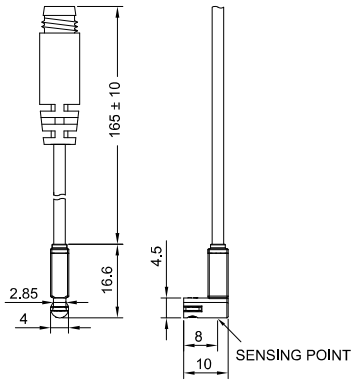
RoHS

Magnetic Sensor

COMPACT SIZE

■ DIMENSIONS

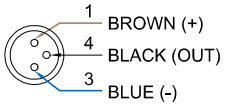
CS-38D, CS-38N, CS-38P /
CS-38D-QD, CS-38N-QD, CS-38P-QD



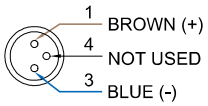
Unit:mm

■ QD PINOUT

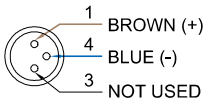
*3 wire QD wiring



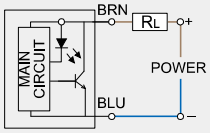
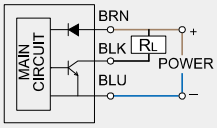
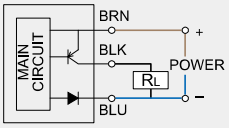
*2 wire QD wiring



*2 wire EQD wiring

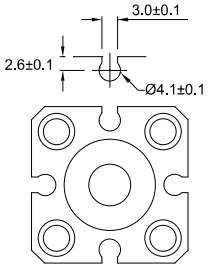


■ SPECIFICATIONS

TYPE	CS-38D	CS-38N	CS-38P
CONNECT DIAGRAM			
CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	Solid State Output, Normally Open		
Sensor Type	-	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	10~28V DC	5~28V DC	
Switching Current	4~20mA max.	50mA max.	
Contact Rating (*1)	0.6W max.	1.5W max.	
Current Consumption	-	10mA @ 24V DC max.	
Voltage Drop	3.5V max.	0.5V @ 50mA max.	
Leakage Current	0.8mA max.	0.01mA max.	
Indicator	Red LED		
Cable	ø2.6, 2C, PVC	ø2.6, 3C, PVC	
Operating Frequency	1000Hz		
Magnet Requirement (*2)	40Gauss		
Temperature Range	-10~70°C (+14~158°F)		
Shock (*3)	50G		
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	4	3,4	

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

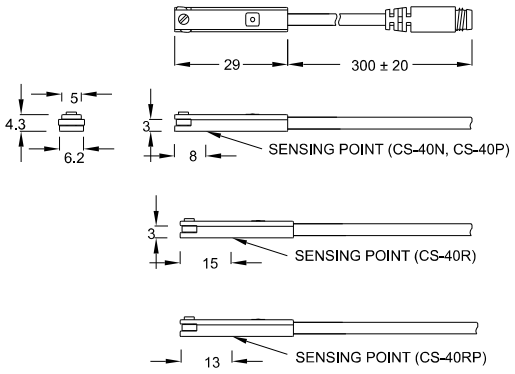
CS-40 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

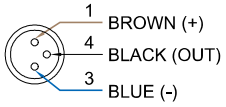
CS-40R, CS-40N, CS-40P, CS-40RP /
CS-40R-QD, CS-40N-QD, CS-40P-QD,CS-40RP-QD



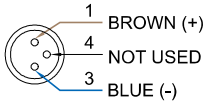
Unit:mm

■ QD PINOUT

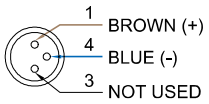
***3 wire QD wiring**



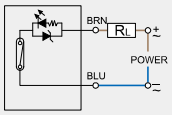
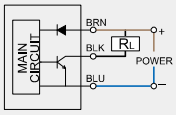
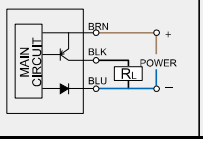
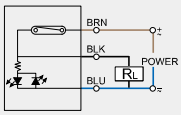
***2 wire QD wiring**



***2 wire EQD wiring**

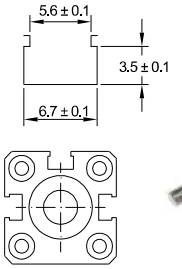


■ SPECIFICATIONS

TYPE	CS-40R	CS-40N	CS-40P	CS-40RP
CONNECT DIAGRAM / CHARACTERISTICS				
Wiring Method	2-Wire Type	3-Wire Type		
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open		SPST, Normally Open
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing	Reed Switch
Operating Voltage	5~120V DC/AC	10~30V DC		10~30V DC/AC
Switching Current	100mA max.			500mA max.
Contact Rating (*1)	10W max.	3W max.		10W max.
Current Consumption	-	8mA @ 24V DC max.		10mA @ 24V DC max.
Voltage Drop	3.5V max.	1.5V max.		0.1V @ 100mA max.
Leakage Current	-	0.01mA max.		-
Indicator	Red LED		Yellow LED	
Cable	ø3.2, 2C, PUR	ø3.3, 3C, PUR		
Operating Frequency	200Hz	1000Hz		200Hz
Magnet Requirement (*2)	50Gauss	45Gauss		
Temperature Range	-10~70˚C (+14~158˚F)			
Shock (*3)	30G	50G		30G
Vibration (*4)	9G			
Enclosure Classification	IEC 60529 IP67 (NEMA 6)			
Protection Circuit (*5)	1	2,3,4		1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

■ CLAMP / BRACKET

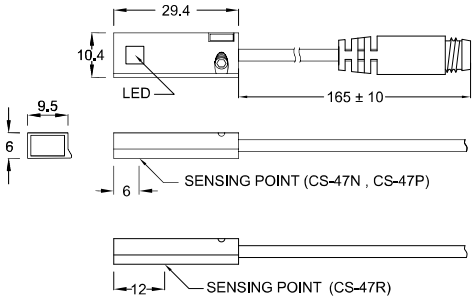
CS-47 SERIES

RoHS

Magnetic Sensor

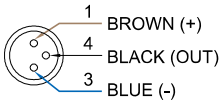
■ DIMENSIONS

CS-47R, CS-47N, CS-47P / CS-47R-QD, CS-47N-QD, CS-47P-QD

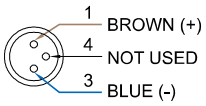


■ QD PINOUT

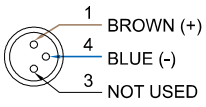
***3 wire QD wiring**



***2 wire QD wiring**

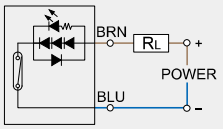
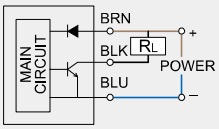
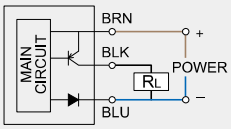


***2 wire EQD wiring**



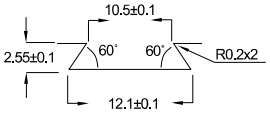
■ SPECIFICATIONS

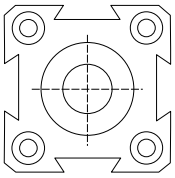
Unit:mm

TYPE	CS-47R	CS-47N	CS-47P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~240V DC/AC	5~30V DC	
Switching Current	500mA. max.	200mA max.	
Contact Rating (*1)	10W max.	6W max.	
Current Consumption	-	22mA @ 24V DC max.	20mA @ 24V DC max.
Voltage Drop	3.0 V max.	2.0V max.	2.5 V max.
Leakage Current	-	0.01 mA max.	
Indicator	Yellow LED		
Cable	ø2.8, 2C, PVC	ø2.8, 3C, PUR	
Operating Frequency	200 Hz	1000 Hz	
Magnet Requirement (*2)	50 Gauss		
Temperature Range	-10~70°C (+14~158°F)		
Shock (*3)	30G	50G	
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	1	2,3,4	

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS





Unit:mm

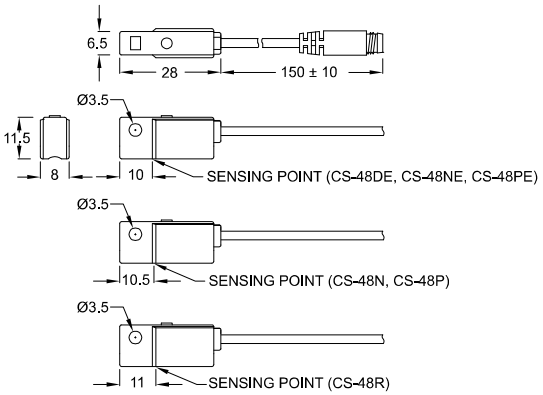
CS-48 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

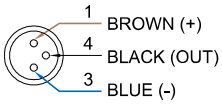
CS-48R, CS-48DE, CS-48N, CS-48NE, CS-48P, CS-48PE / CS-48R-QD, CS-48DE-QD, CS-48N-QD, CS-48NE-QD, CS-48P-QD, CS-48PE-QD



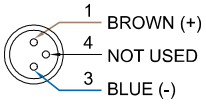
Unit:mm

■ QD PINOUT

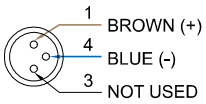
***3 wire QD wiring**



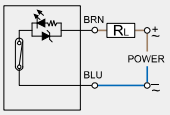
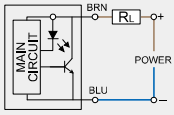
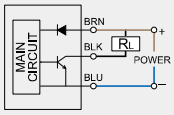
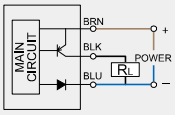
***2 wire QD wiring**



***2 wire EQD wiring**

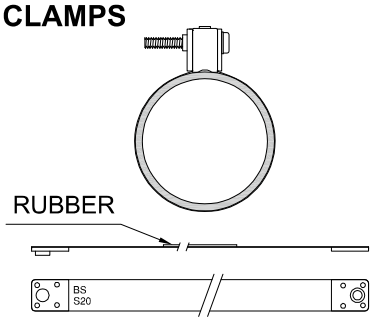


■ SPECIFICATIONS

TYPE	CS-48R	CS-48DE	CS-48N	CS-48NE	CS-48P	CS-48PE
CONNECT DIAGRAM						
CHARACTERISTICS						
Wiring Method	2-Wire type		3-Wire type			
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open				
Sensor Type	Reed Switch	-	NPN Current Sinking		PNP Current Sourcing	
Operating Voltage	5~240V DC/AC	5~30V DC	5~28V DC	5~30V DC	5~28V DC	5~30V DC
Switching Current	100mA max.	50mA max.		200mA max.	50mA max.	200mA max.
Contact Rating (*1)	10W max.	1.5W max.		6W max.	1.5W max.	6W max.
Current Consumption	-		10mA @ 24V DC max.	6mA @ 24V DC max.	10mA @ 24V DC max.	6mA @ 24V DC max.
Voltage Drop	3.5V max.	3.7V max.	1.5V @ 50mA max.	0.5V @ 200mA max.	1.5V @ 50mA max.	0.5V @ 200mA max.
Leakage Current	-	0.1mA(40uA) max.	0.01mA max.			
Indicator	Red LED				Green LED	
Cable	ø3.3, 2C, PVC		ø3.3, 3C, PVC			
Operating Frequency	200Hz	1000Hz max.				
Magnet Requirement (*2)	110Gauss	40~1000Gauss	75Gauss	40~1000Gauss	75Gauss	40~1000Gauss
Temperature Range	-10~70˚C (+14~158˚F)					
Shock (*3)	30G	50G				
Vibration (*4)	9G					
Enclosure Classification	IEC 60529 IP67 (NEMA 6)					
Protection Circuit (*5)	1	3,4				

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

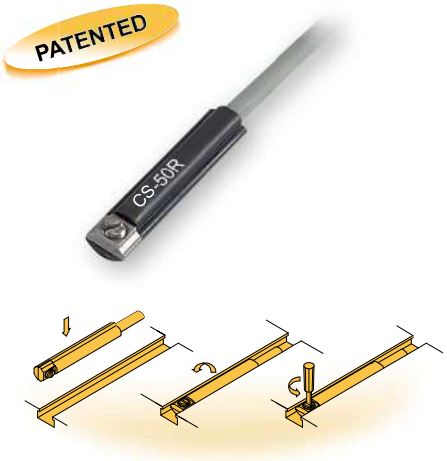
■ MOUNTING CLAMPS



CS-50 SERIES

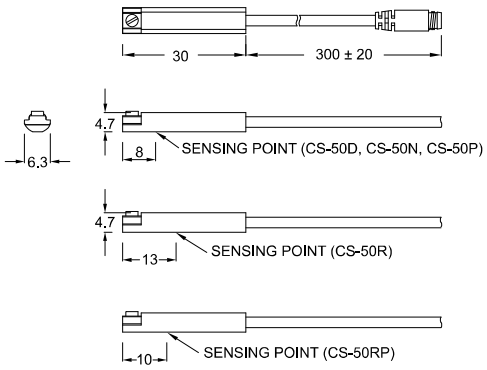
RoHS

Magnetic Sensor



■ DIMENSIONS

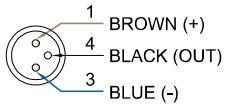
CS-50R, CS-50D, CS-50N, CS-50P, CS-50RP, / CS-50R-QD, CS-50D-QD, CS-50N-QD, CS-50P-QD, CS-50RP-QD



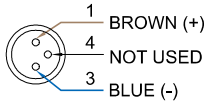
Unit:mm

■ QD PINOUT

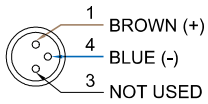
***3 wire QD wiring**



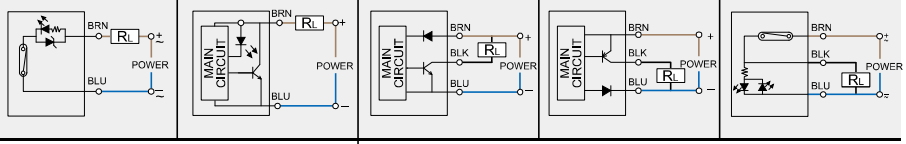
***2 wire QD wiring**



***2 wire EQD wiring**

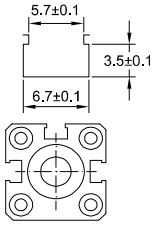


■ SPECIFICATIONS

TYPE	CS-50R	CS-50D	CS-50N	CS-50P	CS-50RP
CONNECT DIAGRAM / CHARACTERISTICS					
Wiring Method	2-Wire Type		3-Wire Type		
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open			SPST, Normally Open
Sensor Type	Reed Switch	-	NPN Current Sinking	PNP Current Sourcing	Reed Switch
Operating Voltage	5~240V DC/AC	10~28V DC	10~30V DC		10~30V DC/AC
Switching Current	100mA max.	50mA max.	200mA max.		500mA max.
Contact Rating (*1)	10W max.	1.5W max.	6W max.		10W max.
Current Consumption	-		20mA @ 24V DC max.		5mA @ 24V DC max.
Voltage Drop	3.5V max.		1.5V max.		0.1V @ 100mA max.
Leakage Current	-	0.8mA max.	0.05mA max.		-
Indicator	Red LED			Yellow LED	
Cable	ø3, 2C, PUR		ø3, 3C, PUR		
Operating Frequency	200Hz	1000Hz			200Hz
Magnet Requirement (*2)	70Gauss				
Temperature Range	-10~70˚C (+14~158˚F)				
Shock (*3)	30G	50G			30G
Vibration (*4)	9G				
Enclosure Classification	IEC 60529 IP67 (NEMA 6)				
Protection Circuit (*5)	1	2,4	2,3,4		1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



■ CLAMP / BRACKET

Unit:mm

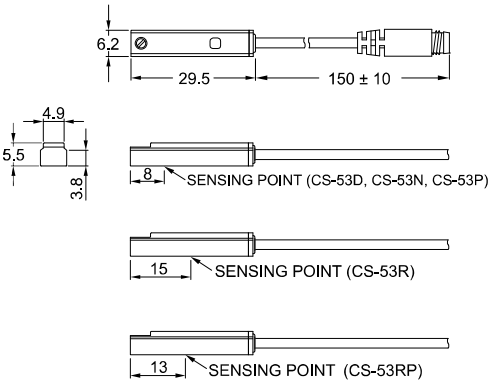
CS-53 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

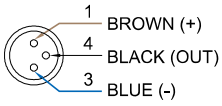
CS-53R, CS-53D, CS-53N, CS-53P, CS-53RP / CS-53R-QD, CS-53D-QD, CS-53N-QD, CS-53P-QD, CS-53RP-QD



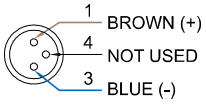
Unit:mm

■ QD PINOUT

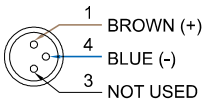
***3 wire QD wiring**



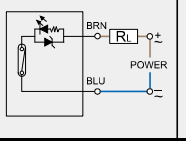
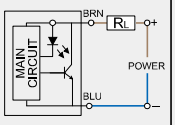
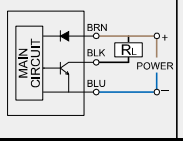
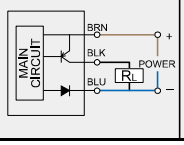
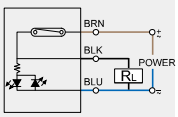
***2 wire QD wiring**



***2 wire EQD wiring**

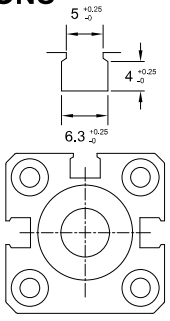


■ SPECIFICATIONS

TYPE	CS-53R	CS-53D	CS-53N	CS-53P	CS-53RP
CONNECT DIAGRAM / CHARACTERISTICS					
Wiring Method	2-Wire Type		3-Wire Type		
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open			SPST, Normally Open
Sensor Type	Reed Switch	-	NPN Current Sinking	PNP Current Sourcing	Reed Switch
Operating Voltage	5~240V DC/AC	10~28V DC	10~30V DC		10~30V DC/AC
Switching Current	100mA max.	50mA max.	100mA max.		500mA max.
Contact Rating (*1)	10W max.	1.5W max.	3W max.		10W max.
Current Consumption	-		8mA @ 24V DC max.		10mA @ 24V DC max.
Voltage Drop	3.5V max.		1.5V max.		0.1V @ 100mA max.
Leakage Current	-	0.8mA max.	0.01mA max.		-
Indicator	Red LED			Yellow LED	
Cable	ø3, 2C, PUR		ø3, 3C, PUR		
Operating Frequency	200Hz	1000Hz			200Hz
Magnet Requirement (*2)	70Gauss	50Gauss			70Gauss
Temperature Range	-10~70˚C (+14~158˚F)				
Shock (*3)	30G	50G			30G
Vibration (*4)	9G				
Enclosure Classification	IEC 60529 IP67 (NEMA 6)				
Protection Circuit (*5)	1	2,4	2,3,4		1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

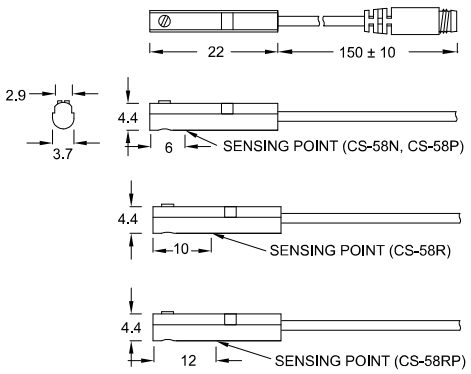
CS-58 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

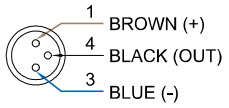
CS-58R, CS-58N, CS-58P, CS-58RP /
CS-58R-QD, CS-58N-QD, CS-58P-QD, CS-58RP-QD



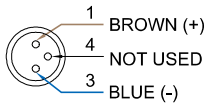
Unit:mm

■ QD PINOUT

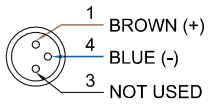
***3 wire QD wiring**



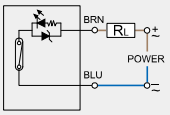
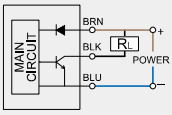
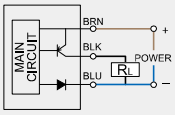
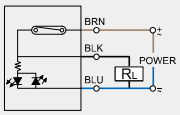
***2 wire QD wiring**



***2 wire EQD wiring**

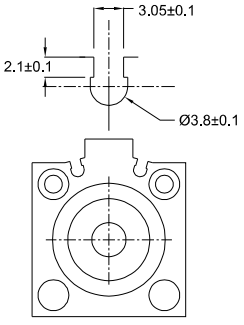


■ SPECIFICATIONS

TYPE	CS-58R	CS-58N	CS-58P	CS-58RP
CONNECT DIAGRAM / CHARACTERISTICS				
Wiring Method	2-Wire Type	3-Wire Type		
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open		SPST, Normally Open
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing	Reed Switch
Operating Voltage	5~120V DC/AC	10~30V DC		10~30V DC/AC
Switching Current	100mA max.	200mA max.		500mA max.
Contact Rating (*1)	10W max.	6W max.		10W max.
Current Consumption	-	10mA @ 24V DC max.		5mA @ 24V DC max.
Voltage Drop	3.5V max.	0.5V @ 50mA max.		0.1V @ 100mA max.
Leakage Current	-	0.01mA max.		-
Indicator	Red LED		Yellow LED	
Cable	ø2.5, 2C, PUR	ø2.5, 3C, PUR		
Operating Frequency	200Hz	1000Hz		200Hz
Magnet Requirement (*2)	70Gauss	40Gauss		50Gauss
Temperature Range	-10~70˚C (+14~158˚F)			
Shock (*3)	30G	50G		30G
Vibration (*4)	9G			
Enclosure Classification	IEC 60529 IP67 (NEMA 6)			
Protection Circuit (*5)	1	3,4		1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

CS-59 SERIES

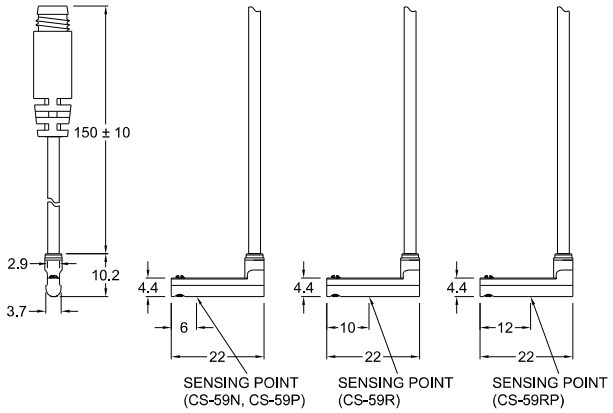
RoHS

Magnetic Sensor

NEW

■ DIMENSIONS

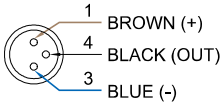
CS-59R, CS-59N, CS-59P, CS-59RP /
CS-59R-QD, CS-59N-QD, CS-59P-QD, CS-59RP-QD



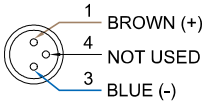
Unit:mm

■ QD PINOUT

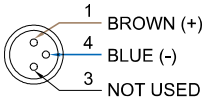
***3 wire QD wiring**



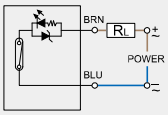
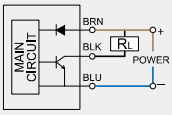
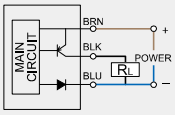
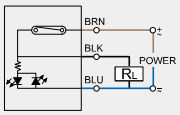
***2 wire QD wiring**



***2 wire EQD wiring**

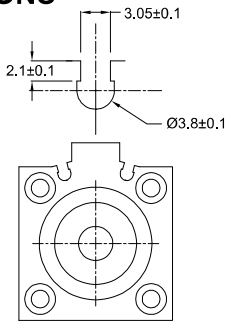


■ SPECIFICATIONS

TYPE	CS-59R	CS-59N	CS-59P	CS-59RP
CONNECT DIAGRAM / CHARACTERISTICS				
Wiring Method	2-Wire Type	3-Wire Type		
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open		SPST, Normally Open
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing	Reed Switch
Operating Voltage	5~120V DC/AC	10~30V DC		10~30V DC/AC
Switching Current	100mA max.	200mA max.		500mA max.
Contact Rating (*1)	10W max.	6W max.		10W max.
Current Consumption	-	10mA @ 24V DC max.		5mA @ 24V DC max.
Voltage Drop	3.5V max.	0.5V @ 50mA max.		0.1V @ 100mA max.
Leakage Current	-	0.01mA max.		-
Indicator	Red LED		Yellow LED	
Cable	ø2.5, 2C, PUR	ø2.5, 3C, PUR		
Operating Frequency	200Hz	1000Hz		200Hz
Magnet Requirement (*2)	70Gauss	40Gauss		50Gauss
Temperature Range	-10~70˚C (+14~158˚F)			
Shock (*3)	30G	50G		30G
Vibration (*4)	9G			
Enclosure Classification	IEC 60529 IP67 (NEMA 6)			
Protection Circuit (*5)	1	3,4		1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

CS-65 CS-75 SERIES

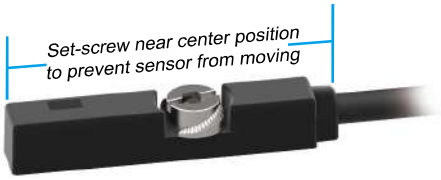
RoHS

Magnetic Sensor

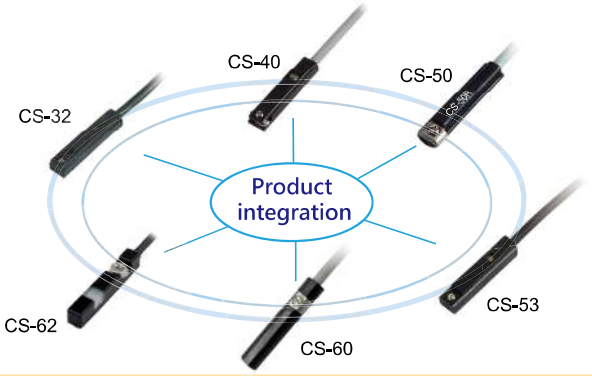
CS-65 / CS-75 series can be applied to many kind of cylinders

New Structure

- Set-screw near center position to prevent sensor from moving, combined with new set-screw design to provide solid stance when attached to the cylinder.

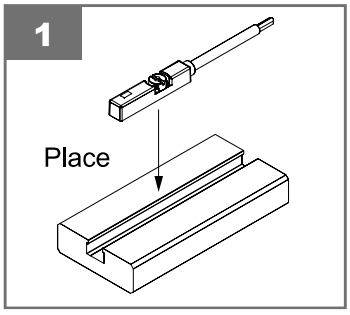


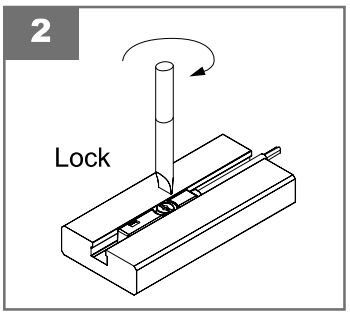
- Fits in most T-slot, replace all other T-slot sensors, reducing inventory items.



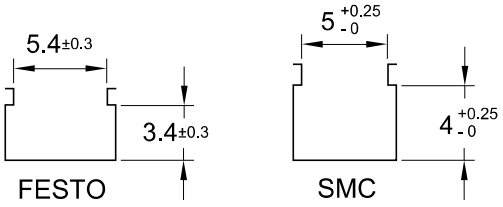
Quick Installation

- Install sensor from top of cylinder, directly placed into T-slot to achieve quick installation.





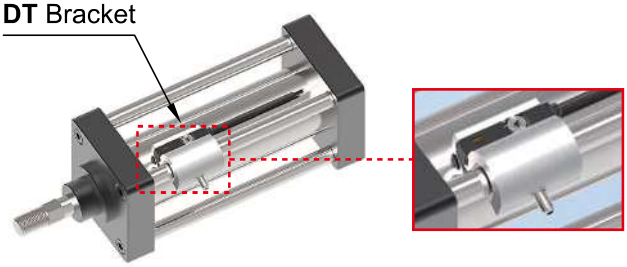
Common cylinder slot dimensions



Mounting Adapter for other cylinder types

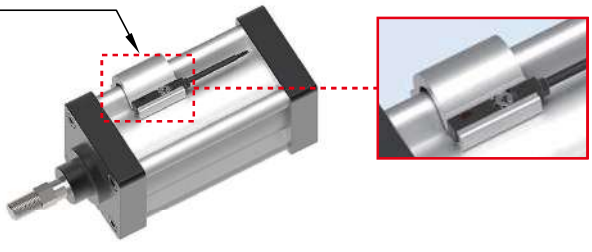
- DT bracket can be applied to Tie-rod cylinder.

DT Bracket



- PF bracket can be applied to ISO profile cylinder.

PF Bracket



CS-65 SERIES

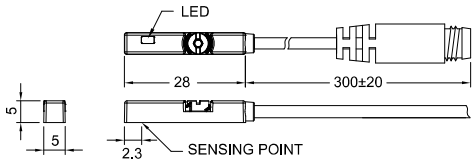
RoHS

Magnetic Sensor

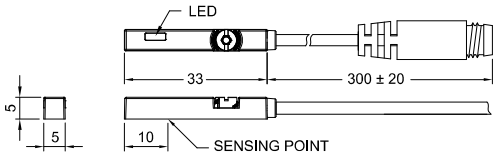
PATENTED

DIMENSIONS

CS-65D, CS-65DE, CS-65N, CS-65NE, CS-65P, CS-65PE / CS-65D-QD, CS-65DE-QD, CS-65N-QD, CS-65NE-QD, CS-65P-QD, CS-65PE-QD



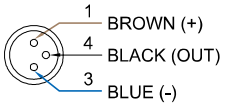
CS-65R, CS-65RP / CS-65R-QD, CS-65RP-QD



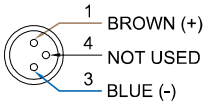
Unit:mm

QD PINOUT

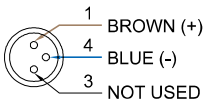
***3 wire QD wiring**



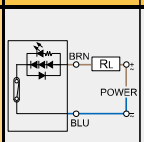
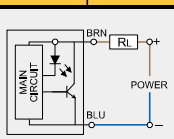
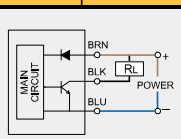
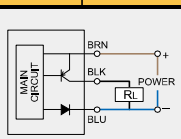
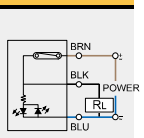
***2 wire QD wiring**



***2 wire EQD wiring**

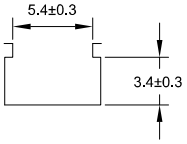


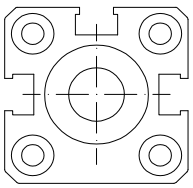
SPECIFICATIONS

TYPE	CS-65R	CS-65D	CS-65DE	CS-65N	CS-65NE	CS-65P	CS-65PE	CS-65RP
CONNECT DIAGRAM / CHARACTERISTICS								
Wiring Method	2-Wire Type			3-Wire Type				
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open						SPST, Normally Open
Sensor Type	Reed Switch	-		NPN Current Sinking		PNP Current Sourcing		Reed Switch
Operating Voltage	5~240V DC/AC	10~28V DC	5~30V DC	10~28V DC	5~30V DC	10~28V DC	5~30V DC	10~30V DC/AC
Switching Current	100mA max.	50mA max.		200mA max.				500mA max.
Contact Rating (*1)	10W max.	1.5W max.		5.5W max.	6W max.	5.5W max.	6W max.	10W max.
Current Consumption	-			10mA @ 24V DC max.	6mA@ 24V DC max.	10mA @ 24V DC max.	6mA@ 24V DC max.	10mA @ 24V DC max.
Voltage Drop	3.0V max.	3.5V max.	3.7V max.	1.5V max.	0.5V @ 200mA max.	1.5V max.	0.5V @ 200mA max.	0.1V @ 100mA max.
Leakage Current	-	0.8mA max.	0.1mA(40uA) max.	0.05mA max.	0.01mA max.	0.05mA max.	0.01mA max.	-
Indicator	Red LED					Yellow LED		
Cable	ø2.8, 2C, PUR			ø2.8, 3C, PUR				
Operating Frequency	200Hz	1000Hz max.						200Hz
Magnet Requirement (*2)	75Gauss	50Gauss	40~1000Gauss	50Gauss	40~1000Gauss	50Gauss	40~1000Gauss	65Gauss
Temperature Range	-10~70˚C (+14~158˚F)							
Shock (*3)	30G	50G						30G
Vibration (*4)	9G							
Enclosure Classification	IEC 60529 IP67 (NEMA 6)							
Protection Circuit (*5)	1	2	3,4	2,3,4	3,4	2,3,4	3,4	1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

GROOVE DIMENSIONS





MEMO HOLDER AVAILABLE

Unit:mm

CS-65-EX SERIES

RoHS ATEX

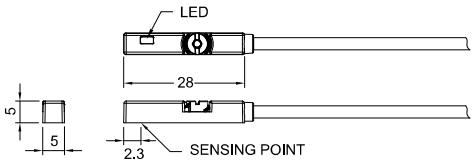
Magnetic Sensor

PATENTED

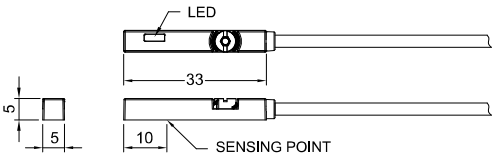
EXPLOSION PROOF

■ DIMENSIONS

CS-65N-EX,CS-65N-NC-EX, CS-65P-EX, CS-65P-NC-EX, CS-65D-EX



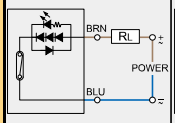
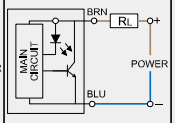
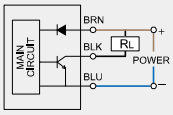
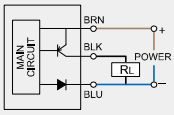
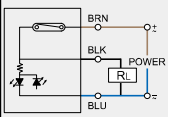
CS-65R-EX, CS-65RP-EX



■ M8 Connector option is not available

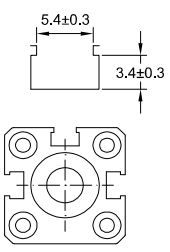
■ SPECIFICATIONS

Unit:mm

TYPE	CS-65R-EX	CS-65D-EX	CS-65N-EX	CS-65N-NC-EX	CS-65P-EX	CS-65P-NC-EX	CS-65RP-EX
CONNECT DIAGRAM							
Wiring Method	2-Wire Type		3-Wire Type				
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open		Solid State Output, Normally Close	Solid State Output, Normally Open	Solid State Output, Normally Close	SPST, Normally Open
Sensor Type	Reed Switch	-	NPN Current Sinking		PNP Current Sourcing		Reed Switch
Operating Voltage	5~30V DC/AC	10~28V DC					10~30V DC/AC
Switching Current	100mA max.	50mA max.	200mA max.				500mA max.
Contact Rating (*1)	10W max.	1.5W max.	5.5W max.				10W max.
Current Consumption	-	10mA @ 24V DC max.					
Voltage Drop	3.0V max.	3.5V max.	1.5V max.				0.1V @ 100mA max.
Leakage Current	-	0.8mA max.	0.05mA max.				-
Indicator	Red LED				Yellow LED		
Cable	ø2.8, 2C, PUR		ø2.8, 3C, PUR				
Operating Frequency	200Hz	1000Hz					200Hz
Magnet Requirement (*2)	65Gauss	50Gauss					65Gauss
Temperature Range	-10~70˚C (+14~158˚F)						
Shock (*3)	30G	50G					30G
Vibration (*4)	9G						
Enclosure Classification	IEC 60529 IP67 (NEMA 6)						
Protection Circuit (*5)	1	2	2,3,4				1
CE ATEX APPROVAL Baseefa14ATEX0118	Ex II 3GD Ex ic IIB T4 Gc (-10˚C ≤ Ta ≤ +70˚C) Ex ic IIIC T135˚C Dc (-10˚C ≤ Ta ≤ +70˚C)						

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



MEMO HOLDER AVAILABLE

■ BRACKET

DT Series
(See Page 2-40)

Unit:mm

CS-65-UL SERIES

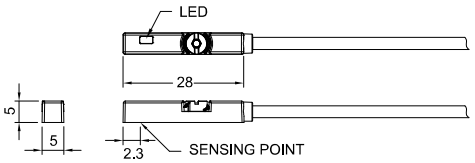
RoHS

Magnetic Sensor

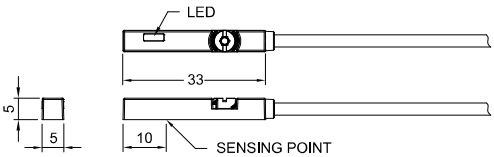
PATENTED

■ DIMENSIONS

CS-65N-UL, CS-65P-UL, Cs-65D-UL

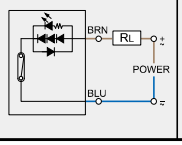
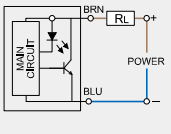
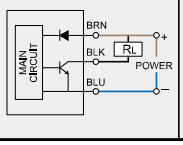
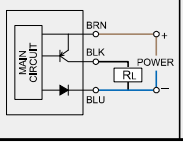
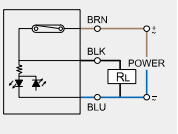


CS-65R-UL, CS-65RP-UL



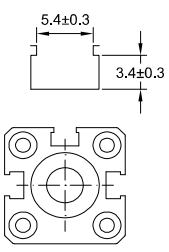
■ SPECIFICATIONS

Unit:mm

TYPE	CS-65R-UL	CS-65D-UL	CS-65N-UL	CS-65P-UL	CS-65RP-UL
CONNECT DIAGRAM / CHARACTERISTICS					
Wiring Method	2-Wire Type		3-Wire Type		
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open			SPST, Normally Open
Sensor Type	Reed Switch	-	NPN Current Sinking	PNP Current Sourcing	Reed Switch
Operating Voltage	5~30V DC/AC	10~28V DC			10~30V DC/AC
Switching Current	60mA max.	40mA max.	100mA max.		
Contact Rating (*1)	1.8W max.	1.2W max.	3W max.		
Current Consumption	-		10mA @ 24V DC max.		
Voltage Drop	3.0V max.	3.5V max.	1.5V max.		0.1V @ 100mA max.
Leakage Current	-	0.8mA max.	0.05mA max.		-
Indicator	Red LED			Yellow LED	
Cable	ø2.8, 2C, PUR		ø2.8, 3C, PUR		
Operating Frequency	200Hz	1000Hz			200Hz
Magnet Requirement (*2)	75Gauss	50Gauss			65Gauss
Temperature Range	-10~60˚C	-10~70˚C (+14~158˚F)			
Shock (*3)	30G	50G			30G
Vibration (*4)	9G				
Enclosure Classificaz	IEC 60529 IP67 (NEMA 6)				
Protection Circuit (*5)	1	2	2,3,4		1

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

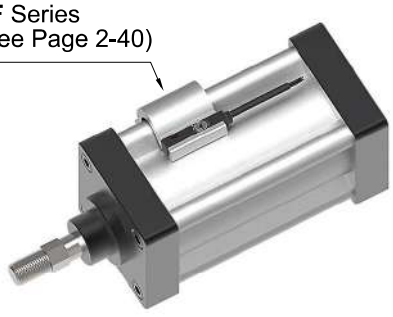
■ GROOVE DIMENSIONS



MEMO HOLDER AVAILABLE

■ BRACKET

PF Series
(See Page 2-40)



Unit:mm

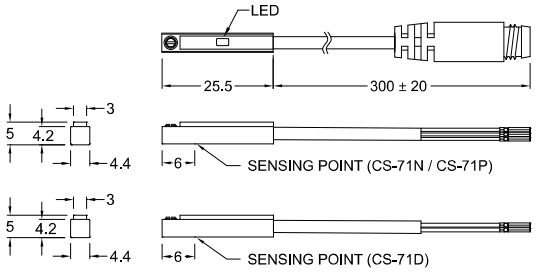
CS-71 SERIES

RoHS

Magnetic Sensor

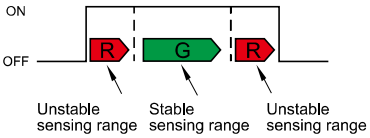
■ DIMENSIONS

CS-71D, CS-71N, CS-71P / CS-71D-QD, CS-71N-QD, CS-71P-QD



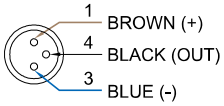
Unit:mm

■ SW OUT

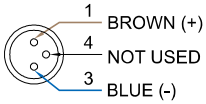


■ QD PINOUT

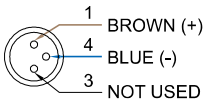
*3 wire QD wiring



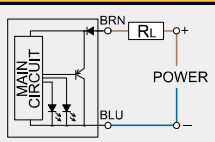
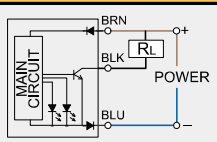
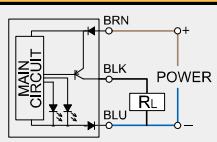
*2 wire QD wiring



*2 wire EQD wiring

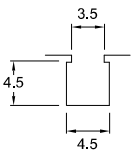


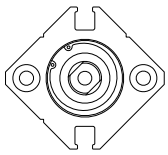
■ SPECIFICATIONS

TYPE	CS-71D	CS-71N	CS-71P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	Solid State Output, Normally Open		
Sensor Type	-	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	10~28V DC		
Switching Current	80mA max.		
Contact Rating (*1)	2W max.		
Current Consumption	-	10mA @ 24V DC max.	
Voltage Drop	4V max.	1.5V max.	
Leakage Current	1mA max.	0.05mA max.	
Indicator	Red / Green LED		
Cable	ø2.8, 2C, PUR	ø2.8, 3C, PUR	
Operating Frequency	1000Hz		
Magnet Requirement (*2)	85Gauss		
Temperature Range	-10~60˚C (+14~140˚F)		
Shock (*3)	50G		
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	2,3,4		

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS





CS-75 SERIES

RoHS

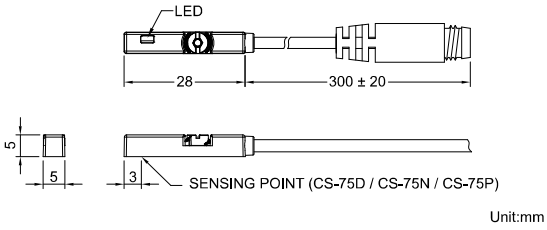
Magnetic Sensor

PATENTED

Dual Color LED allow more precise positioning

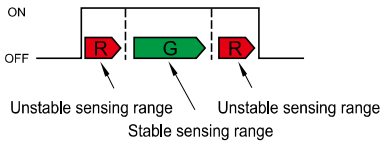
■ DIMENSIONS

CS-75D, CS-75N, CS-75P / CS-75D-QD, CS-75N-QD, CS-75P-QD



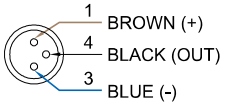
Unit:mm

■ SW OUT

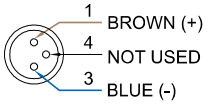


■ QD PINOUT

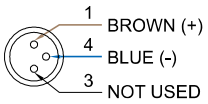
*3 wire QD wiring



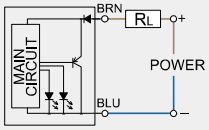
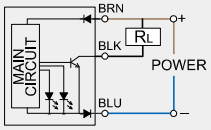
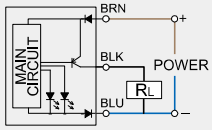
*2 wire QD wiring



*2 wire EQD wiring

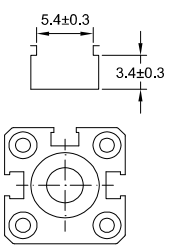


■ SPECIFICATIONS

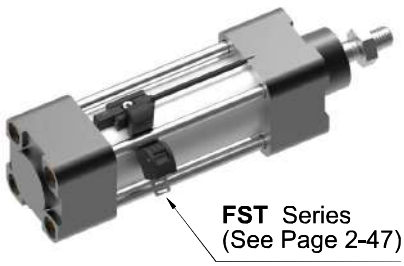
TYPE	CS-75D	CS-75N	CS-75P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	Solid State Output, Normally Open		
Sensor Type	-	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	10~28V DC		
Switching Current	80mA max.		
Contact Rating (*1)	2W max.		
Current Consumption	-	10mA @ 24V DC max.	
Voltage Drop	4V max.	1.5V max.	
Leakage Current	1mA max.	0.05mA max.	
Indicator	Red / Green LED		
Cable	ø2.8, 2C, PUR	ø2.8, 3C, PUR	
Operating Frequency	1000Hz		
Magnet Requirement (*2)	85Gauss		
Temperature Range	-10~60˚C (+14~140˚F)		
Shock (*3)	50G		
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	2,3,4		

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



■ MOUNTING CLAMPS



Unit:mm

CS-77 SERIES

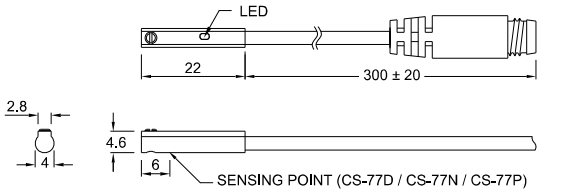
RoHS

Magnetic Sensor

Dual Color LED allow more precise positioning

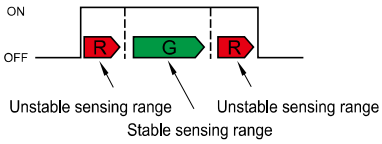
■ DIMENSIONS

CS-77D, CS-77N, CS-77P / CS-77D-QD, CS-77N-QD, CS-77P-QD



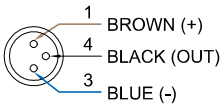
Unit:mm

■ SW OUT

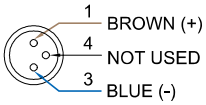


■ QD PINOUT

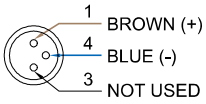
*3 wire QD wiring



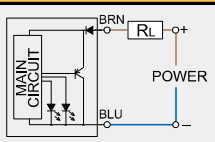
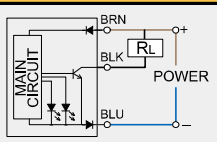
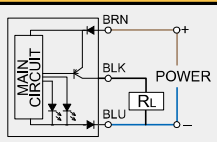
*2 wire QD wiring



*2 wire EQD wiring

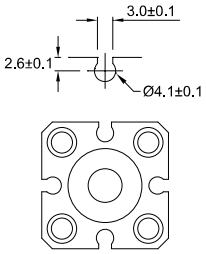


■ SPECIFICATIONS

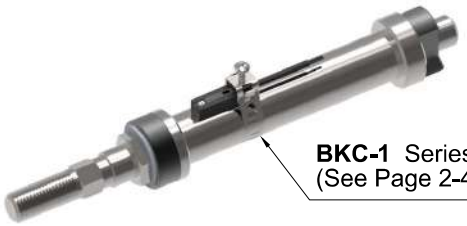
TYPE	CS-77D	CS-77N	CS-77P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	Solid State Output, Normally Open		
Sensor Type	-	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	10~28V DC		
Switching Current	80mA max.		
Contact Rating (*1)	2W max.		
Current Consumption	-	10mA @ 24V DC max.	
Voltage Drop	4V max.	1.5V max.	
Leakage Current	1mA max.	0.05mA max.	
Indicator	Red / Green LED		
Cable	ø2.8, 2C, PUR	ø2.8, 3C, PUR	
Operating Frequency	1000Hz		
Magnet Requirement (*2)	85Gauss		
Temperature Range	-10~60˚C (+14~140˚F)		
Shock (*3)	50G		
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	2,3,4		

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



■ MOUNTING CLAMPS



Unit:mm

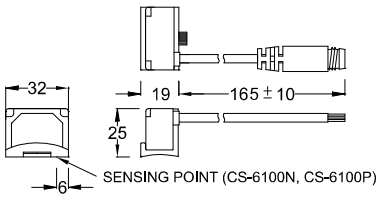
CS-6100 SERIES

RoHS

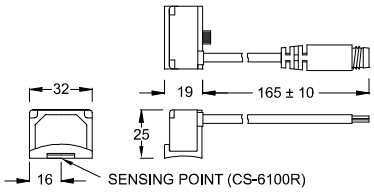
Magnetic Sensor

■ DIMENSIONS

CS-6100N, CS-6100P / CS-6100N-QD, CS-6100P-QD



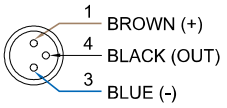
CS-6100R / CS-6100-QD



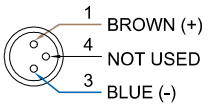
Unit:mm

■ QD PINOUT

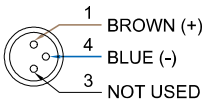
***3 wire QD wiring**



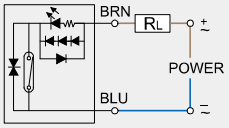
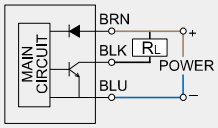
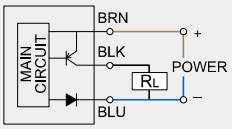
***2 wire QD wiring**



***2 wire EQD wiring**

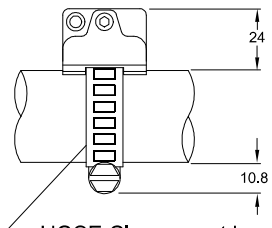


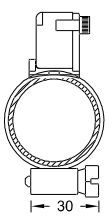
■ SPECIFICATIONS

TYPE	CS-6100R	CS-6100N	CS-6100P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~240V DC/AC	5~30V DC	
Switching Current	1Amp. max.		
Contact Rating (*1)	30W max.		
Current Consumption	-	42mA @ 24V DC max.	30mA @ 24V DC max.
Voltage Drop	3.5V max.	1.5V @ 0.5A max.	
Leakage Current	-	0.01 mA max.	
Indicator	Red LED	Power : Green LED , Output : Red LED	
Cable	ø4.5, 2C, PVC	ø4.5, 3C, PVC	
Operating Frequency	200 Hz	1000 Hz	
Magnet Requirement (*2)	80 Gauss	60 Gauss	
Temperature Range	-10~70˚C (+14~158˚F)		
Shock (*3)	30G	50G	
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	4	3,4	

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ MOUNTING CLAMPS





Unit:mm

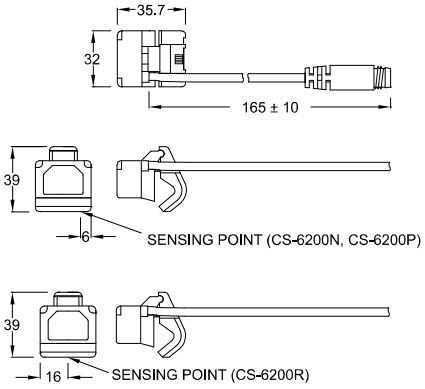
CS-6200 SERIES

RoHS

Magnetic Sensor

■ DIMENSIONS

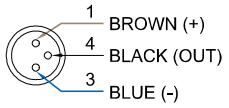
CS-6200R, CS-6200N, CS-6200P /
CS-6200R-QD, CS-6200N-QD, CS-6200P-QD



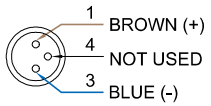
Unit:mm

■ QD PINOUT

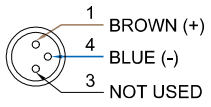
***3 wire QD wiring**



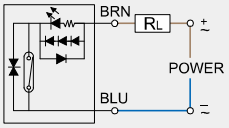
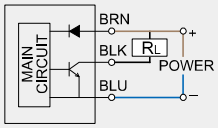
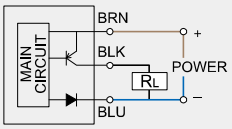
***2 wire QD wiring**



***2 wire EQD wiring**

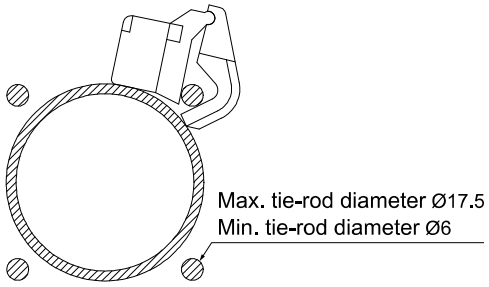


■ SPECIFICATIONS

TYPE	CS-6200R	CS-6200N	KT-6200P
CONNECT DIAGRAM / CHARACTERISTICS			
Wiring Method	2-Wire Type	3-Wire Type	
Switching Logic	SPST, Normally Open	Solid State Output, Normally Open	
Sensor Type	Reed Switch	NPN Current Sinking	PNP Current Sourcing
Operating Voltage	5~240V DC/AC	5~30V DC	
Switching Current	1Amp. max.		
Contact Rating (*1)	30W max.		
Current Consumption	-	42mA @ 24V DC max.	30mA @ 24V DC max.
Voltage Drop	3.5V max.	1.5V @ 0.5A max.	
Leakage Current	-	0.01 mA max.	
Indicator	Red LED	Power : Green LED , Output : Red LED	
Cable	ø4.5, 2C, PVC	ø4.5, 3C, PVC	
Operating Frequency	200 Hz	1000 Hz	
Magnet Requirement (*2)	80 Gauss	40 Gauss	
Temperature Range	-10~70˚C (+14~158˚F)		
Shock (*3)	30G	50G	
Vibration (*4)	9G		
Enclosure Classification	IEC 60529 IP67 (NEMA 6)		
Protection Circuit (*5)	4	3,4	

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
3. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
4. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
5. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ SELF MOUNTING CLAMPS



Unit:mm

Weld-field Immune Sensor

CS-1000D

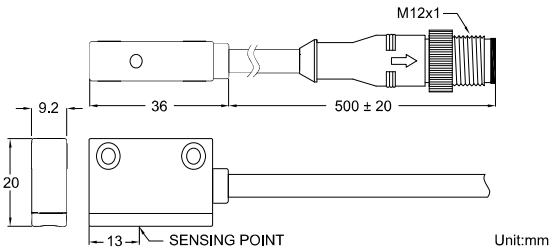
RoHS

Magnetic Sensor

MAGNETIC FIELD RESISTANT

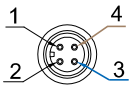
Dual Color LED allow more precise positioning

■ DIMENSIONS



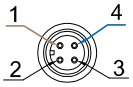
■ QD PINOUT

QD



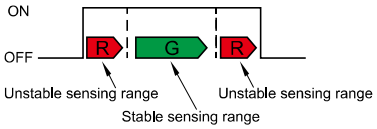
1:N/C (No connect)
2:N/C (No connect)
3:BLUE
4:BROWN

EQD



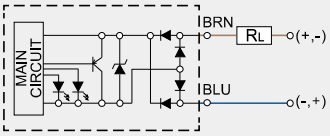
1:BROWN
2:N/C (No connect)
3:N/C (No connect)
4:BLUE

■ SW OUT



The function of three sensing range indicators ensures the preciseness of setting position.

■ SPECIFICATIONS

TYPE	CS-1000D
CONNECT DIAGRAM / CHARACTERISTICS	
Wiring Method	2-Wire Type
Switching Logic	Solid State Output, Nomally Open
Sensor Type	-
Operating Voltage	10~28V DC
Switching Current	5~50mA max.
Contact Rating (*1)	1.5W max.
Current Consumption	-
Voltage Drop	5V max.
Leakage Current	1mA max.
Indicator	Red LED : unstable sensing range Green LED : stable sensing range
Cable	ø5.4, 2C, PVC
Operating Time	50ms max.
Magnetic Feild Resistance (*2)	16000A
Magnet Requirement (*3)	85 Gauss
Temperature Range	-10~60˚C (+14~140˚F)
Shock (*4)	30G
Vibration (*5)	9G
Enclosure Classification	IEC 60529 IP67 (NEMA 6)
Protection Circuit (*6)	3,4

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. The operational distance can be 0 mm between CS-1000D and welding gun (welding conductor or cable) when the welding current less than 16000 A.
3. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
4. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
5. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
6. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

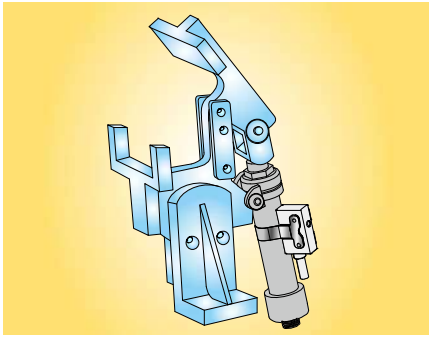
■ ORDERING INFORMATION

C S - 1 0 0 0 D - [ ]

Cable Length / Connector

Blank: With 3 meter cable
QD: With M12 4Pin male connector

■ APPLICATION MOUNTING



CS-1000D detects the position of the cylinder piston and it is especially suitable for clamp cylinder.

Weld-field Immune Sensor

CS-1000D

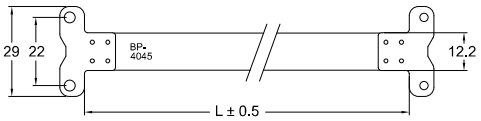
RoHS

Magnetic Sensor

■ CLAMPS

BP

Clamp is designed for mounting CS-1000D on round cylinder.



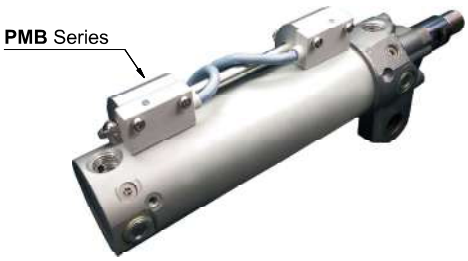
NO.	Model	" L "	I.D.	O.D.
1	BP-4045	154	ø40	ø45
2	BP-4047	161	ø40	ø47
3	BP-5055	188	ø50	ø55
4	BP-5058	197	ø50	ø58
5	BP-6368	228	ø63	ø68
6	BP-6372	240	ø63	ø72

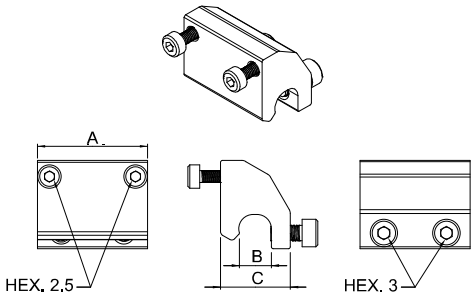
Unit:mm

■ BRACKET

PMB

Clamp is designed for mounting CS-1000D on round cylinder.

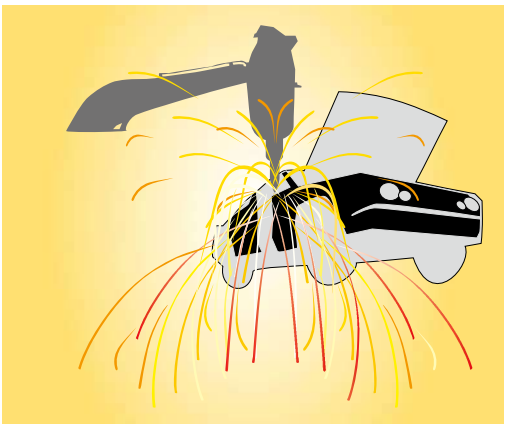




Model \ DIM.	A	B	C
PMB-040	28.15	8.15	17.85

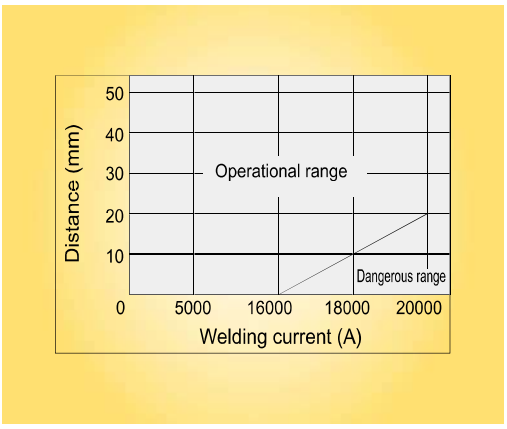
Unit:mm

■ APPLICATION ENVIRONMENT



CS-1000D can be applied in the strong magnetic field environment such as automotive manufacturing or areas near welding machine.When **CS-1000D** detects the magnetic AC field (50 or 60 Hz) it will keep the status of output and will not be effected.

■ WELD-FIELD IMMUNE



The operational distance can be 0 mm between **CS-1000D** and welding gun (welding conductor or cable) when the welding current less than 16000 A.

Weld-field Immune Sensor

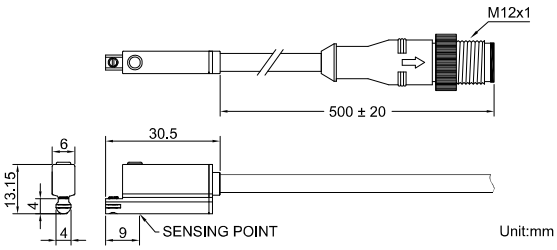
CS-1001D

RoHS

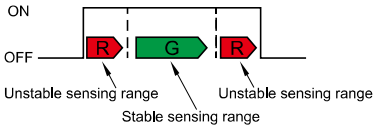
Magnetic Sensor

Dual Color LED allow more precise positioning

■ DIMENSIONS



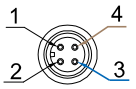
■ SW OUT



The function of three sensing range indicators ensures the preciseness of setting position.

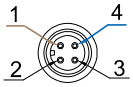
■ QD PINOUT

QD



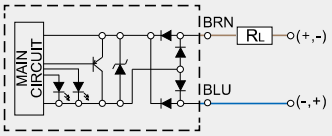
1:N/C (No connect)
2:N/C (No connect)
3:BLUE
4:BROWN

EQD



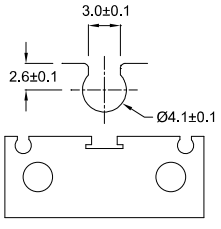
1:BROWN
2:N/C (No connect)
3:N/C (No connect)
4:BLUE

■ SPECIFICATIONS

TYPE	CS-1001D
CONNECT DIAGRAM / CHARACTERISTICS	
Wiring Method	2-Wire Type
Switching Logic	Solid State Output, Nomally Open
Sensor Type	-
Operating Voltage	10~28V DC
Switching Current	5~50mA max.
Contact Rating (*1)	1.5W max.
Current Consumption	-
Voltage Drop	5V max.
Leakage Current	1mA max.
Indicator	Red LED : unstable sensing range Green LED : stable sensing range
Cable	ø4.8, 2C, PVC
Operating Time	50ms max.
Magnetic Feild Resistance (*2)	16000A
Magnet Requirement (*3)	85 Gauss
Temperature Range	-10~60˚C (+14~140˚F)
Shock (*4)	50G
Vibration (*5)	9G
Enclosure Classification	IEC 60529 IP67 (NEMA 6)
Protection Circuit (*6)	3,4

NOTE:
1. WARNING: Never exceed rating (Watt=Voltage x Amperage). Permanent demage to sensor will occur.
2. The operational distance can be 0 mm between KT-1000D and welding gun (welding conductor or cable) when the welding current less than 16000 A.
3. Measuring standard target: ø15.5Xø8X5t (Anisotropy rubber magnet)
4. Sin wave / X , Y , Z 3 directions / 3 times each direction / 11 ms each time.
5. Double amplitude 1.5 mm / 10Hz~55Hz~10Hz (Sweep 1 min) / X , Y , Z 3 directions / 1 hour each time.
6. 1=None / 2=Short-circuit / 3=Power Source Reverse polarity / 4=Surge Suppression

■ GROOVE DIMENSIONS



Unit:mm

■ ORDERING INFORMATION

C S - 1 0 0 1 D - ☐

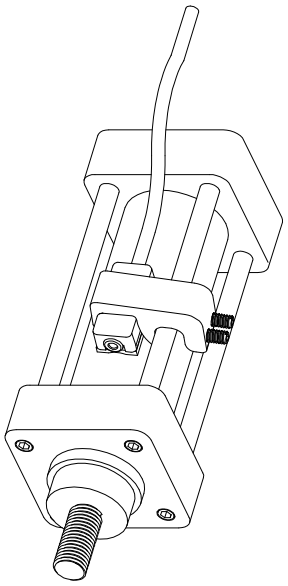
Cable Length / Connector

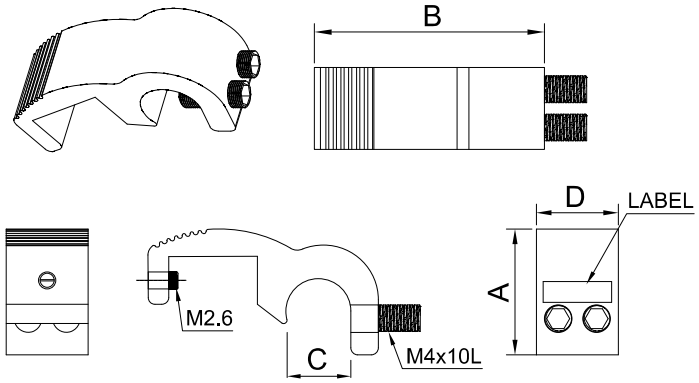
Blank: With 3 meter cable
QD: With M12 4Pin male connector

BRACKET PM/PI

PM

Bracket is designed for mounting CS-21 & CS-31 series sensor on tie-rod cylinder.



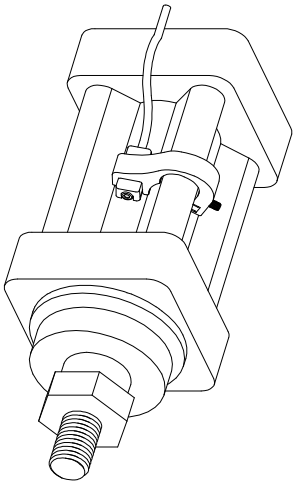


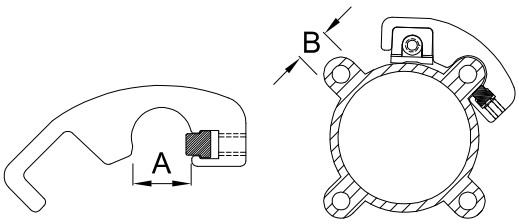
MODEL \ DIM.	A	B	C	D
PM-6	19.1	31.8	7.3	12
PM-8	18.4	33.7	9.3	12
PM-10	16.7	35.9	11.2	12
PM-12	20	35.5	11.5	12
PM-14	24	38.0	13.5	12
PM-16	24	40.0	15.5	12

Unit:mm

PI

Bracket is designed for mounting CS-21 & CS-31 series sensor on ISO profile cylinder.





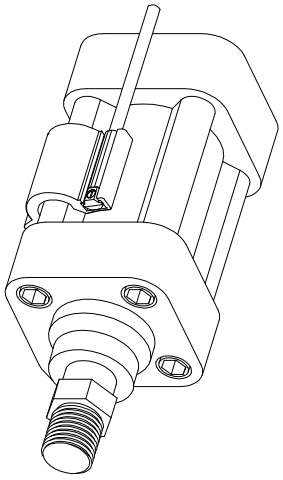
MODEL \ DIM.	A	B	Remark
PI-1	10.9	10.4	ø 32 ~ ø 40
PI-2	14.10	13.5	ø 50 ~ ø 63
PI-3	15.45	15	ø 80
PI-4	16.3	16	ø 100
PI-5	19.8	18.7	ø 125
PI-6	26.5	25.7	ø 150

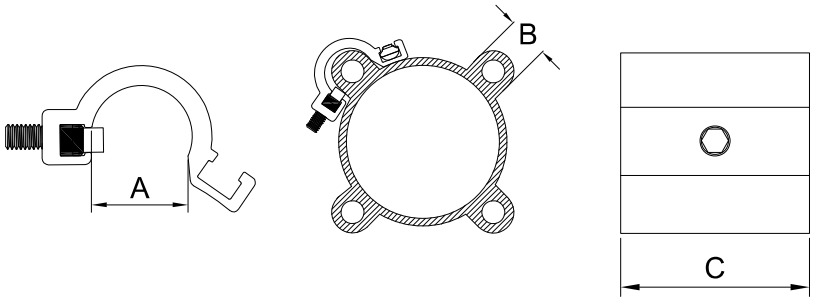
Unit:mm

BRACKET PF/DT SERIES

PF

Bracket is designed for mounting CS-40 & CS-50 & CS-65 & CS-75 series sensor on ISO profile cylinder.



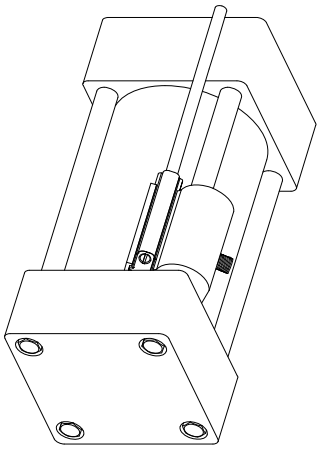


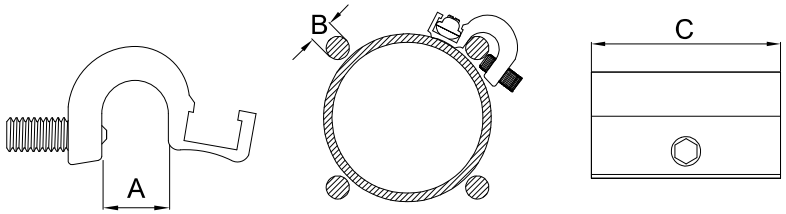
MODEL \ DIM.	A	B	C	Remark
PF-1	12.1	10.4	25	ø 32 ~ ø 40
PF-2	15.9	13.5	25	ø 50 ~ ø 63
PF-3	16.3	15	25	ø 80
PF-4	17.9	16	25	ø 100
PF-5	19.7	18.7	25	ø 125

Unit:mm

DT

Bracket is designed for mounting CS-40 & CS-50 & CS-65 & CS-75 series sensor on tie-rod cylinder.





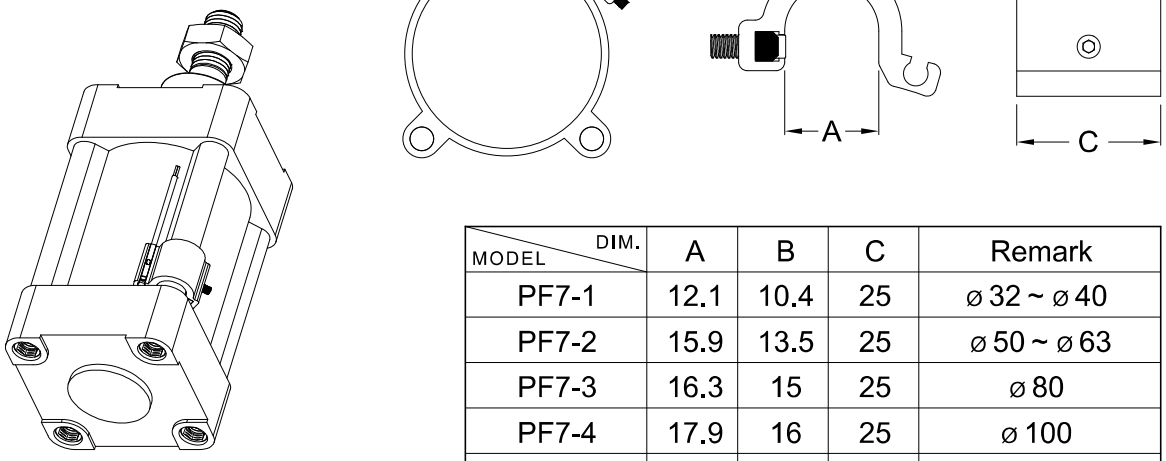
MODEL \ DIM.	A	B	C
DT-1	7.9	ø 4 ~ ø 6	25
DT-2	10.4	ø 8 ~ ø 10	25
DT-3	15.1	ø 12 ~ ø 14	25
DT-4	20.6	ø 16	25
DT-5	24.9	ø 20 ~ ø 24	30

Unit:mm

BRACKET PF7/DT7 SERIES

PF7

Bracket is designed for mounting CS-07 & CS-16 & CS-18 & CS-36 & CS-37 & CS-38 & CS-77 series sensor on ISO profile cylinder.

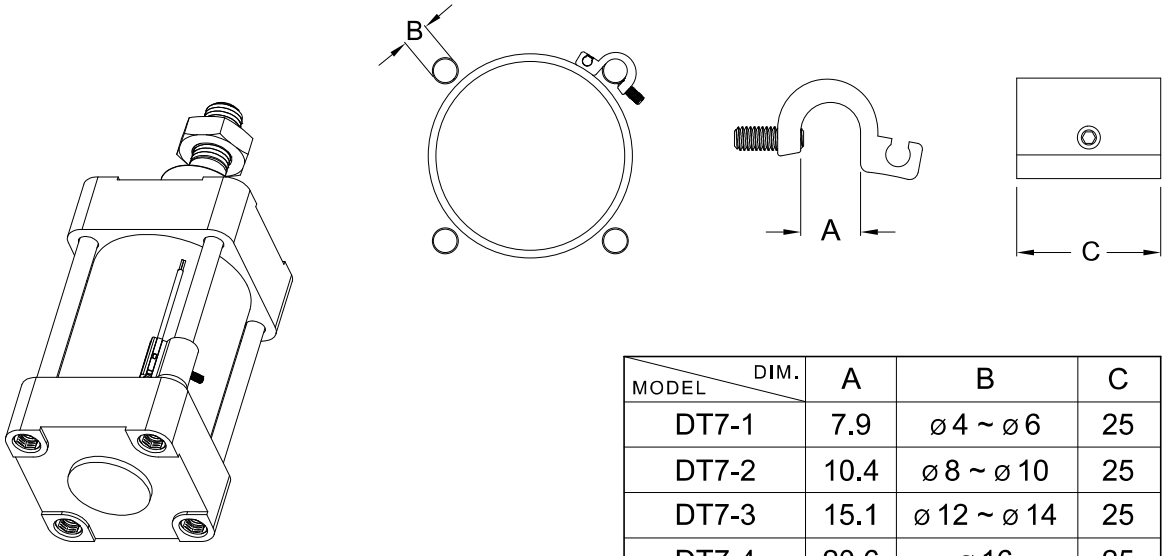


MODEL / DIM.	A	B	C	Remark
PF7-1	12.1	10.4	25	ø 32 ~ ø 40
PF7-2	15.9	13.5	25	ø 50 ~ ø 63
PF7-3	16.3	15	25	ø 80
PF7-4	17.9	16	25	ø 100
PF7-5	19.7	18.7	25	ø 125
PF7-6	27.6	25.7	25	ø 160

Unit:mm

DT7

Bracket is designed for mounting CS-07 & CS-16 & CS-18 & CS-36 & CS-37 & CS-38 & CS-77 series sensor on tie-rod cylinder.



MODEL / DIM.	A	B	C
DT7-1	7.9	ø 4 ~ ø 6	25
DT7-2	10.4	ø 8 ~ ø 10	25
DT7-3	15.1	ø 12 ~ ø 14	25
DT7-4	20.6	ø 16	25

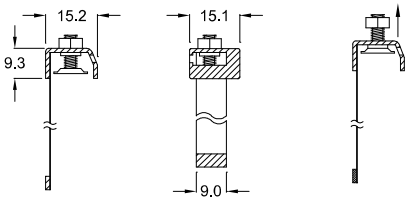
Unit:mm

CLAMP PN/PH/PAB SERIES

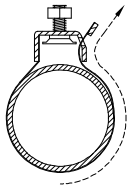
Magnetic Sensor

PN

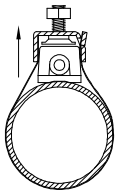
Clamp is designed for mounting CS-21 & CS-31 series sensor on round cylinder.



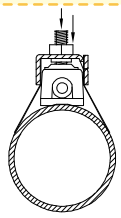
Step 1
Loosen screw & nut.



Step 2
Wrap the band around the cylinder & put the apex through the fastening hole.



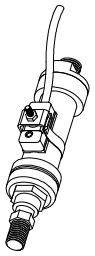
Step 3
Pull up mounting head & place sensor underthe mounting head.



Step 4
Swivel set screw to tighten band and fixing sensor. Finally swivel nut for steadying.

Cylinder Chart

Model	Bore Size	Barrel Material	Model	Bore Size	Barrel Material
PN-A16	ø16	Aluminum	PN-S10	ø10	Stainless
PN-A20	ø20	Aluminum	PN-S12	ø12	Stainless
PN-A25	ø25	Aluminum	PN-S16	ø16	Stainless
PN-A30	ø30	Aluminum	PN-S20	ø20	Stainless
PN-A32	ø32	Aluminum	PN-S25	ø25	Stainless
PN-A40	ø40	Aluminum	PN-S32	ø32	Stainless
PN-A50	ø50	Aluminum	PN-S40	ø40	Stainless
PN-A63	ø63	Aluminum			

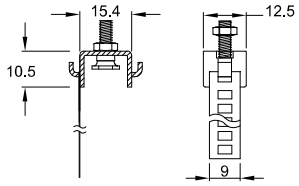


PN - S 2 0

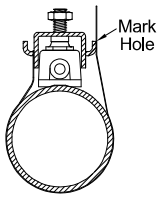
Cylinder bore size.
S : For cylinder body is stainless steel.
A : For cylinder body is aluminium steel.

PH

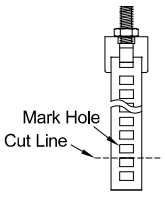
Clamp is designed for mounting CS-21 & CS-31 series sensor on round cylinder.



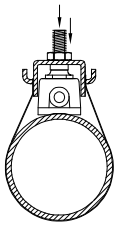
Step 1
Loosen screw & nut.



Step 2
Place sensor & wrap the band around the cylinder. Position the hook with the nearest hole on the band and mark the hole with a permanent marker.



Step 3
Remove mounting assembly. Cut the band at the nearest edge of next hole. (the one that's further away from the mounting head).

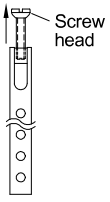


Step 4
Re-place the sensor & mounting assembly. Wrap the band & put the chosen hole on hook. Position the switch and tighten. Finally swivel nut for steadying.

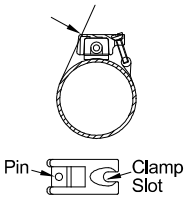
PH-1 : For **Ø6 ~ Ø63** round cylinder use.
PH-2 : For **Ø6 ~ Ø125** round cylinder use.

PAB

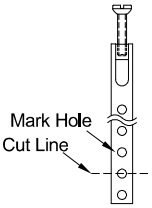
Clamp is designed for mounting CS-21 & CS-31 series sensor Ø12 ~ Ø100 on round cylinder.



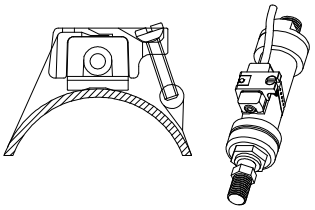
Step 1
Start by keeping screw. 3 to 4 turns into barrel nut on the end of the band assembly.



Step 2
Place the screw head into clamp slot and wrap the band around the cylinder. Position the pin with the nearest hole on the band and mark the hole with a permanent marker.



Step 3
Remove clamp assembly from the cylinder. Locate the marked hole that fits to the cylinder size, cut the band at midway between the above adjacent hole. (the one that's further away from the screw nut).



Step 4
Insert cut end of the band into a flat slot opposite from the clamp slot. Place the chosen hole over the pin and bend the band firmly down with thumb pressure. Then wrap the band around cylinder barrel and re-insert screw head into clamp. Position the switch and tighten.

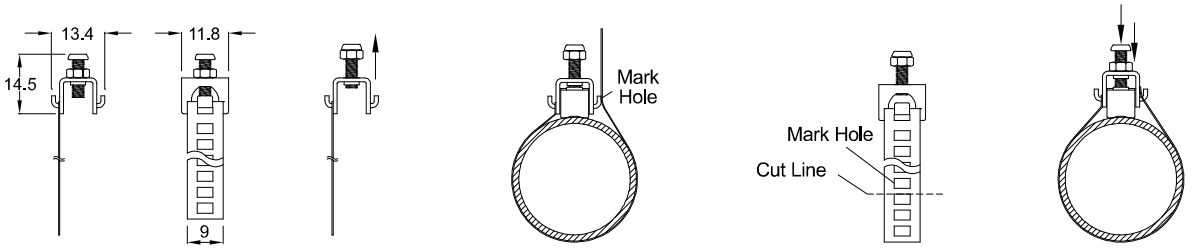
PAB : For **Ø12 ~ Ø100** round cylinder use.

CLAMP BK/BS SERIES

Magnetic Sensor

BK

Clamp is designed for mounting CS-05 & CS-15 series sensor on round cylinder.

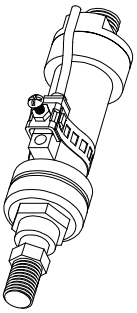


Step 1
Loosen screw & nut.

Step 2
Place sensor & wrap the band around the cylinder. Position the hook with the nearest hole on the band and mark the hole with a permanent marker.

Step 3
Remove mounting assembly Cut the band at the nearest edge of next hole. (the one that's further away from the mounting head).

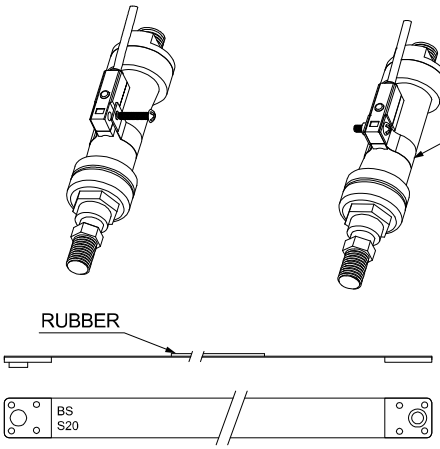
Step 4
Re-place the sensor & mounting assembly. Wrap the band & put the chosen hole on hook. Position the switch and tighten. Finally swivel nut for steadying.



BK-81 : For **Ø6 ~ Ø32** round cylinder use.
BK-82 : For **Ø6 ~ Ø63** round cylinder use.

BS

Clamp is designed for mounting CS-48 series sensor on round cylinder.



Wrap the band around cylinder barrel and re-insert screw head into clamp. Position the switch and tighten.

BS - S 2 5

- **12** : **ø12** cylinder
- **16** : **ø16** cylinder
- ⋮
- **40** : **ø40** cylinder

- **S** : For cylinder body is stainless steel.
- **A** : For cylinder body is aluminum alloy.

EX : **BS-S25** : It is used on **ø25** cylinder and material of cylinder tube is stainless.

Cylinder Chart

Model	Bore Size	Barrel Material	O.D. (mm)	Model	Bore Size	Barrel Material	O.D. (mm)
BS-A20	ø20	Aluminum	25	BS-S6	ø6	Stainless	8.5
BS-A25	ø25	Aluminum	30	BS-S8	ø8	Stainless	10
BS-A30	ø30	Aluminum	35	BS-S10	ø10	Stainless	11
BS-A32	ø32	Aluminum	37	BS-S12	ø12	Stainless	13.2
BS-A40	ø40	Aluminum	45	BS-S16	ø16	Stainless	17
BS-A50	ø50	Aluminum	55	BS-S20	ø20	Stainless	21.6
BS-A63	ø63	Aluminum	70	BS-S25	ø25	Stainless	26.5
BS-A80	ø80	Aluminum	87.7	BS-S32	ø32	Stainless	33.6
				BS-S40	ø40	Stainless	42

CLAMP BL-1 SERIES

Magnetic Sensor

BL-1

Clamp is designed for mounting CS-40 & CS-50 series sensor on round cylinder.

Cylinder Chart

Bore Size	Barrel Material	O.D. (mm)	Recommended mounting hole	Bore Size	Barrel Material	O.D. (mm)	Recommended mounting hole
Ø10	Stainless	11	10	Ø30	Aluminum	35	26
Ø12	Stainless	13.2	11	Ø32	Stainless	33.6	24
Ø16	Stainless	17	14	Ø32	Aluminum	37	27
Ø20	Stainless	21.6	16	Ø40	Stainless	42	30
Ø20	Aluminum	25	19	Ø40	Aluminum	45	32
Ø25	Stainless	26.5	20	Ø50	Aluminum	55	40
Ø25	Aluminum	30	22	Ø63	Aluminum	70	50

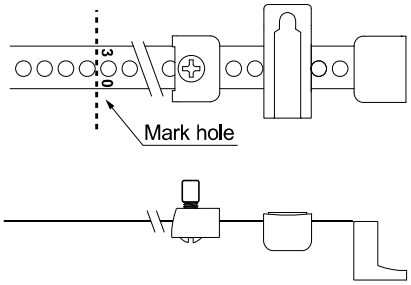
BL-1

How to use:

Example: Use with ø40 stainless body cylinder

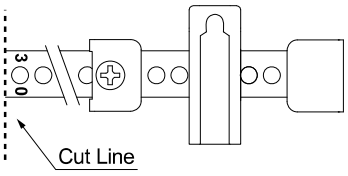
Step 1

Refer to the cylinder chart, make marking next to the 30th hole. (On the 31st hole, see below)



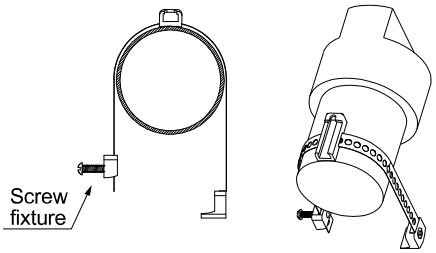
Step 2

Cut off excessive mounting band.



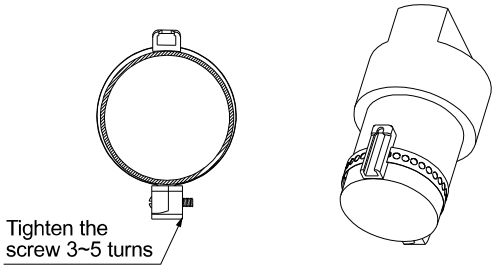
Step 3

Insert screw through screw fixture and the apropriate hole.



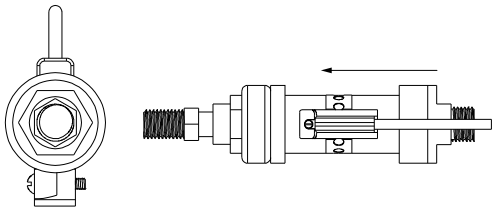
Step 4

Wrap the mounting band around the cylinder barrel and tighten the screw 3~5 turns.



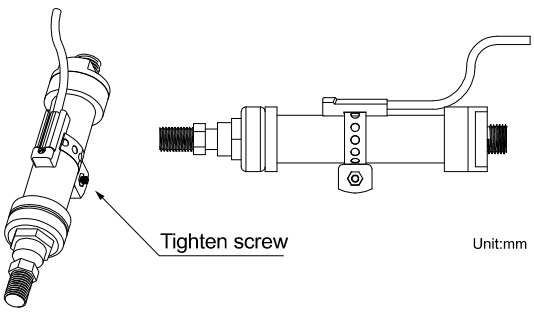
Step 5

Mount the sensor in the BL-1 series bracket and tighten.



Step 6

Adjust sensor to the sensing postion and tighten.



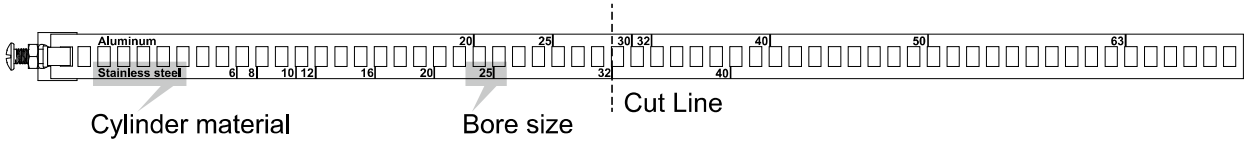
BKC-1

BKC-1 is designed for mounting CS-07 & CS-77 series sensor on round cylinder.

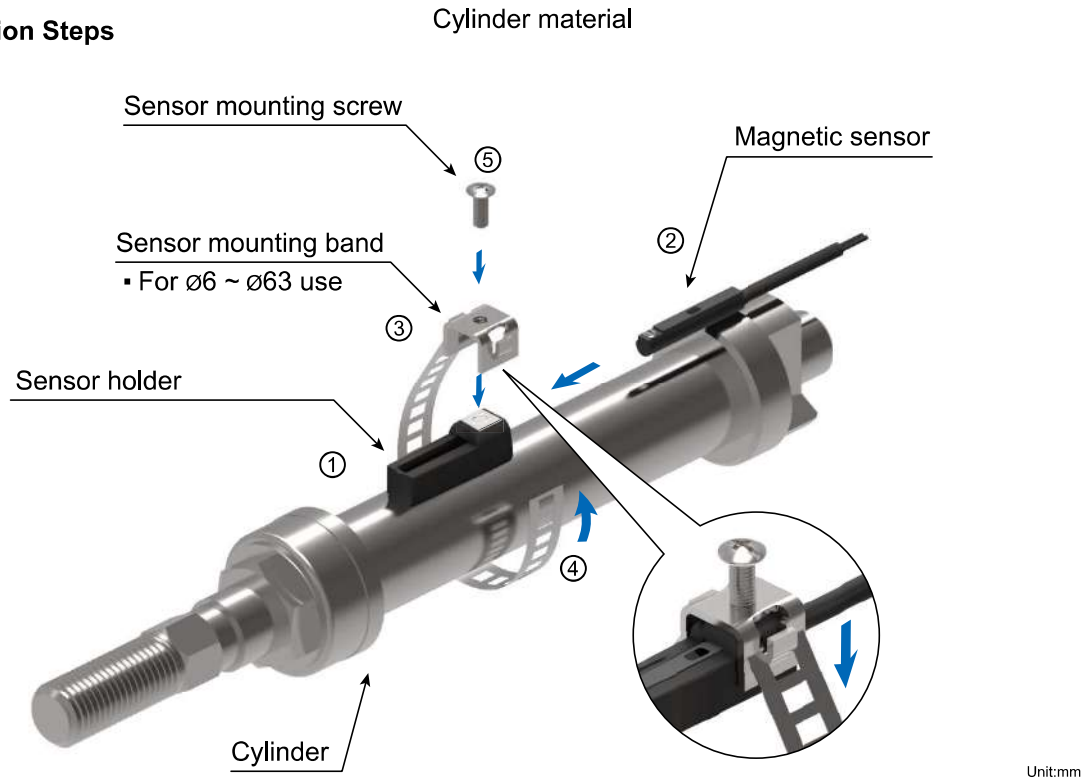
BKC-1

How to use :

1. Example: Use with ø32 stainless body cylinder.
Refer to the clamp marking "Stainless steel 32", and cut off the excessive portion.



2. Installation Steps



Unit:mm

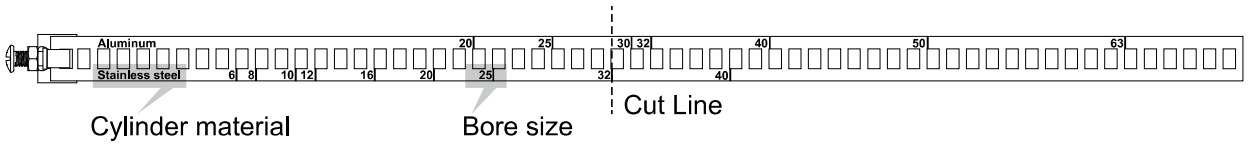
BKT-1

BKT-1 is designed for mounting CS-65 & CS-75 series sensor on round cylinder.

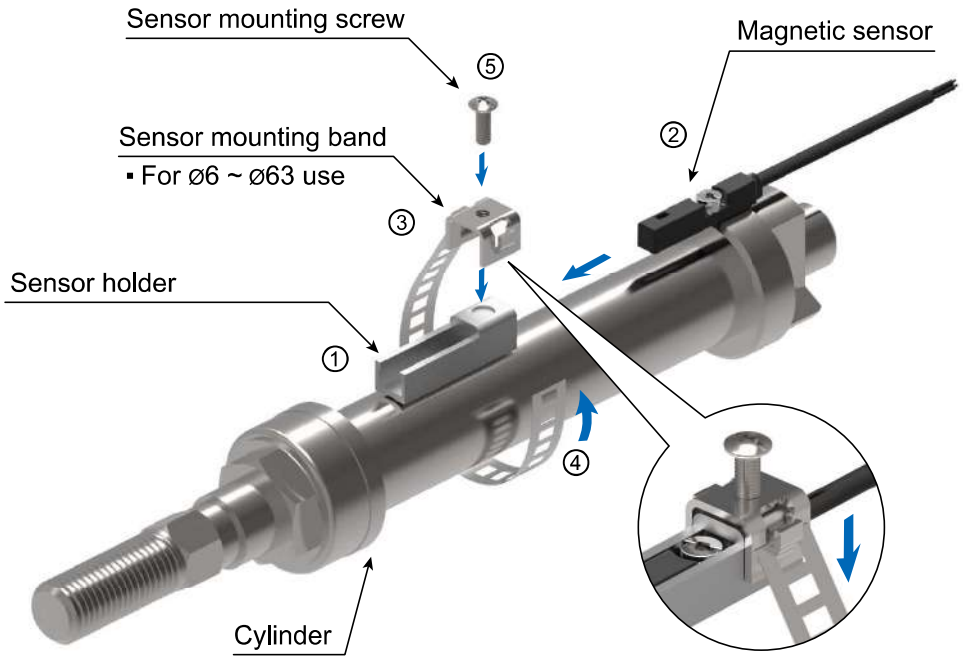
BKT-1

How to use :

1. Example: Use with ø32 stainless body cylinder.
Refer to the clamp marking "Stainless steel 32", and cut off the excessive portion.



2. Installation Steps



Unit:mm

FST

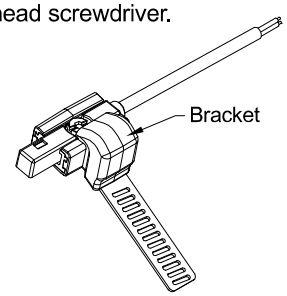
FST is designed for CS-40 & CS-50 & CS-65 & CS-75 series sensor on tie-rod cylinder.

FST

How to mount:

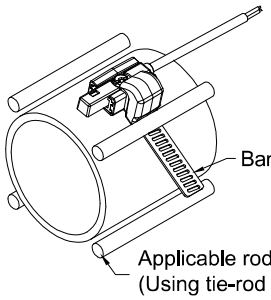
Step 1

Fix sensor on bracket with 2mm hexagon wrench or flathead screwdriver.



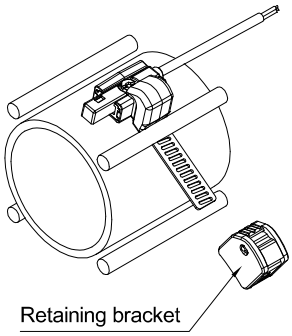
Step 2

Insert the band between cylinder tube and tie-rod.



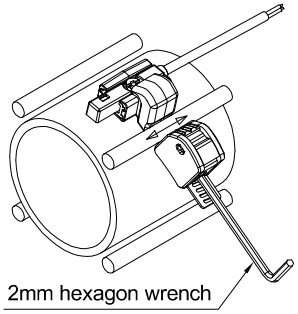
Step 3

Slide the retaining bracket onto the band.



Step 4

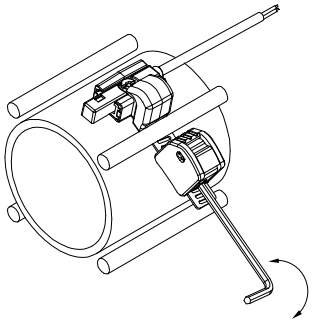
Adjust by moving bracket to most ideal sensing position and tighten screw. (Torque: 5~7 kgs).



How to dismount:

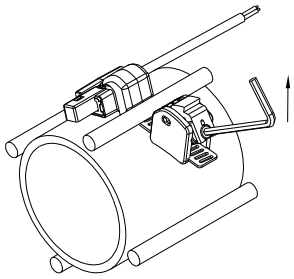
Step 1

Use 2mm hexagon wrench to release the screw for 2~3 turns.



Step 2

Use 2mm hexagon wrench to lift up the screw cap to remove the retaining bracket.

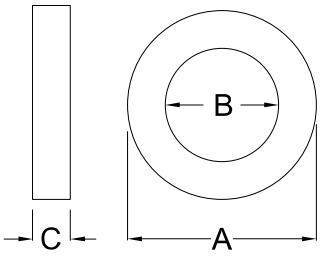


Unit:mm

ANISOTROPIC RUBBER MAGNET

MODEL \ DIM.	A / $^{+0.00}_{-0.80}$	B / $^{+0.80}_{-0.00}$	C / ±0.2
ME - 16 - 8 × 4	15.50	8.00	4.00
ME - 20 - 9 × 4	19.50	9.00	4.00
ME - 25 - 13 × 4	24.50	13.00	4.00
ME - 30 - 21 × 4	29.50	21.00	4.00
ME - 32 - 21 × 4	31.50	21.00	4.00
ME - 40 - 22 × 4	39.50	22.00	4.00
ME - 50 - 32 × 4	49.50	32.00	4.00
ME - 63 - 42 × 4	62.50	42.00	4.00
ME - 80 - 58 × 4	79.50	58.00	4.00
ME - 100 - 78 × 4	99.50	78.00	4.00
ME - 125 - 79 × 4	124.50	79.00	4.00
ME - 125 -108× 4	124.50	108.00	4.00
ME - 150 -125× 4	149.50	125.00	4.00
ME - 200 -176× 4	195.50	176.00	4.00

MODEL \ DIM.	A / $^{+0.00}_{-0.80}$	B / $^{+0.80}_{-0.00}$	C / ±0.2
ME - 16 - 8 × 5	15.50	8.00	5.00
ME - 20 - 9 × 5	19.50	9.00	5.00
ME - 25 - 13 × 5	24.50	13.00	5.00
ME - 30 - 21 × 5	29.50	21.00	5.00
ME - 32 - 21 × 5	31.50	21.00	5.00
ME - 40 - 22 × 5	39.50	22.00	5.00
ME - 50 - 32 × 5	49.50	32.00	5.00
ME - 63 - 42 × 5	62.50	42.00	5.00
ME - 80 - 58 × 5	79.50	58.00	5.00
ME - 100 - 78 × 5	99.50	78.00	5.00



CHARACTERISTIC

A. Magnetic property:

Residual flux density (Br): 2300 - 2500 gauss
Coercive force (iHC): 3000 - 3800 Oe
(bHC): 2000 - 2300 Oe
Maximum energy product: 1.3 - 1.5 Mg.Oe

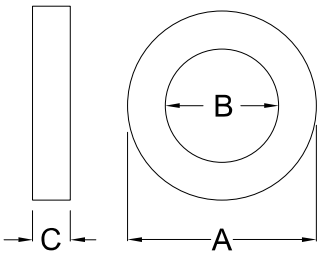
B. Physical property:

Resistant power: 20 - 50 kgf/cm^2
Lengthen: 5 -20 %
Hardness (Shore D): 30 - 50
Specific gravity: 3.5 - 3.7 g/cm^3
Temperature range: -20ºC ~ +70ºC

ANISOTROPIC PLASTIC MAGNET

MODEL \ DIM.	A / ±	B / $^{+0.30}_{-0.00}$	C / ±0.2
PME - 20 - 9 × 4	19.50	9.00	4.00
PME - 25 - 13 × 4	24.50	13.00	4.00
PME - 30 - 21 × 4	29.50	21.00	4.00
PME - 32 - 21 × 4	31.50	21.00	4.00
PME - 40 - 22 × 4	39.50	22.00	4.00
PME - 50 - 32 × 4	49.50	32.00	4.00
PME - 63 - 42 × 4	62.50	42.00	4.00
PME - 80 - 58 × 4	79.50	58.00	4.00
PME - 100 - 78 × 4	99.50	78.00	4.00

MODEL \ DIM.	A / $^{+0.00}_{-0.30}$	B / $^{+0.30}_{-0.00}$	C / ±0.2
PME - 12 - 6 × 5	11.50	6.00	5.00
PME - 16 - 8 × 5	15.50	8.00	5.00
PME - 20 - 9 × 5	19.50	9.00	5.00
PME - 25 - 13 × 5	24.50	13.00	5.00
PME - 30 - 21 × 5	29.50	21.00	5.00
PME - 32 - 21 × 5	31.50	21.00	5.00
PME - 40 - 22 × 5	39.50	22.00	5.00
PME - 50 - 32 × 5	49.50	32.00	5.00
PME - 63 - 42 × 5	62.50	42.00	5.00
PME - 80 - 58 × 5	79.50	58.00	5.00
PME - 100 - 78 × 5	99.50	78.00	5.00



CHARACTERISTIC

A. Magnetic property:

Residual flux density (Br): 2500 - 3000 gauss
Coercive force (iHC): 2700 - 3100 Oe
(bHC): 2400 - 2500 Oe
Maximum energy product: 1.8 Mg.Oe

B. Physical property:

Resistant power: 80 kgf/cm^2
Lengthen: 6.7 %
Hardness (Shore D): 120
Specific gravity: 3.2 g/cm^3
Temperature range: -20ºC ~ +100ºC

Circular Connector

KM8□R series

3-01

M8□QD series

3-02

M8□SW series

3-03

KM8□RSW series

3-04

M12□R series

3-05

M12□QD series

3-06

KM8□R SERIES

RoHS

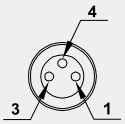
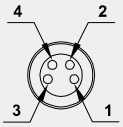
Circular Connector

■ ORDERING INFORMATION

K M 8 3 R - P U R - 2 M

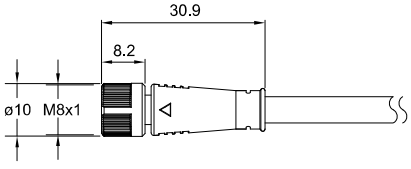
- **CONNECTOR SERIES** — KM83: M8 3-pin connector; KM84: M8 4-pin connector
- **TYPE OF CONNECTOR** — R: Female, straight socket; RL: Female, angle socket
- **CABLE MATERIAL** — PVC: ø 4.5 PVC cable (Grey); PUR: ø 4.5 PUR cable (Black)
- **CABLE LENGTH** — 2M: 2-Meters (78.7"); 5M: 5-Meters (196.9"); 10M: 10-Meters (393.7")

■ SPECIFICATION

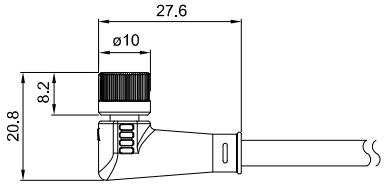
TYPE	KM83R-□ KM83RL-□		KM84R-□ KM84RL-□	
FEMALE PINOUT / CHARACTERISTICS				
Conductor colors	1:Brown 3:Blue 4:Black		1:Brown 2:White 3:Blue 4:Black	
NUMBER OF CONTACTS	3		4	
RATED VOLTAGE	60V AC/DC			
RATED CURRENT	3A			
CONTACT MATERIAL	Gold plated brass			
CONTACT BEARER MATERIAL	PC+ABS			
HOUSING MATERIAL	TPV			
HOUSING COLOR	Black			
CABLE MATERIAL	PVC	PUR	PVC	PUR
CABLE COLOR	Gray	Black	Gray	Black
CABLE CONDUCTOR	24AWG (0.22mm²)			
CIRCUIT	0.177" (4.5mm²)			
LED COLOR	-			
PROTECTION CLASS(IEC60529)	IP67			
TEMPERATURE RANGE	-20~80°C (-4~176°F)			

■ DIMENSIONS

KM83R/KM84R



KM83RL/KM84RL



Unit:mm

M8□QD SERIES

RoHS

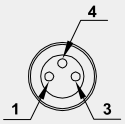
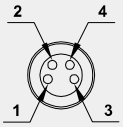
Circular Connector

■ ORDERING INFORMATION

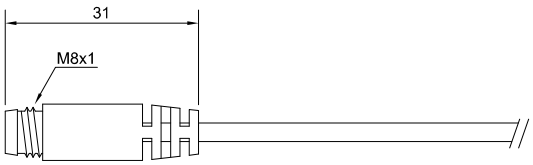
M 8 3 Q D - P U R - 2 M

- **CABLE LENGTH**
  - 2M: 2-Meters (78.7")
  - 5M: 5-Meters (196.9")
  - 10M: 10-Meters (393.7")
  - 165: 165mm(6.5")
  - 500: 500mm(19.7")
- **CABLE MATERIAL**
  - PVC: ø 4.5 PVC cable (Grey)
  - PUR: ø 4.5 PUR cable (Black)
- **TYPE OF CONNECTOR**
  - QD: Male, straight plug
- **CONNECTOR SERIES**
  - M83: M8 3-pin connector
  - M84: M8 4-pin connector

■ SPECIFICATION

TYPE	M83QD-□		M84QD-□	
FEMALE PINOUT / CHARACTERISTICS				
Conductor colors	1:Brown 3:Blue 4:Black		1:Brown 2:White 3:Blue 4:Black	
NUMBER OF CONTACTS	3		4	
RATED VOLTAGE	60V AC/DC			
RATED CURRENT	3A			
CONTACT MATERIAL	Gold plated brass			
CONTACT BEARER MATERIAL	PA			
HOUSING MATERIAL	PP			
HOUSING COLOR	Black			
CABLE MATERIAL	PVC	PUR	PVC	PUR
CABLE COLOR	Gray	Black	Gray	Black
CABLE CONDUCTOR	24AWG (0.22mm²)			
CIRCUIT	0.177" (4.5mm)			
LED COLOR	-			
PROTECTION CLASS(IEC60529)	IP67			
TEMPERATURE RANGE	-20~80°C (-4~176°F)			

■ DIMENSIONS



Unit:mm

M8□SW SERIES

RoHS

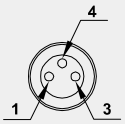
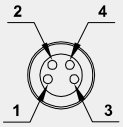
Circular Connector

■ ORDERING INFORMATION

M 8 3 S W - P U R - 2 M

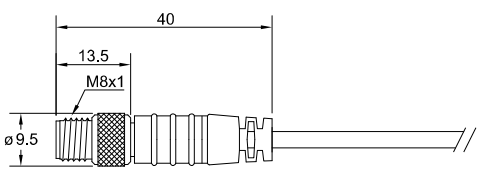
- CONNECTOR SERIES: M83: M8 3-pin connector; M84: M8 4-pin connector
- TYPE OF CONNECTOR: SW: Male, swivel lock nut, straight plug; SWL: Male, swivel lock nut, angle plug
- CABLE MATERIAL: PVC: ø 4.5 PVC cable (Grey); PUR: ø 4.5 PUR cable (Black)
- CABLE LENGTH: 2M: 2-Meters (78,7"); 5M: 5-Meters (196,9"); 10M: 10-Meters (393,7")

■ SPECIFICATION

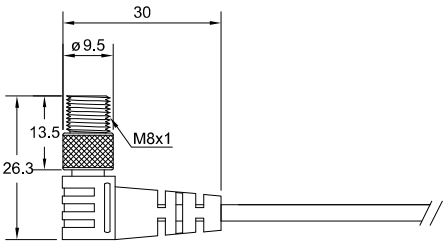
TYPE	M83SW-□ M83SWL-□		M84SW-□ M84SWL-□	
FEMALE PINOUT / CHARACTERISTICS				
Conductor colors	1:Brown 3:Blue 4:Black		1:Brown 2:White 3:Blue 4:Black	
NUMBER OF CONTACTS	3		4	
RATED VOLTAGE	60V AC/DC			
RATED CURRENT	3A			
CONTACT MATERIAL	Gold plated brass			
CONTACT BEARER MATERIAL	PU			
HOUSING MATERIAL	PU			
HOUSING COLOR	Black			
CABLE MATERIAL	PVC	PUR	PVC	PUR
CABLE COLOR	Gray	Black	Gray	Black
CABLE CONDUCTOR	24AWG (0.22mm²)			
CIRCUIT	0.177" (4.5mm)			
LED COLOR	-			
PROTECTION CLASS(IEC60529)	IP67			
TEMPERATURE RANGE	-20~80°C (-4~176°F)			

■ DIMENSIONS

M83SW/M84SW



M83SWL/M84SWL



Unit:mm

KM8□RSW SERIES

RoHS

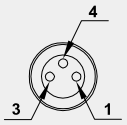
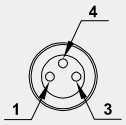
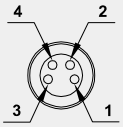
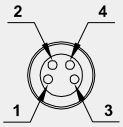
Circular Connector

■ ORDERING INFORMATION

K M 8 3 R S W - P U R - 2 M

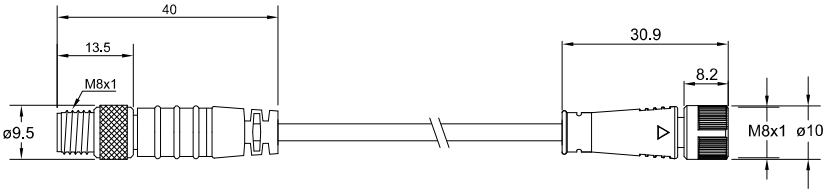
- CABLE LENGTH
  - 1M: 1-Meters (39.4")
  - 2M: 2-Meters (78.7")
  - 5M: 5-Meters (196.9")
  - 10M: 10-Meters (393.7")
- CABLE MATERIAL
  - PVC: ø 4.5 PVC cable (Grey)
  - PUR: ø 4.5 PUR cable (Black)
- TYPE OF CONNECTOR
  - SW: Male-Female, swivel lock nut, straight plug
- CONNECTOR SERIES
  - KM83R: M8 3-pin connector
  - KM84R: M8 4-pin connector

■ SPECIFICATION

TYPE	KM83RSW-□		KM84RSW-□	
FEMALE PINOUT / CHARACTERISTICS				
CONDUCTOR COLORS	1:Brown 3:Blue 4:Black		1:Brown 2:White 3:Blue 4:Black	
NUMBER OF CONTACTS	3		4	
RATED VOLTAGE	60V AC/DC			
RATED CURRENT	3A			
CONTACT MATERIAL	Gold plated			
CONTACT BEARER MATERIAL	PU(M)-ABS+PC(F)			
HOUSING MATERIAL	PU(M)-TPV(F)			
HOUSING COLOR	Black			
CABLE MATERIAL	PVC	PUR	PVC	PUR
CABLE COLOR	Gray	Black	Gray	Black
CABLE CONDUCTOR	24AWG (0.22mm²)			
CIRCUIT	0.177" (4.5mm)			
LED COLOR	-			
PROTECTION CLASS(IEC60529)	IP67			
TEMPERATURE RANGE	-20~80°C (-4~176°F)			

■ DIMENSIONS

KM83RSW/KM84RSW



Unit:mm

M12□R SERIES

RoHS

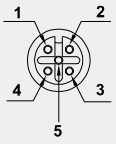
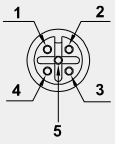
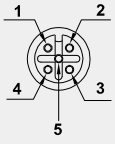
Circular Connector

■ ORDERING INFORMATION

M 1 2 3 R - P U R - 2 M

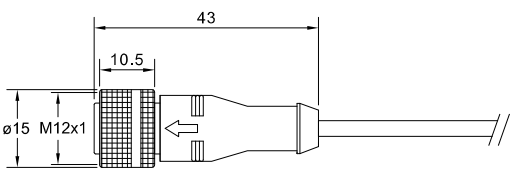
- **CABLE LENGTH** → 2M: 2-Meters (78.7")
5M: 5-Meters (196.9")
10M: 10-Meters (393.7")
- **CABLE MATERIAL** → PVC: ø 5 PVC cable (Grey)
PUR: ø 5 PUR cable (Black)
- **TYPE OF CONNECTOR** → R: Female, straight socket
RL: Female, angle socket
- **CONNECTOR SERIES** → M123: M12 3-pin connector
M124: M12 4-pin connector
M125: M12 5-pin connector

■ SPECIFICATION

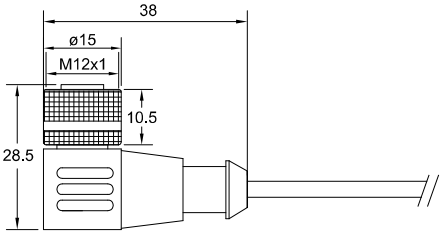
TYPE	M123R-□ M123RL-□		M124R-□ M124RL-□		M125R-□ M125RL-□	
FEMALE PINOUT / CHARACTERISTICS						
CONDUCTOR COLORS	1:Brown 2:N/C(NO connect) 3:Blue 4:Black 5:N/C(NO connect)		1:Brown 2:White 3:Blue 4:Black 5:N/C(NO connect)		1:Brown 2:White 3:Blue 4:Black 5:Grey	
NUMBER OF CONTACTS	3		4		5	
RATED VOLTAGE	250V AC/DC				60V AC/DC	
RATED CURRENT	4A					
CONTACT MATERIAL	Gold plated brass					
CONTACT BEARER MATERIAL	PU					
HOUSING MATERIAL	PU					
HOUSING COLOR	Black					
CABLE MATERIAL	PVC	PUR	PVC	PUR	PVC	PUR
CABLE COLOR	Black					
CABLE CONDUCTOR	22AWG (0.34mm²)					
CIRCUIT	0.197" (5mm²)					
LED COLOR	-					
PROTECTION CLASS(IEC60529)	IP67					
TEMPERATURE RANGE	-20~80°C (-4~176°F)					

■ DIMENSIONS

M123R/M124R/M125R



M123RL/M124RL/M125RL



Unit:mm

M12□QD SERIES

RoHS

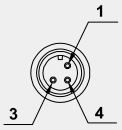
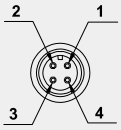
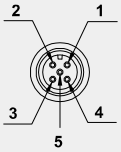
Circular Connector

■ ORDERING INFORMATION

M 1 2 3 Q D - P U R - 2 M

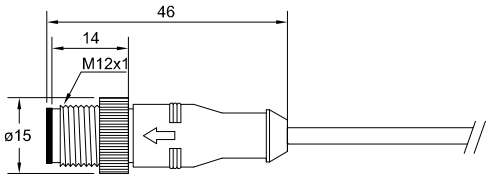
- CABLE LENGTH: 2M: 2-Meters (78.7”); 5M: 5-Meters (196.9”); 10M: 10-Meters (393.7”)
- CABLE MATERIAL: PVC: ø 5 PVC cable (Grey); PUR: ø 5 PUR cable (Black)
- TYPE OF CONNECTOR: R: Male, straight plug; RL: Male, angle plug
- CONNECTOR SERIES: M123: M12 3-pin connector; M124: M12 4-pin connector; M125: M12 5-pin connector

■ SPECIFICATION

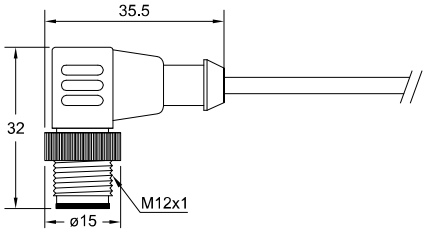
TYPE	M123QD-□ M123QDL-□		M124QD-□ M124QDL-□		M125QD-□ M125QDL-□	
FEMALE PINOUT / CHARACTERISTICS						
CONDUCTOR COLORS	1:Brown 3:Blue 4:Black		1:Brown 2:White 3:Blue 4:Black		1:Brown 2:White 3:Blue 4:Black 5:Grey	
NUMBER OF CONTACTS	3		4		5	
RATED VOLTAGE	250V AC/DC				60V AC/DC	
RATED CURRENT	4A					
CONTACT MATERIAL	Gold plated brass					
CONTACT BEARER MATERIAL	PU					
HOUSING MATERIAL	PU					
HOUSING COLOR	Black					
CABLE MATERIAL	PVC	PUR	PVC	PUR	PVC	PUR
CABLE COLOR	Black					
CABLE CONDUCTOR	22AWG (0.34mm²)					
CIRCUIT	0.197” (5mm²)					
LED COLOR	-					
PROTECTION CLASS(IEC60529)	IP67					
TEMPERATURE RANGE	-20~80°C (-4~176°F)					

■ DIMENSIONS

M123QD/M124QD/M125QD



M123QDL/M124QDL/M125QDL



Unit:mm

CONVERSION FACTORS

LENGTH

inch - mm	inch X 25.4=mm	mm X 0.03937=inch
inch - cm	inch X 2.54=cm	cm X 0.3937=inch
feet - m	feet X 0.3048=m	m X 3.2808=feet
yard - m	yard X 0.9144=m	m X 1.0936=yard

WEIGHT

g - ounce	g X 0.0352=oz	ounce X 28.349=g
kg - pound	kg X 2.2046=lb.	lb. X 0.4535=kg

PRESSURE (Vacuum)

Pa - kgf/cm^2	Pa X 0.00001=kgf/cm^2	kgf/cm^2 X 98070=Pa
kPa - kfg/cm^2	kPa X 0.0102=kgf/cm^2	kgf/cm^2 X 980.71=kPa
MPa - kgf/cm^2	MPa X 1.02=kgf/cm^2	kgf/cm^2 X 0.098=MPa
Pa - psi	Pa X 0.000145=psi	psi X 6895=Pa
kPa - psi	kPa X 0.145=psi	psi X 6.895=kPa
MPa - psi	MPa X 145=psi	psi X 0.006895-MPa
kPa - in.Hg	kPa X 0.2953=in.Hg	in.Hg X 3.3864=kPa
mmHg - in. Hg	mmHg X 0.03937=in. Hg	in.Hg X 25.4=mmHg
mmHg - Torr	mmHg + 760=Torr	Torr - 760=mmHg

AIR FLOW

SCFM - Nl/min	SCFM X 28.57 =Nl/min	Nl/min X 0.035=SCFM

EFFECTIVE CROSS-SECTIONAL AREA - Cv FACTOR

mm^2 - CV	mm^2 X 0.0542=Cv	Cv X 18.45=mm^2

TEMPERATURE

˚C - ˚F	˚C X 9/5+32=˚F	(˚F -32) 5/9=˚C

FORCE

N- kgf	N X 0.10197=kgf	kgf X 9.8067=N
N- lbf	N X 0.22481=lbf	lbf X 4.4482=N
kgf - lbf	kgf X 2.20462=lbf	lbf X 0.45359=kgf

TORQUE

N.m - kgf.m	N.m X 0.10197=kgf.m	kgf.m X 9.8067=N.m
N.m - lbf.ft	N.m X 0.73756=lbf.ft	lbf.ft X 1.3558=N.m
kgf.m - lbf.ft	kgf.m X 7.233=lbf.ft	lbf.ft X 0.13826=kgf.m