

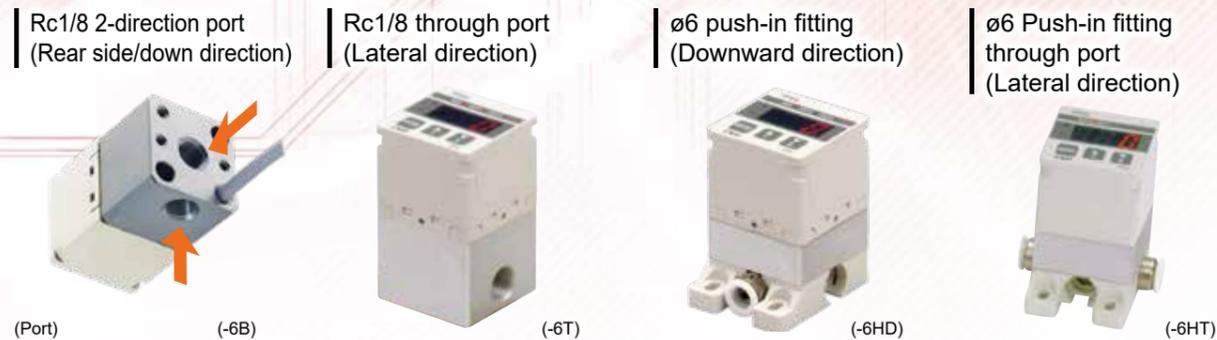
## Easy use with wide variations!

- Common operations are used for both the sensor integrated and separated - User-friendly.
- Degree of protection IP65 or equivalent - Excellent reliability even in adverse environment.
- Full-range coupling pressure - Measuring from vacuum to positive pressure is possible.

### Sensor integrated

#### PPD3-S Stainless steel diaphragm

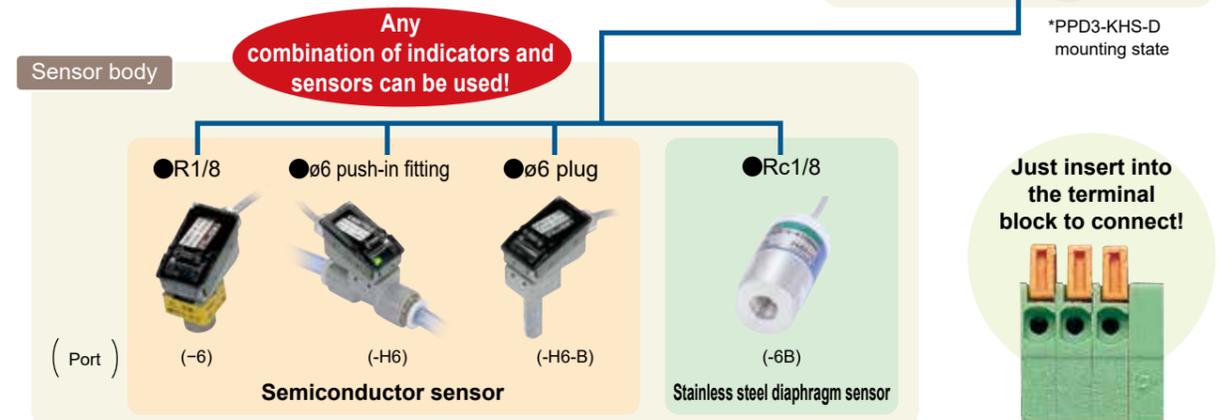
- A wide range of port shapes



### Sensor separated

#### PPD3-□D Semiconductor sensor

#### PPD3-S-□D Stainless steel diaphragm



### Select by application

Both sensor integrated and sensor separateds are available.

- Pressure can be easily adjusted and checked. (Sensor integrated)
- Remote processing is possible. (Sensor separated)

### Use general air with stainless steel diaphragm sensor.

Stainless steel diaphragm and semiconductor sensors are available.

- Sensors can be used based on air-line quality.
- All sensors have degree of protection IP65 or equivalent

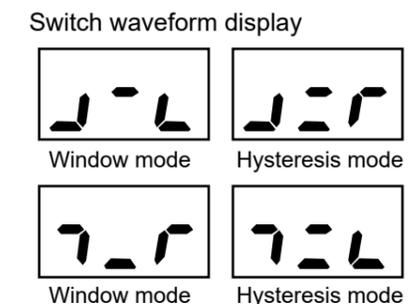
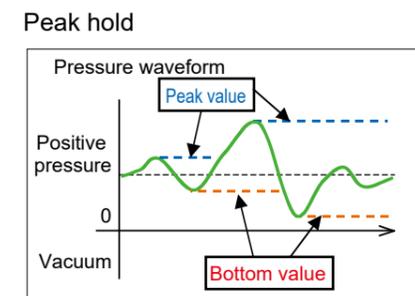
# IP65

### Easy-to-use pressure port lineup

- Resin ports with push-in fittings (6HD, 6HT, H6) are available. Measurement and space saving are possible.
- Through-port types (6T, 6HT, H6) are available. Ideal for suction and seating confirmation. Can be installed using minimal piping space.

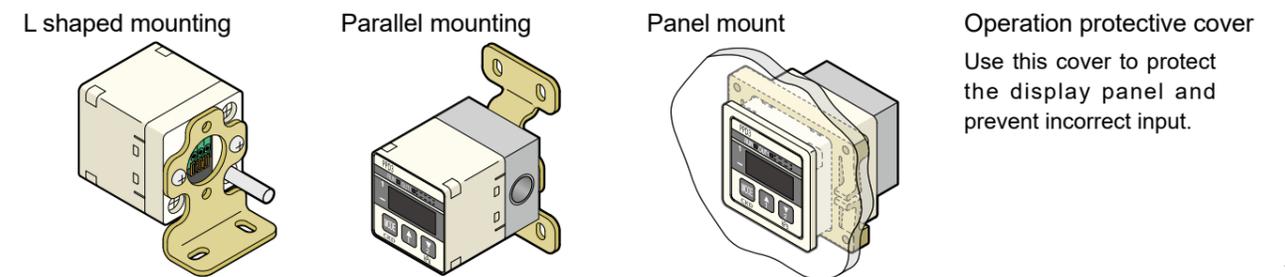
### Ample functions

- Convenient functions such as a peak hold function, switch waveform display, forcible switch function, and pressure gage reading function make startup more efficient.

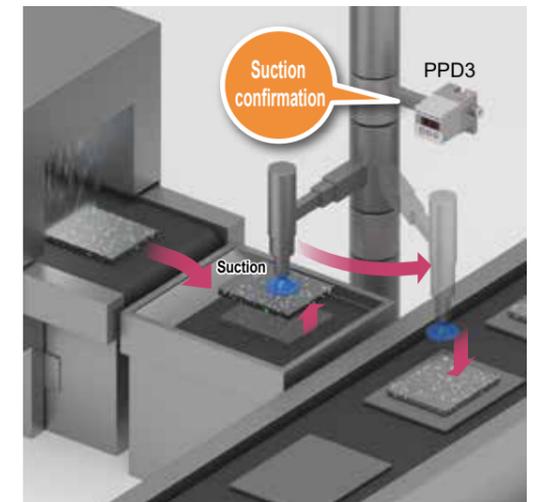


### Different mounting bracket options sold separately

Can be installed anywhere.



### Suction confirmation for wet



Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch



Electronic pressure switch with digital display (pressure switch)  
Sensor integrated

# PPD3-S Series

Circuit diagram symbol

Refer to the CKD website for detailed compatible model Nos.



## PPD3-S Series

Sensor integrated specifications

### Sensor integrated specifications

Item	PPD3-S		
	R10	R03	R01
Pressure sensitive element	Single stainless steel diaphragm pressure sensor		
Applicable fluid	Air/non-corrosive gas/compressed air (including water and drain)		
Rated pressure	-100 to 980 kPa	-100 to 300 kPa	-100 to 100 kPa
Unit indicated	kPa	kPa	kPa
Min. unit indicated *1	1 kPa		
Proof pressure	2 MPa	0.6 MPa	0.6 MPa
Indicator accuracy (25°C)	±1% F.S.		±1% F.S.
Temperature characteristics (0 to 50°C)	±1% F.S.		±1% F.S.
Leak rate	1 cm <sup>3</sup> /min (ANR) or less		
Indicator	3-digit LED display character height 8 mm		
Power supply voltage	12 to 24 VDC ± 10% (ripple rate 1% or less)		
Current consumption	50 mA or less (60 mA or less for sensor separated)		
Switch output	Sensor integrated	N: NPN transistor open collector output 2 points P: PNP transistor open collector output 2 points NA: NPN transistor open collector output 1 point + analog output 1 point PA: PNP transistor open collector output 1 point + analog output 1 point	
Switch output current	50 mA or less		
Switch Output	2.4 V or less		
Voltage drop value	Approximately 5 msec		
Switch output response time	1 to 5 V±0.1 V load impedance: 10 kΩ or more		
Analog Output	EEPROM		
Set value hold	Body: Oil resistant vinyl cable 4-conductor (0.3 mm <sup>2</sup> Insulator outer diameter ø1.1) 1 m		
Lead wire	0 to 50°C		
Ambient temperature	0 to 85% RH (no condensation)		
Ambient humidity	10 to 55 Hz compound amplitude 1.5 mm 2 hours per X, Y, Z direction		
Vibration resistance	IP65 equiv. *2		
Degree of Protection	(IP40 equivalent only for display section of sensor separated)		
Protection circuit *3	Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection		
Weight	PPD3-S-R□□-6B: approx. 105 g		

\*1: This indicates min. display unit, and does not guarantee display accuracy.

\*2: When an atmosphere inlet port is processed ( see Page 58).

\*3: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

### Clean-room specifications (Catalog No. CB-033SA)

●Anti-dust generation structure for use in cleanrooms

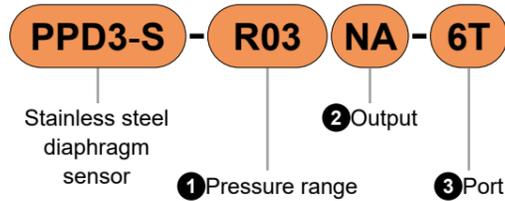
PPD3-S- . . . . - P7

PPD3-S- . . . . - P8

PPD3-S- . . . . - P9

### Model No. Notation Method

●Sensor integrated body



Note: Mounting brackets and kits are not included with the body. They are available separately.

#### 1 Pressure range

Code	Description
R10	For -100 to 980 kPa
R03	For -100 to 300 kPa
R01	For -100 to 100 kPa

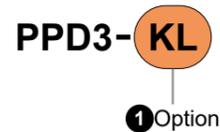
#### 2 Output

Code	Description
N	NPN transistor output 2 point
P	PNP transistor output 2 points
NA	NPN transistor output 1 point + Analog output 1 point
PA	PNP transistor output 1 points + Analog output 1 point

#### 3 Port

Code	Description	
6B	Rc1/8, 2-direction port Rear side/bottom outlet	
6T	Rc1/8, Through port Lateral both sides outlet	
6HD	6 mm push-in Lightweight port with fitting (Downward direction)	
6HT	6 mm push-in Lightweight through port with two fittings (Horizontal both directions)	

●Mounting bracket and kit



#### 1 Option

Code	Description	
KL	One-side mounting foot (L-shaped mounting) (mounting screw attached)	
KD	Both sides mounting foot (parallel mounting) (mounting screw attached)	
KHS	Panel mounting bracket set, with cover (ø6 push-in fitting attached)	
KC	Operation protective cover	

\*1: The mounting of this panel 1 applies to port type "6B". It cannot be used with other ports.

\*2: Refer to Page 51 for dimensions.

Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Pressure switch

Electronic pressure switch

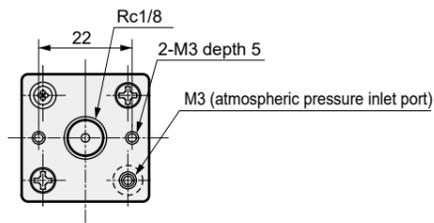
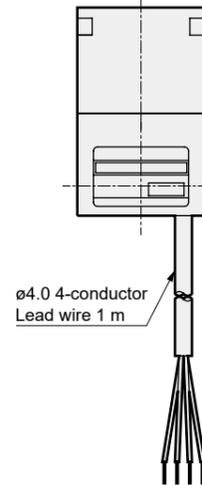
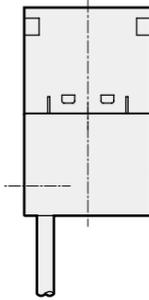
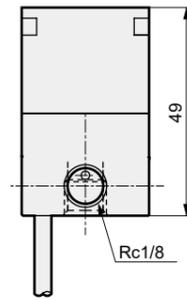
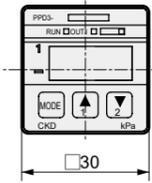
Contact Confirm Switch

For Coolant Pressure Switch

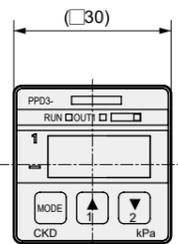
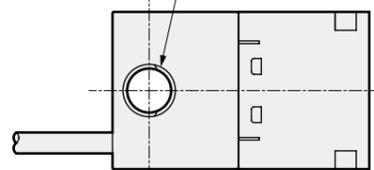
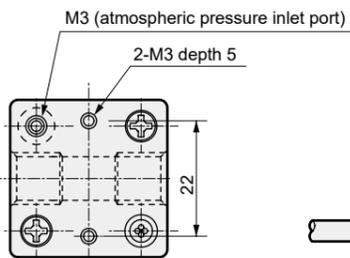
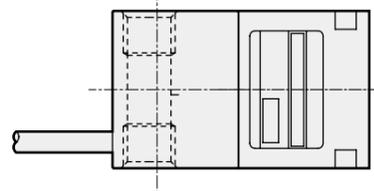
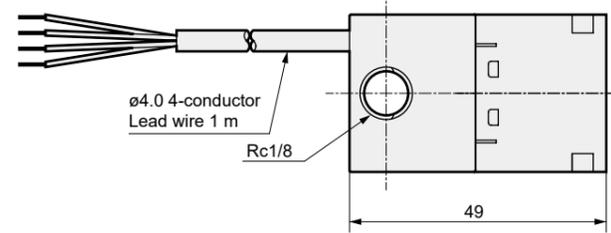
Dimensions diagram (sensor integrated)

Sensor integrated (stainless steel diaphragm sensor)

●PPD3-S-□□□□-6B



●PPD3-S-□□□□-6T

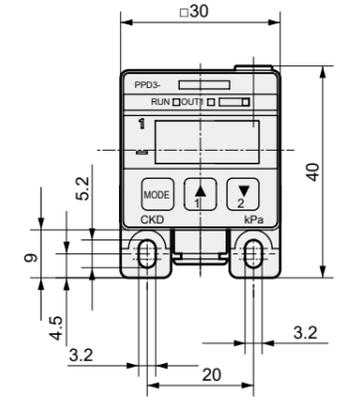
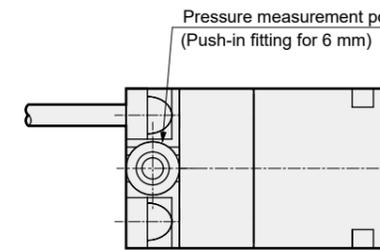
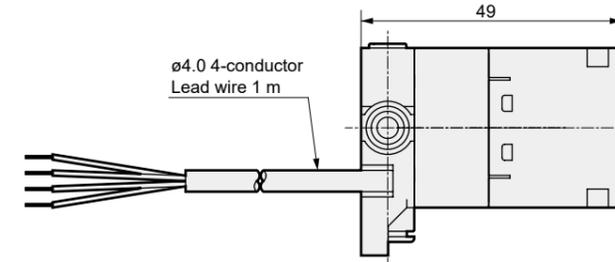
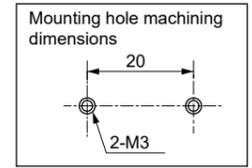
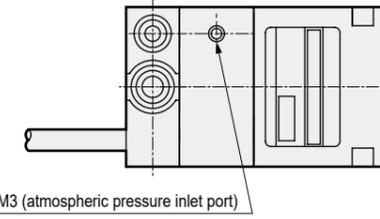


Sensor integrated dimensions diagram

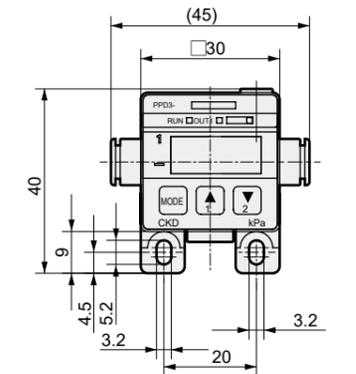
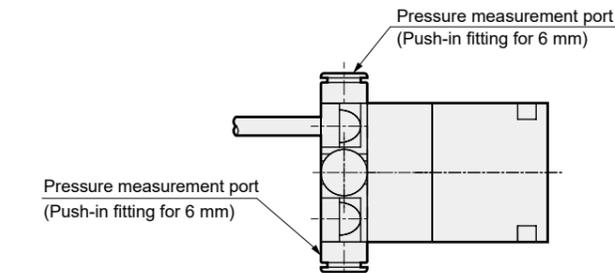
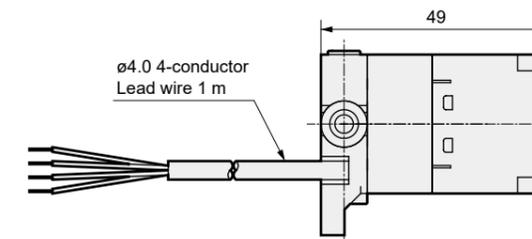
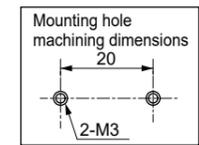
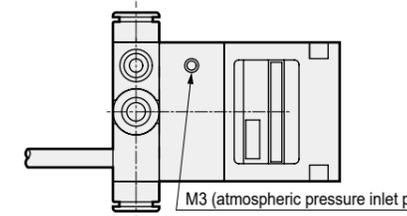
Dimensions diagram (sensor integrated)

Sensor integrated (stainless steel diaphragm sensor)

●PPD3-S-□□□□-6HD



●PPD3-S-□□□□-6HT



Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Pressure switch

Electronic pressure switch

Contact Confirm Switch

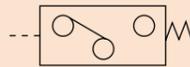
For Coolant Pressure Switch



Electronic pressure switch with digital display (pressure switch)  
Sensor separated

# PPD3, PPD3-S Series

Circuit diagram symbol



Refer to the CKD website for detailed compatible model Nos.

## PPD3, PPD3-S Series

Sensor separated specifications

### Sensor separated specifications

Item	PPD3			PPD3-S		
	R10	R03	R01	R10	R03	R01
Pressure sensitive element	Diffused semiconductor pressure sensor			Single stainless steel diaphragm pressure sensor		
Applicable fluid	Air/non-corrosive gas			Air/non-corrosive gas/compressed air (including water and drain)		
Rated pressure	-100 to 980 kPa	-100 to 300 kPa	-100 to 100 kPa	-100 to 980 kPa	-100 to 300 kPa	-100 to 100 kPa
Unit indicated	kPa	kPa	kPa	kPa	kPa	kPa
Min. unit indicated *1	1 kPa					
Proof pressure	1.5 MPa	0.6 MPa	0.2 MPa *2	2 MPa	0.6 MPa	0.6 MPa
Indicator accuracy (25°C)	±1% F.S.			±1% F.S.		
Temperature characteristics (0 to 50°C)	±1% F.S.			±1% F.S.		
Leak rate	1 cm³/min (ANR) or less					
Indicator	3-digit LED display character height 8 mm					
Power supply voltage	12 to 24 VDC ± 10% (ripple rate 1% or less)					
Current consumption	60 mA or less					
Switch output	NA:NPN transistor open collector output 2 points + analog output 1 point PA:PNP transistor open collector output 2 points + analog output 1 point					
Switch output current	50 mA or less					
Switch Output	2.4 V or less					
Voltage drop value	2.4 V or less					
Switch output response time	Approximately 5 msec					
Analog Output	1 to 5 V±0.1 V load impedance: 10 kΩ or more					
Set value hold	EEPROM					
Lead wire	Body: Oil resistant vinyl cable (5-conductor 0.2 mm² Insulator outer diameter ø1.0) Sensor section of sensor separated: Oil resistant vinyl cable 3-conductor (0.15 mm² Insulator outer diameter ø1.0) 3 m					
Ambient temperature	0 to 50°C					
Ambient humidity	0 to 85% RH (no condensation)					
Vibration resistance	10 to 55 Hz compound amplitude 1.5 mm 2 hours per X, Y, Z direction					
Degree of Protection	IP 65 or equiv. (IP40 equivalent only for display section of sensor separated)					
Protection circuit *3	Power reverse connection protection, switch output reverse connection protection, switch output load short-circuit protection					
Weight	PPD3-R□□D-6: Approx. 100 g			PPD3-S-R□□D-6B: Approx. 115 g		

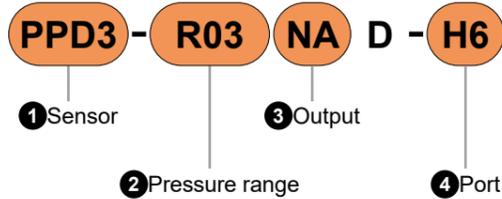
\*1: This indicates min. display unit, and does not guarantee display accuracy.

\*2: Sensor separated is 0.3 MPa.

\*3: This product's protection circuit is effective only for specific misconnections and load short-circuits. It does not provide protection for all misconnections.

### Model No. Notation Method

#### ● Sensor separated body



Note: Mounting brackets and kits are not included with the body. They are available separately.

#### 1 Sensor

Code	Description
PPD3	Semiconductor sensor
PPD3-S	Stainless steel diaphragm sensor

#### 2 Pressure range

Code	Description
R10	For -100 to 980 kPa
R03	For -100 to 300 kPa
R01	For -100 to 100 kPa

#### 3 Output

Code	Description
NA	NPN transistor output 2 points + analog output 1 point
PA	PNP transistor output 2 points + analog output 1 point

#### 4 Port

Code	Description
6	R1/8
H6	6 mm push-in fitting
H6-B	6 mm plug
6B	Rc1/8

#### Clean-room specifications (Catalog No. CB-033SA)

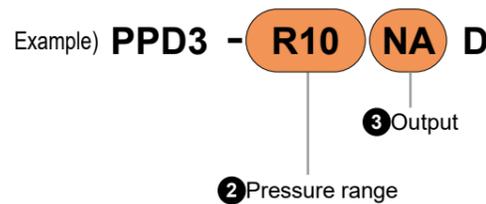
● Anti-dust generation structure for use in cleanrooms

PPD3-S- . . . . - P7□

PPD3-S- . . . . - P8□

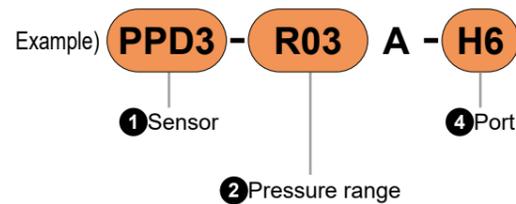
PPD3-S- . . . . - P9□

#### ● Model No. of single display



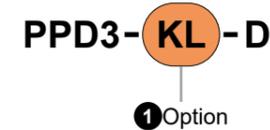
Note: 2, 3 Select from the table above for model No. of Item .

#### ● Discrete sensor model No.



Note: 1, 2, 4 Select from the table above for model No. of Item .

#### ● Mounting bracket and kit



#### ● Operation protective cover

PPD3-KC



#### 1 Option

Code	Description
KL	One side mounting foot (L shaped mounting) (mounting screw attached)
KD	Both sides mounting foot (parallel mounting) (mounting screw attached)
KHS	Panel mounting bracket set, with cover

\*1: Refer to Page 51 for dimensions.

Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Pressure switch

Electronic pressure switch

Contact Confirm Switch

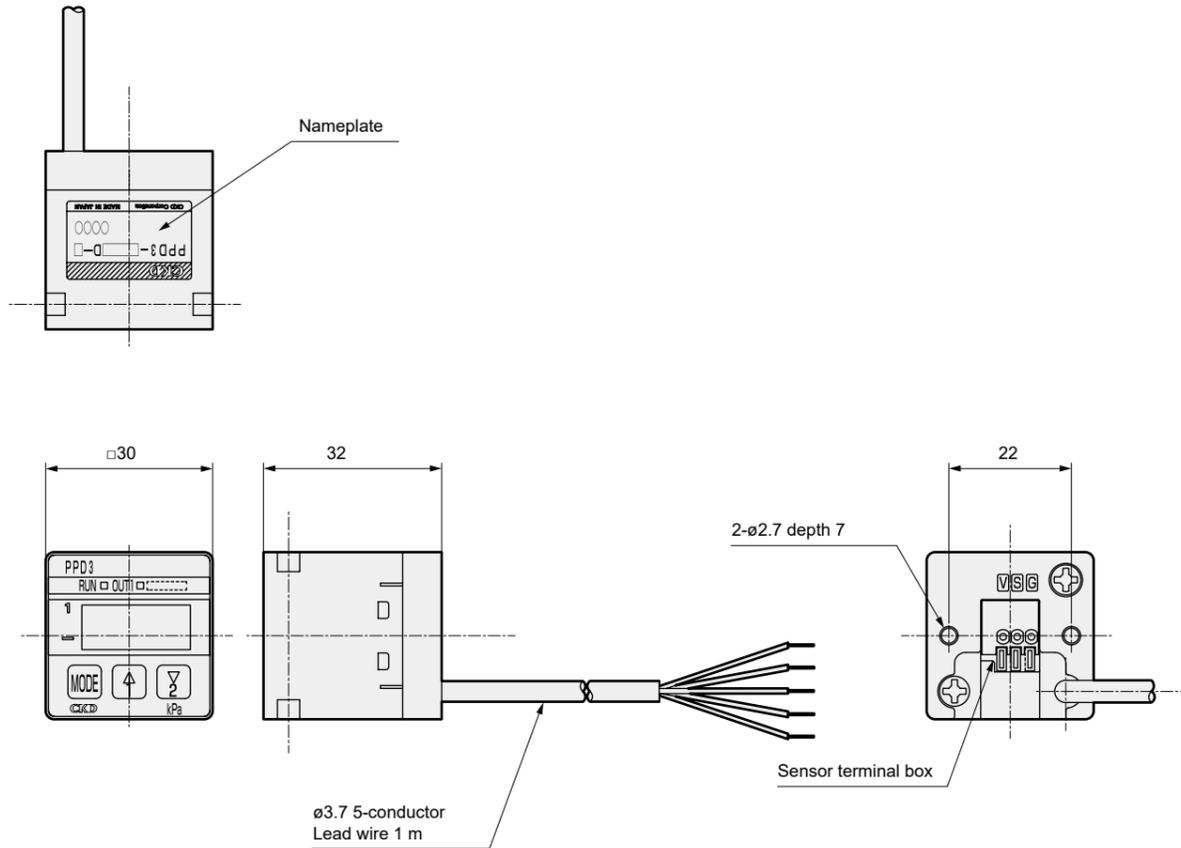
For Coolant Pressure Switch

Ending

Ending

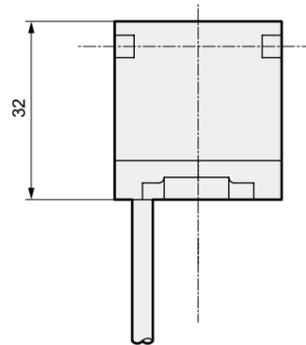
## Dimensions diagram (sensor separated/display)

Sensor separated (display)  
 ●PPD3-□□□□-D (display)



[Sensor terminal box connection]

Code	Sensor lead wire color
V	Brown
S	Black
G	Blue



## Sensor separated Internal structure/material/Dimensions diagram

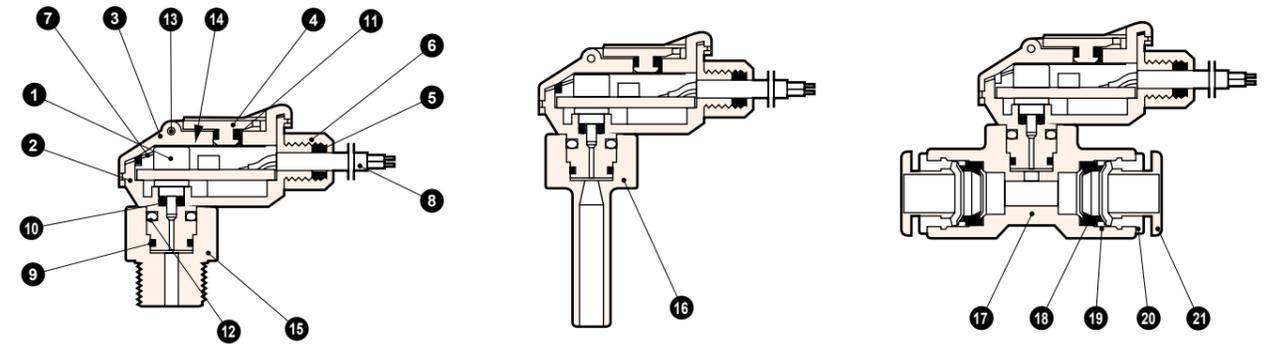
### Internal structure/material (semiconductor sensor)

Sensor separated (semiconductor sensor)

- PPD3-R□□D-6
- PPD3-R□□A-6 (discrete sensor model No.)

- PPD3-R□□D-H6-B
- PPD3-R□□A-H6-B (discrete sensor model No.)

- PPD3-R□□D-H6
- PPD3-R□□A-H6 (discrete sensor model No.)



Part No.	Part name	Material	Part No.	Part name	Material
1	Pressure sensor	Diffusion semiconductor strain gauge	12	Stopper	Stainless steel
2	Body	Polybutylene terephthalate (glass fiber 30%)	13	Spring pin	Stainless steel
3	Cover	Polycarbonate	14	Shield sheet	Aluminum
4	Trimmer guard	Polycarbonate	15	R1/8	Polybutylene terephthalate
5	Bush	Nitrile Rubber	16	Plug	Polybutylene terephthalate
6	Bush holder	Aluminum	17	Push-in fitting	Polybutylene terephthalate
7	Cover gasket	Silicone rubber	18	Packing	Nitrile Rubber
8	Lead wire (3 m)	Polyvinyl chloride	19	Chuck	Brass (electroless nickeling)
9	O-ring	Nitrile Rubber	20	Outer ring	Brass (electroless nickeling)
10	O-ring	Nitrile Rubber	21	Push ring	Polyacetal
11	O-ring	Nitrile Rubber			

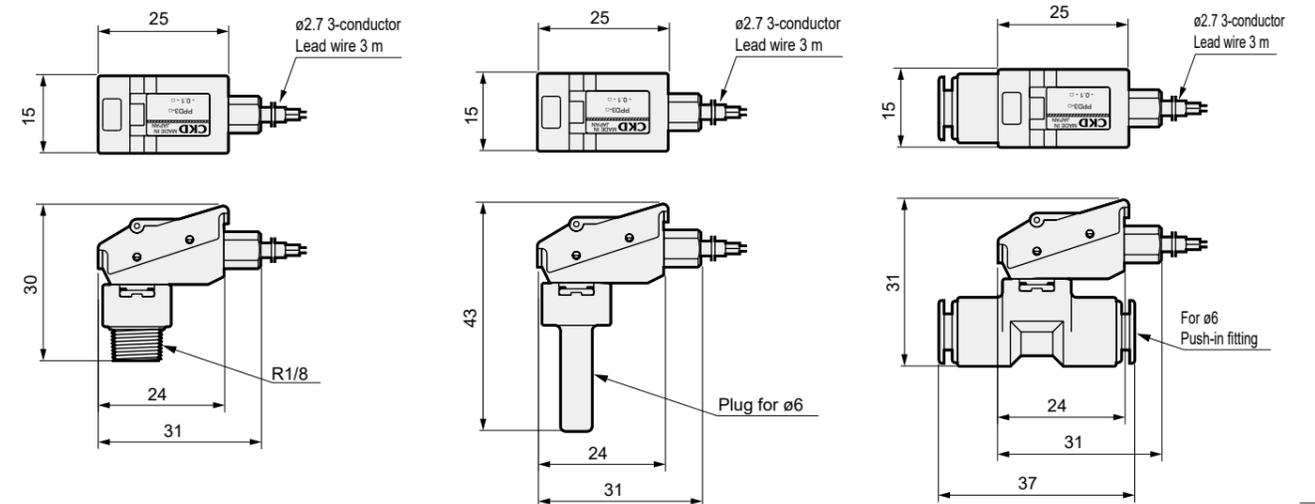
### Dimensions diagram (semiconductor sensor)

Sensor separated (semiconductor sensor)

- PPD3-R□□D-6
- PPD3-R□□A-6 (discrete sensor model No.)

- PPD3-R□□D-H6-B
- PPD3-R□□A-H6-B (discrete sensor model No.)

- PPD3-R□□D-H6
- PPD3-R□□A-H6 (discrete sensor model No.)



Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Ending

Pressure switch

Electronic pressure switch

Contact Confirm Switch

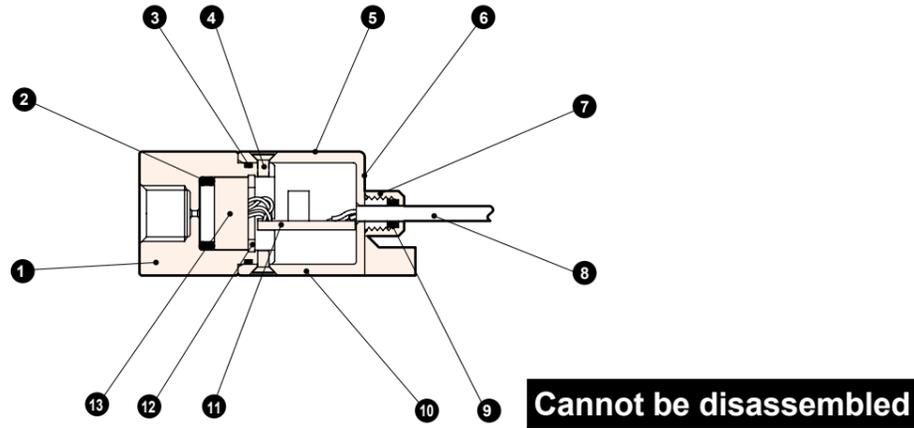
For Coolant Pressure Switch

Ending

Internal structure/material (stainless steel diaphragm sensor)

Sensor separated (stainless steel diaphragm sensor)

- PPD3-S-R□□D-6B
- PPD3-S-R□□A-6B (discrete sensor model No.)

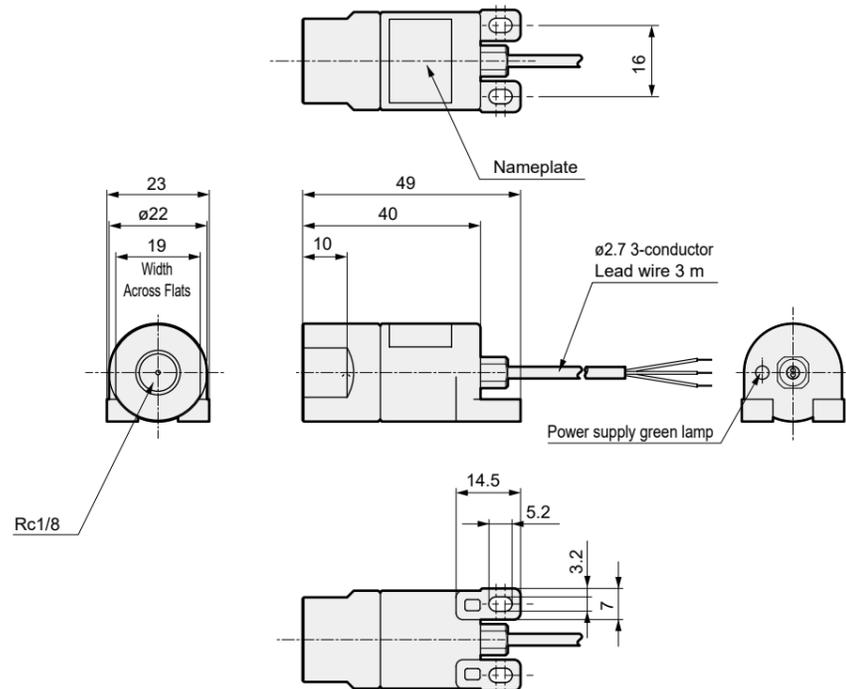


Part No.	Part name	Material	Part No.	Part name	Material
1	Pressure port	Aluminum	8	Lead wire (3 m)	Polyvinyl chloride
2	O-ring	Fluoro rubber	9	Bush	Nitrile Rubber
3	O-ring	Nitrile Rubber	10	Sensor body	Polybutylene terephthalate (glass fiber 30%)
4	Flat head screw	SUSXM7	11	Amplifier board	Glass epoxy resin
5	Nameplate	Polyester film	12	C-ring for hole	Stainless steel
6	Lamp seat	Polyester film	13	Pressure sensor	Stainless steel diaphragm strain gauge
7	Bush holder	Aluminum			

Dimensions diagram (stainless steel diaphragm sensor)

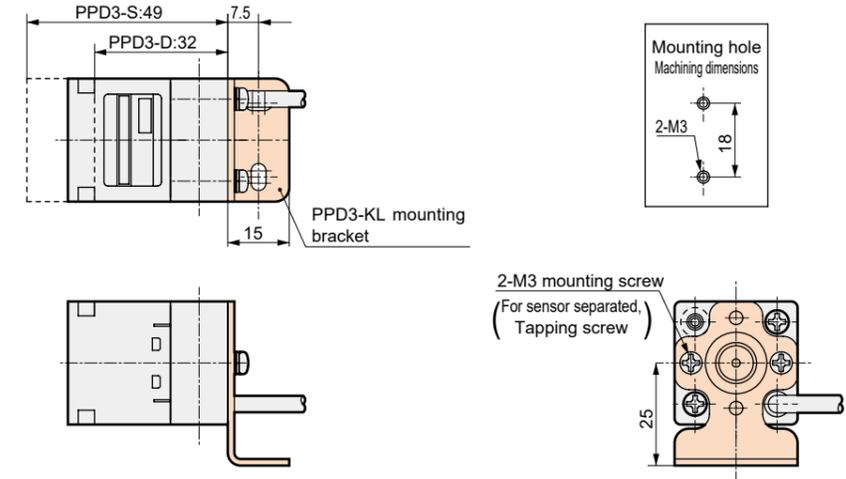
Sensor separated (stainless steel diaphragm sensor)

- PPD3-S-R□□D-6B
- PPD3-S-R□□A-6B (discrete sensor model No.)



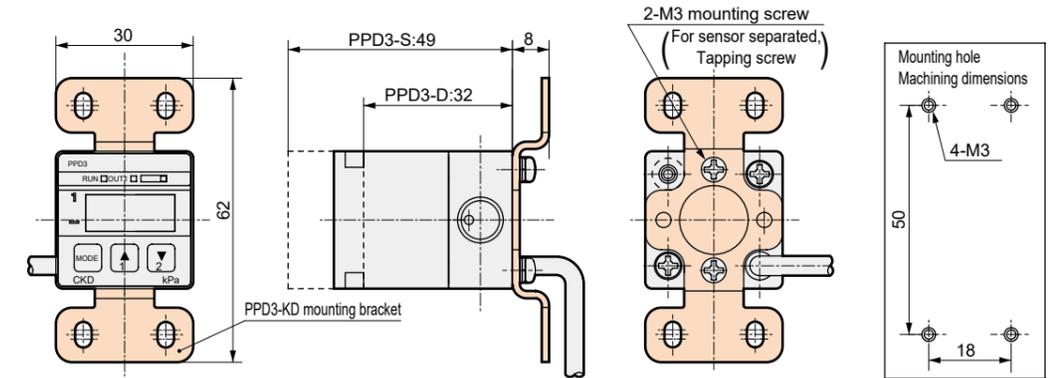
Optional dimensions diagram: Mounting bracket

● PPD3-KL (-D) assembly drawing



● PPD3-KD (-D) assembly drawing

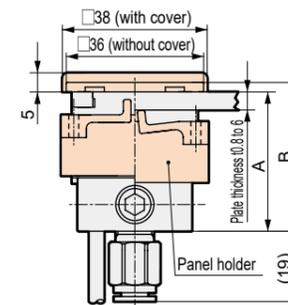
Note: For this installation, use CKD miniature fitting FTL4-M3 for atmospheric release port. (Sensor integrated only)



● PPD3-KHS (-D) assembly drawing

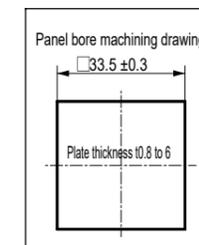
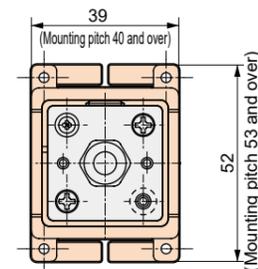
Note: Push-in fitting is not included with PPD3-KHS-D.

Combinations with PPD3-R□□□□-6B



Mounting dimensions for each model

Model	A	B
PPD3-S	46.5	49
PPD3-D	29.5	32



Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

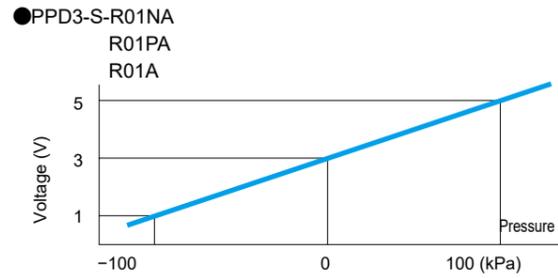
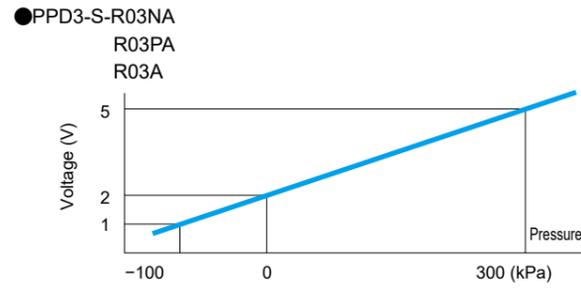
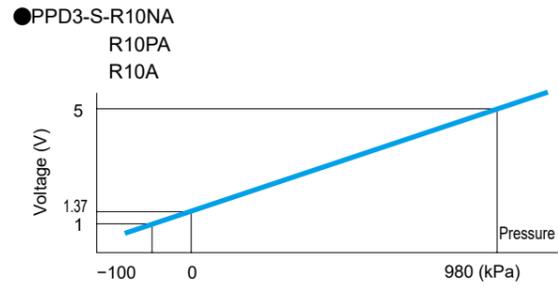
Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

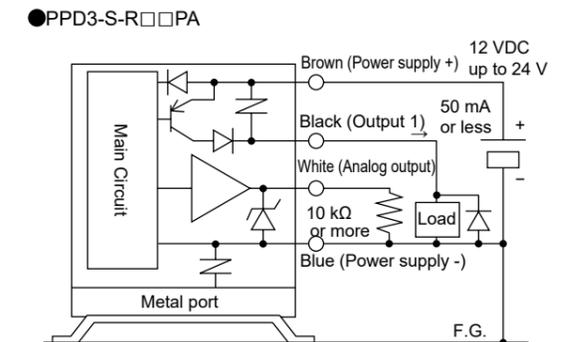
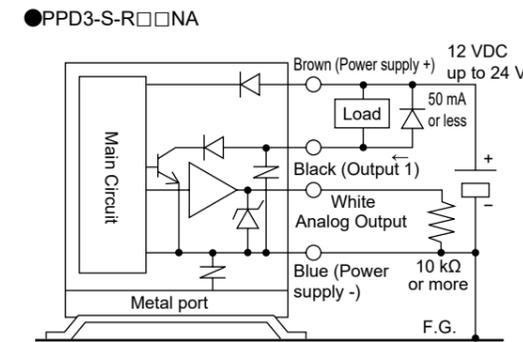
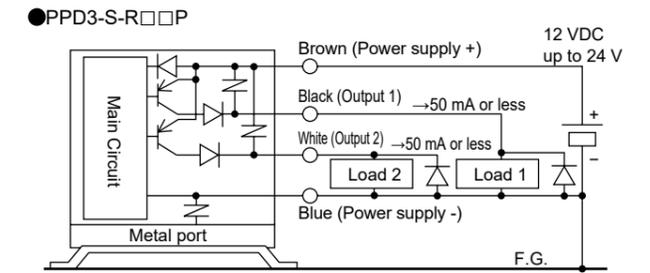
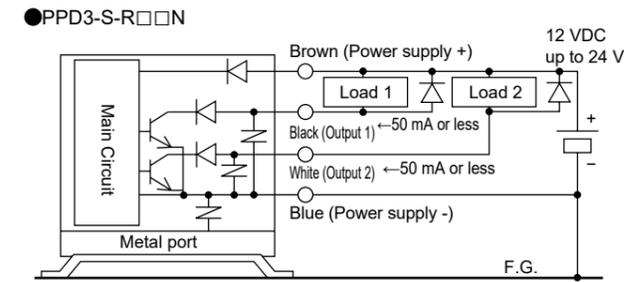
## Analog output voltage - pressure characteristics



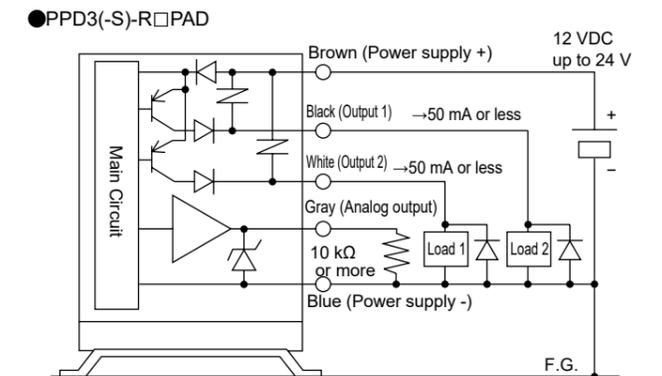
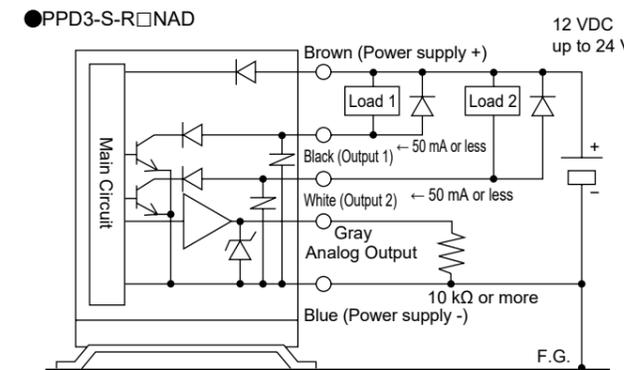
[Precautions]  
●Analog output accuracy is affected by temperature characteristics and heat generated when energized. Provide a standby time (5 minutes or more after energizing) before use.

## Internal circuit / connection method

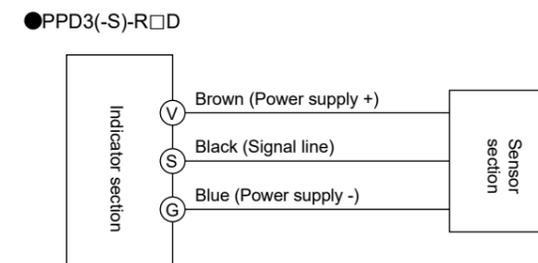
### PPD3-S Series (sensor integrated)



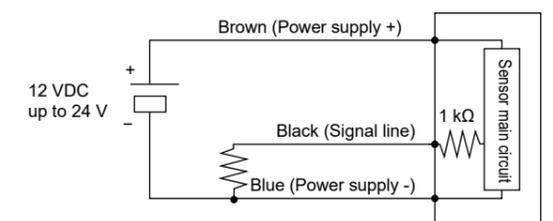
### PPD3 (-S)-D Series (sensor separated)



#### Sensor section connection method



#### PPD3(-S)-R□A connection method when single sensor is used



Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Indicator and function

**Lamp status**  
 Continuously lit  
 Blinking lamp

**Overflow LED**  
 Indicates the 4th digit

**RUN LED**  
 Normal pressure display (OFF when set)  
 Using peak hold function

**Switch output lamp (OUT1, OUT2)**  
 Each switch output ON  
 Overcurrent protection in operation (There is no OUT2 when an analog output is provided)

**Minus sign (-) LED**  
 Indicates a negative value

**MODE Key**  
 When entering each setting mode  
 Press to advance setting mode  
 When returning to the pressure display  
 To cancel peak hold operation

**3-digit LED**  
 Indicators pressure, various switch setting, and machine status

**Key 1**  
 When pressure is displayed = sequentially displays CH2 data  
 During peak hold operation = displays the min. value  
 When selecting a mode = sets the mode  
 When setting data = decreases the value, etc.

**Key 2**  
 When pressure is displayed = sequentially displays CH2 data  
 During peak hold operation = displays the min. value  
 When selecting a mode = sets the mode  
 When setting data = decreases the value, etc.

**Key 1**  
 When pressure is displayed = sequentially displays CH1 data  
 During peak hold operation = displays the max. value  
 When selecting a mode = sets the mode  
 When setting data = increases the value, etc.

LED display

Numbers and letters are displayed with a combination of LED displays.

Numerals	0	1	2	3	4	5	6	7	8	9
Indicator	0	1	2	3	4	5	6	7	8	9

Characters	A	B (b)	C	D (d)	H	I (i)	J	L	N (n)	O (o)	P
Indicator	A	b	C	d	H	i	J	L	n	o	P

Rated pressure	980 kPa	300 kPa	100 kPa
Model No.	R10	R03	R01
Pressure code	JO JO	Lo LO	HO HO

Model No. display: JO n

Output	NPN output	PNP output
Model No.	N, NA	P, PA
Output code	N n	P p

Function list

Item	Description	Initial state																		
Set value confirmation	The switch operation mode, switch ON set value, and switch OFF set value can be confirmed.	—																		
Peak hold function	The max. and min. values within the mode setting period can be confirmed.	—																		
Switch output setting	Set the switch operation mode, ON value setting value, and OFF setting value. [Operation mode]	—																		
	<table border="1"> <thead> <tr> <th>Operation mode name</th> <th>Operation waveform</th> <th>LED operation waveform display</th> </tr> </thead> <tbody> <tr> <td>1 Window operation 1 (ON when inside the range)</td> <td></td> <td></td> </tr> <tr> <td>2 Window operation 2 (ON when outside the range)</td> <td></td> <td></td> </tr> <tr> <td>3 Hysteresis operation 1 (ON at low pressure)</td> <td></td> <td></td> </tr> <tr> <td>4 Hysteresis operation 2 (ON at high pressure)</td> <td></td> <td></td> </tr> <tr> <td>5 Stop operation</td> <td>Output is turned OFF regardless of the ON/OFF set value.</td> <td></td> </tr> </tbody> </table>	Operation mode name	Operation waveform	LED operation waveform display	1 Window operation 1 (ON when inside the range)			2 Window operation 2 (ON when outside the range)			3 Hysteresis operation 1 (ON at low pressure)			4 Hysteresis operation 2 (ON at high pressure)			5 Stop operation	Output is turned OFF regardless of the ON/OFF set value.		<p>Stop operation</p>
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5 Stop operation	Output is turned OFF regardless of the ON/OFF set value.																			
Forced output function Switch output test function	Forces the switch output to turn ON and is used to check the initial operation of wiring connections and input devices.	—																		
Zero point adjustment function	Deviation of the display from the zero point is compensated in the atmospheric pressure pressurized state.	—																		

For details on operation and setting method, refer to CKD Components Product website (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → Instruction manual



Pneumatic components (electronic pressure switch and sensor)

# Safety Precautions

Be sure to read this section before use.

For general pneumatic components precautions, refer to Intro 17 for details.

## Electronic pressure switch with digital display (pressure switch) PPD3 Series

### During Design and Selection

#### WARNING

■Use this product in accordance with specifications. Use for applications, or at load currents, voltages, temperatures, impacts or sites excluded from the specifications could result in damage or malfunctions.

■Do not use oxygen, corrosive or combustible gas, or toxic fluid for this product.

■Never use this product in an explosive gas atmosphere. The pressure switch does not have an explosive-proof structure. Never use in an explosive gas atmosphere as explosions or fires could result.

■Avoid installing this product in a sealed control box or indoors. If the fluid should leak due to any trouble, the pressure in the sealed chamber could change and recreate a hazardous state. Use this product in the control box having safety device to control internal pressure, or indoors with no pressure differential from the outside. Please.

■Power supply voltage Do not use this product at levels exceeding the power supply voltage. If voltage exceeding this range or AC power supply (100 VAC) is applied, the controller could rupture or burn.

■DC power not insulated from the AC primary side may damage the product and power, possibly leading to electric shock. Do not use the product in this case.

■Load short-circuit Do not short-circuit the load. Failure to observe this could result in rupture or burning.

■Incorrect wiring Avoid incorrect wiring such as mistaken power source polarities, etc. Failure to observe this could result in rupture or burning.

#### CAUTION

■Applicable fluid When using applicable fluid other than air; nitrogen gas, etc., oxygen deficiency could be caused. Observe the following instructions.  
●Use in well ventilated locations.  
●Ventilate the work area when nitrogen gas is being used.  
●Inspect nitrogen gas piping regularly to avoid leaks.  
●Non-corrosive gas means substances such as nitrogen or carbon dioxide contained in air and inert gases such as argon or neon.  
●When using this product for compressed air containing water or oil, use the PPD3-S (stainless steel diaphragm sensor specifications) with increased corrosion resistance.

■If this product is used for vacuum suction confirmation, care must be taken for following matters. When applying positive pressure for vacuum burst onto the product, check that it does not exceed the specified proof pressure.

■Working environment  
●Avoid use in locations subject to vibration or shock of 100m/s<sup>2</sup> or more.  
●Check the temperature of fluid being measured and the environmental temperature in piping.  
●When using a type that does not have the corresponding degree of protection, do not use for applications in which water or oil could be applied.

■Determine the setting, taking error caused by accuracy limitations and temperature characteristics into consideration.

■Take care when using this product for an interlock circuit. When using the pressure switch for an interlock signal requiring high reliability, provide a double interlock by installing a mechanical protection function or a switch (sensor) other than a pressure switch as a safeguard against breakdown. Regularly inspect and confirm that the interlock activates correctly.

■Response time is affected by working pressure and load volume. If reproducibility with stable response time is required, install a regulator in the proceeding stage.

■Take the following countermeasures to prevent malfunction caused by noise.  
●Insert a line filter in the AC power supply line.  
●Do not share power with an inverter or components causing motor noise, etc.  
●Use a surge suppressor such as a CR or diode on the inductive load (solenoid valve, relay, etc.) and remove noise from the source.  
●When using a components (switching regulator, inverter motor, etc.) that could generate noise near the components, be sure to ground the sensor frame ground (F.G.) terminal.  
●Separate wiring to the sensors from strong magnetic fields.  
●Connect wiring to sensors with a shield wire.  
●Ground the shield wire on the power supply side.

■Care must be taken for protection of body and lead wire.  
●Do not bump or drop the body, or apply excessive bending or tensile strength to the lead wire. This may lead to disconnection.  
●Connect and wire bend-resistant material, such as robot wire material, for movable sections.

■Avoid connecting the output for a relay contact, operation switch, or other components output in parallel with the PLC to the product's output, or short-circuiting the input terminal of the PLC to which this product is connected with the power supply cable's negative side to test the input device. This product's output circuit could be damaged.

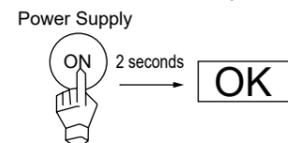
■When releasing the secondary control pressure, such as air blowing, into the atmosphere, the pressure could fluctuate depending on the piping and flow conditions. Test with actual working conditions, or contact CKD.

■Components When selecting dryer, air filter, oil mist filter or regulator, select a device with a flow rate higher than that used by proportional pressure controls.

■CE-compliance working conditions The standard for the immunity for industrial environments applied to CE conforming product is EN61000-6-2, but the following requirements must be satisfied in order to conform to this standard.

Conditions  
●The evaluation of this product is performed by using a cable that has a power supply line and a signal line paired to assess the product's performance.  
●This product is not equipped with surge protection. Implement surge protection measures on the system side.

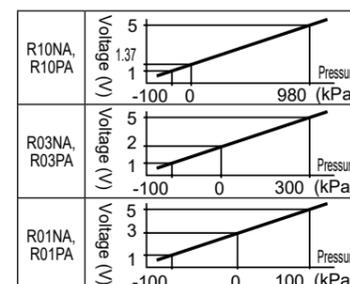
■The internal circuit is self-diagnosed immediately after power is turned ON, so pressure is not detected immediately. Set the control circuit so that signals are ignored for about 2 seconds after power is turned ON.



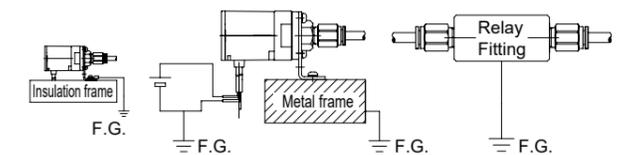
■Overcurrent protection turns the output OFF when overcurrent is detected. However, the output is repeatedly turned ON for a short time at a set cycle. This causes power supply voltage to fluctuate and may adversely affect peripheral devices.

■When using this product for compressed air containing water or oil, use the PPD3-S (stainless steel diaphragm sensor specifications) with increased corrosion resistance.

[Analog output voltage waveform]

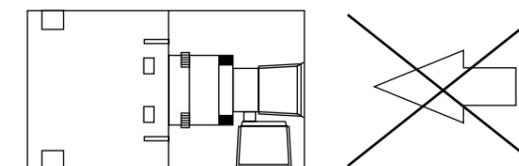


■Install the PPD3-S on a frame or panel connected to the frame ground (F.G.) and, if necessary, directly connect from the PPD3-S port to the F.G. When leading fluids in from an external device, connect via a relay fitting connected to the F.G. (To provide safety when using conductive fluids)



■PPD3-S power supply is a DC stabilized power supply completely isolated from the AC primary side. Connect either the + side or - side of the power to the FG. A varistor (limit voltage approx. 40 V) is connected between the internal power circuit and port/mounting section of this PPD3-S to prevent dielectric breakdown of the sensor. Avoid withstand voltage and insulation resistance tests between the PPD3-S internal power supply circuit and port/installation section. Disconnect PPD3-S wiring first if this testing is required. An excessive potential difference between the PPD3-S power supply and port/installation section could burn internal parts. After installing, connecting and wiring the PPD3-S, electrical welding of the device/frame, short-circuit accidents, etc., could cause welding current, excessively high voltage caused by welding, or surge voltage, etc., to run through the wiring, ground wire, or fluid path connected between the above devices, damaging wires or devices. Conduct any work such as electrical welding after removing this device and disconnecting all electric wires connected to the FG.

■Care must be taken for entry of water and drainage. PPD3-S uses a stainless steel diaphragm pressure sensor that is not damaged by water. However, when water and condensate in the air collide with the pressure sensor during vacuum breakage after vacuum adsorption confirmation, the inrush inertia of the water may damage the pressure sensor and prevent normal pressure indication. If water or drainage can enter, connect a thin pipe to the PPD3, or install an orifice midway. Take special care when using the back ports on the PPD3-S 6B port. In addition, this type has a ø1 built-in orifice inside the pressure port.



Take special care when using the back ports of the 6B type in case of possible entry of water or drainage.

Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Ending

Ending

## ■ Degree of protection, atmospheric introduction port processing precautions

- The product may be prone to damage when in a state of being unpacked or being installed. The protective functions are effective when the product is correctly installed, wired and piped. Provide protection so that water and other substances do not come in contact until installation is completed.
- Wire and pipe the product after fixing it at the installation site. Check surrounding safety and that water and other substances do not come in contact before starting wiring. Continue to provide protection after the product is connected. (The current could leak at the connection section, and water could run along the cable and enter the case.)
- The atmospheric introduction port for atmospheric pressure is treated as a key point in ensuring this product's protective performance. Use the following tube, and release the end into the atmosphere in a dry environment with no barometric pressure differences.

Recommended tube: Soft nylon tube model No. FH-3224  
Urethane tube model No. U-9532, U-9504

**[IMPORTANT] Never apply pressure to the atmosphere inlet port!**

## ■ If the inlet port for the atmosphere introduction port pressure is pressurized, protective performance could be lost, and the case could rupture or pop off. Set as atmospheric pressure. Leave this port set at atmospheric pressure. Separate piping for atmospheric release port from other pressurized air piping by using different tube diameters or colors. Take sufficient countermeasures to prevent pressurized air from being applied.

- Even when the protective performance is not required, if this product is installed in a humid environment with large temperature variations, condensation in the case is prevented by taking these measures. (Condensation is fatal to the electric circuits.)
- If this product is in a control panel, pressurized to a positive pressure or negative pressure within a dry environment, the pressure difference could affect indicator accuracy. Please be careful.
- This product is intended to protect city water. Protection performance cannot be guaranteed for hot water, oil, coolant (non-water soluble/water soluble), solvents, acids, alkalines, or chemicals, etc. These substances could cause solvent cracks to form on in the case's resin parts, the gasket to swell, the adhesive to melt and separate, and other problems. Note that if water that gets on the product freezes, the case could be damaged and protective performance could be lost. Please be careful.

## MEMO

For precautions during mounting, installation, adjustment, use and maintenance, refer to the CKD Components Product Site (<https://www.ckd.co.jp/kiki/en/>) → "Model No. → [Instruction Manual](#)