



Modular F.R.L. dedicated for regulator mounting  
Digital Pressure Sensor

# PPR Series



Refer to the CKD website for detailed compatible model Nos.

## Features

### Twin display improves visibility

2-screen display enables confirmation of both the display value and the set value. Check the display value (current value) on the main display and the set value on the sub-display.

### Easy-to-read display

3-color display  
The display value and set value are displayed in three colors (red, green, orange). The main display changes between green and red in conjunction with output ON/OFF.

### Prevents misoperation

Lock function  
Prevents misoperation such as touching the wrong key.

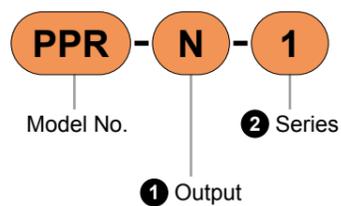
### Saves power with display OFF when not setting

Energy saving mode function  
In energy saving mode, the display will turn OFF after 30 seconds unless a button is pressed.

### Dedicated adaptor keeps it compact

Mounting the pressure switch with a dedicated adaptor keeps it compact and sleek.

### Model No. Notation Method



Note: An adaptor, fixing pin, 2 mounting screws and 2 O-rings are attached.

#### 1 Output

Code	Description
N	NPN transistor output 1 point
P	PNP transistor output 1 points

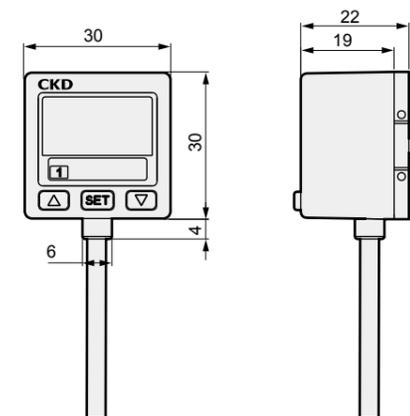
#### 2 Series

Code	Description
1	For 1000 Series
2	For 2000 Series
3	3000, 4000, 6000, 8000 Series, for CXU30-D4
4	For CXU10-D4

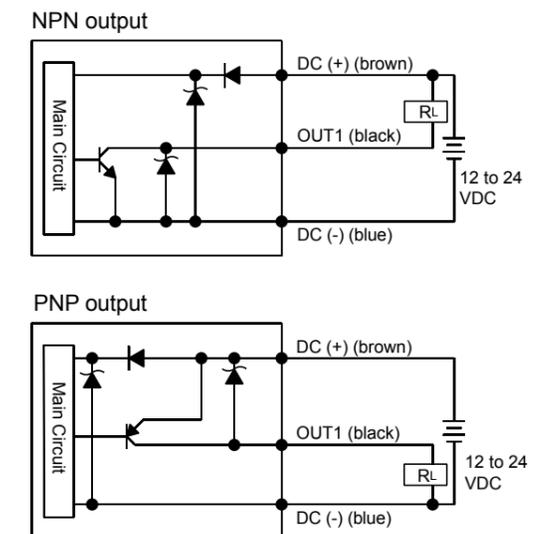
## Specifications

Item	PPR-□	
Rated pressure	0.000 to 1.000 MPa	
Pressure setting	-0.100 to 1.000 MPa	
Proof pressure	1.5 MPa	
Applicable fluid	Compressed air	
Unit indicated	MPa	
Power supply voltage	12 to 24 VDC ±10% ripple (P-P) 10% or less	
Current consumption	40 mA or less (no load)	
Switch Output	NPN: Transistor, open collector Max. load current: 125 mA Max. power supply voltage: 30 VDC Internal voltage drop: 1.5 V or less	PNP: Transistor, open collector Max. load current: 125 mA Max. power supply voltage: 24 VDC Internal voltage drop: 1.5 V or less
	Repeatability (switch output) ±0.2% F.S. ±1 digit or less	
Hysteresis	One-point setting mode	Adjustment is possible
	Hysteresis mode	
	Window comparator mode	
Output response time	Chattering prevention: Selectable from 0.05 s, 0.25 s, 0.5 s, 1 s, 2 s and 3 s	
Switch output load short-circuit protection	Yes	
7-segment LCD	Main/unit sub-display: 2 colors (red, green) Sub-display: Orange (sampling rate: 5 times/sec)	
Indicator accuracy	±2% F.S. ±1 digit or less (standard temperature: 25 ±3°C)	
Indicator lamp	Orange (OUT1)	
Environmental resistance	Degree of Protection	IP40
	Ambient temperature	Usage: 0 to 50°C, Storage: -10 to 60°C (no condensation or freezing)
	Ambient humidity	Usage/Storage: 35 to 85% RH (no condensation)
	Withstand voltage	1000 VAC, 1 minute (between the case and lead wire)
	Insulation resistance	50 MΩ or less (500 VDC, between the case and lead wire)
	Vibration resistance	Compound amplitude 1.5 mm or 100 m/s <sup>2</sup> , 10 Hz to 150 Hz to 10 Hz per minute, 2 hours each in X, Y, Z directions
Shock resistance	100 m/s <sup>2</sup> (10 G), 3 times each in X, Y, Z directions	
Temperature characteristics	±2% F.S. or less (25°C reference) temperature range 0 to 50°C	
Lead wire	Oil resistant cable (0.15 mm <sup>2</sup> )	
Weight	Approx. 65 g (Lead wire 2 m)	

## Dimensions



## Internal circuit / connection method



Pressure switch

Electronic pressure switch

Contact Confirm Switch

For Coolant Pressure Switch

Pressure switch

Electronic pressure switch

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Ending

Ending



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.

Product-specific cautions: Modular design F.R.L. Digital pressure sensor dedicated for regulator mounting PPR 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.

■ 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

■ 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 sensor, be sure to ground the components 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.

■ 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.

■ For safety, be sure to turn the power OFF before connecting the sensor.

■ Regarding the sensor to be connected, follow the instructions in the sensor's instruction manual.

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"

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