

# Proximity Sensors

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## Cylindrical Type Proximity Sensor

PR Series enhance superior noise resistance characteristics with dedicated IC which Autonics self-developed. Also, the series can be widely used in any applications where proximity sensors are required because of diverse range of line-ups in terms of size and sensing distance.



### Features

- \* Improved the noise resistance with dedicated IC
- \* Built-in reverse polarity protection circuit (DC 3-wire type)
- \* Built-in surge protection circuit
- \* Built-in overcurrent protection circuit (DC type)
- \* Long life cycle and high reliability, and simple operation
- \* IP67 protection structure (IEC standard)
- \* Replaceable for micro switches and limit switches

## ● DC 2-wire type

※When the □ model name is X, it is non-polarity model.

Model	PRT08-1.5DO PRT08-1.5DC PRT08-1.5DO-V	PRT08-2DO PRT08-2DC	PRT12-2□DO PRT12-2□DC	PRT12-4□DO PRT12-4□DC	PRT18-5□DO PRT18-5□DC	PRT18-8□DO PRT18-8□DC	PRT30-10□DO PRT30-10□DC PRT30-10DO-V	PRT30-15□DO PRT30-15□DC
Sensing distance	1.5mm	2mm	2mm	4mm	5mm	8mm	10mm	15mm
Hysteresis	Max. 10% of sensing distance							
Standard sensing target	8×8×1mm (iron)		12×12×1mm (iron)		18×18×1mm (iron)	25×25×1mm (iron)	30×30×1mm (iron)	45×45×1mm (iron)
Setting distance	0 to 1.05mm	0 to 1.4mm	0 to 1.4mm	0 to 2.8mm	0 to 3.5mm	0 to 5.6mm	0 to 7mm	0 to 10.5mm
Power supply (operating voltage)	12-24VDC--- (10-30VDC---)							
Leakage current	Max. 0.6mA							
Response frequency <sup>※1</sup>	1.5kHz	1kHz	1.5kHz	500Hz		350Hz	400Hz	200Hz
Residual voltage <sup>※2</sup>	Max. 3.5V (non-polarity type is Max. 5V)							
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20°C (for PRT08 Series: ±20% Max.)							
Control output	2 to 100mA							
Insulation resistance	Over 50MΩ (at 500VDC megger)							
Dielectric strength	1,500VAC 50/60Hz for 1 minute							
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours							
Shock	500m/s <sup>2</sup> (approx. 50G) in X, Y, Z direction for 3 times							
Indicator	Operation indicator: Red LED							
Environment	Ambient temperature	-25 to 70°C, storage: -30 to 80°C						
	Ambient humidity	35 to 95% RH, storage: 35 to 95% RH						
Protection circuit	Surge protection circuit		Surge protection circuit, Over-current protection circuit					
Protection structure	IP67 (IEC standard)							
Cable	Ø3.5mm, 3-wire, 2m (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator diameter: Ø1mm)		Ø4mm, 2-wire, 2m		Ø5mm, 2-wire, 2m			
			(AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1.25mm)					
Material	Case/Nut: Nickel plated brass, Washer: Nickel plated iron, Sensing surface: Polybutylene terephthalate, Standard cable (black): Polyvinyl chloride (PVC), Oil resistant cable (gray): Oil resistant polyvinyl chloride (PVC)							
Approval	CE							
Weight <sup>※3</sup>	Approx. 64g (approx. 52g)		Approx. 84g (approx. 72g)		Approx. 122g (approx. 110g)		Approx. 207g (approx. 170g)	

※1: The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

※2: Before using non-polarity type, check the condition of connected device because residual voltage is 5V.

※3: The weight includes packaging. The weight in parentheses is for unit only.

※The □ of model name is for power type. 'D' is 12-24VDC, 'X' is non-polarity 12-24VDC.

※Environment resistance is rated at no freezing or condensation.

• DC 3-wire type


Model	PR08-1.5DN PR08-1.5DP PR08-1.5DN2 PR08-1.5DP2 PRL08-1.5DN PRL08-1.5DP PRL08-1.5DN2 PRL08-1.5DP2	PR08-2DN PR08-2DP PR08-2DN2 PR08-2DP2 PRL08-2DN PRL08-2DP PRL08-2DN2 PRL08-2DP2	PR12-2DN PR12-2DP PR12-2DN2 PR12-2DP2 PRS12-2DN PRS12-2DP PRS12-2DN2 PRS12-2DP2	PR12-4DN PR12-4DP PR12-4DN2 PR12-4DP2 PRS12-4DN PRS12-4DP PRS12-4DN2 PRS12-4DP2 PRL12-4DN PRL12-4DP	PR18-5DN PR18-5DP PR18-5DN2 PR18-5DP2 PR18-5DN-V PRL18-5DN PRL18-5DP PRL18-5DN2 PRL18-5DP2	PR18-8DN PR18-8DP PR18-8DN2 PR18-8DP2 PRL18-8DN PRL18-8DP PRL18-8DN2 PRL18-8DP2	PR30-10DN PR30-10DP PR30-10DN2 PR30-10DP2 PRL30-10DN PRL30-10DP PRL30-10DN2 PRL30-10DP2	PR30-15DN PR30-15DP PR30-15DN2 PR30-15DP2 PRL30-15DN PRL30-15DP PRL30-15DN2 PRL30-15DP2
Sensing distance	1.5mm	2mm	2mm	4mm	5mm	8mm	10mm	15mm
Hysteresis	Max. 10% of sensing distance							
Standard sensing target	8×8×1mm (iron)		12×12×1mm (iron)		18×18×1mm (iron)	25×25×1mm (iron)	30×30×1mm (iron)	45×45×1mm (iron)
Setting distance	0 to 1.05mm	0 to 1.4mm	0 to 1.4mm	0 to 2.8mm	0 to 3.5mm	0 to 5.6mm	0 to 7mm	0 to 10.5mm
Power supply (operation voltage)	12-24VDC= (10-30VDC=)							
Current consumption	Max. 10mA							
Response frequency <sup>※1</sup>	1.5kHz	1kHz	1.5kHz	500Hz		350Hz	400Hz	200Hz
Residual voltage	Max. 2.0V		Max. 1.5V					
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20°C, PR08 Series: Max. ±20%							
Control output	Max. 200mA							
Insulation resistance	Over 50MΩ (at 500VDC megger)							
Dielectric strength	1,500VAC 50/60Hz for 1 minute							
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours							
Shock	500m/s <sup>2</sup> (approx. 50G) in X, Y, Z direction for 3 times							
Indicator	Operation indicator: Red LED							
Environment	Ambient temperature	-25 to 70°C, storage: -30 to 80°C						
	Ambient humidity	35 to 95%RH, storage: 35 to 95%RH						
Protection circuit	Surge protection circuit, Reverse polarity protection circuit, Over-current protection circuit							
Protection structure	IP67 (IEC standard)							
Material	Case/Nut: Nickel plated brass, Washer: Nickel plated iron, Sensing surface: Polybutylene terephthalate, Standard cable (black): Polyvinyl chloride (PVC), Oil resistant cable (gray): Oil resistant polyvinyl chloride (PVC)							
Cable	Ø3.5mm, 3-wire, 2m (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator diameter: Ø1mm)		Ø4mm, 3-wire, 2m		Ø5mm, 3-wire, 2m			
	(AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1.25mm)							
Approval	CE							
Weight <sup>※2</sup>	PR: Approx. 64g (approx. 52g) PRL: Approx. 66g (approx. 54g)		PR: Approx. 84g (approx. 72g) PRS: Approx. 82g (approx. 70g) PRL: Approx. 88g (approx. 76g)		PR: Approx. 122g (approx. 110g) PRL: Approx. 142g (approx. 130g)		PR: Approx. 207g (approx. 170g) PRL: Approx. 247g (approx. 210g)	

※1: The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

※2: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

## ● AC 2-wire type

Model	PR12-2AO PR12-2AC	PR12-4AO PR12-4AC	PR18-5AO PR18-5AC PRL18-5AO PRL18-5AC	PR18-8AO PR18-8AC PRL18-8AO PRL18-8AC	PR30-10AO PR30-10AC PRL30-10AO PRL30-10AC	PR30-15AO PR30-15AC PRL30-15AO PRL30-15AC
Sensing distance	2mm	4mm	5mm	8mm	10mm	15mm
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	12×12×1mm (iron)		18×18×1mm (iron)	25×25×1mm (iron)	30×30×1mm (iron)	45×45×1mm (iron)
Setting distance	0 to 1.4mm	0 to 2.8mm	0 to 3.5mm	0 to 5.6mm	0 to 7mm	0 to 10.5mm
Power supply (operation voltage)	100-240VAC~ (85-264VAC~)					
Leakage current	Max. 2.5mA					
Response frequency <sup>※1</sup>	20Hz					
Residual voltage	Max. 10V					
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20°C					
Control output	5 to 150mA			5 to 200mA		
Insulation resistance	Over 50MΩ (at 500VDC megger)					
Dielectric strength	2,500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours					
Shock	500m/s <sup>2</sup> (approx. 50G) in X, Y, Z direction for 3 times					
Indicator	Operation indicator: Red LED					
Environment	Ambient temperature	-25 to 70°C, storage: -30 to 80°C				
	Ambient humidity	35 to 95%RH, storage: 35 to 95%RH				
Protection circuit	Surge protection circuit					
Protection structure	IP67 (IEC standard)					
Cable	Ø4mm, 2-wire, 2m			Ø5mm, 2-wire, 2m		
	(AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1.25mm)					
Insulation type	Double insulation or reinforced insulation (Mark:  , dielectric strength between the measuring input part and the power part: 1kV)					
Material	Case/Nut: Nickel plated brass, Washer: Nickel plated iron, Sensing surface: Polybutylene terephthalate, Standard cable (black): Polyvinyl chloride (PVC)					
Approval	CE					
Weight <sup>※2</sup>	Approx. 84g (approx. 66g)		PR: Approx. 130g (approx. 118g) PRL: Approx. 142g (approx. 130g)		PR: Approx. 207g (approx. 170g) PRL: Approx. 245g (approx. 208g)	

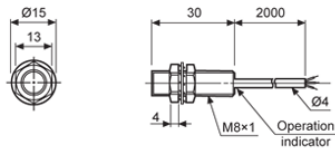
※1: The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

※2: The weight includes packaging. The weight in parentheses is for unit only.

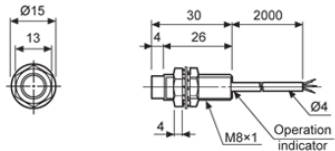
※Environment resistance is rated at no freezing or condensation.

(unit: mm)

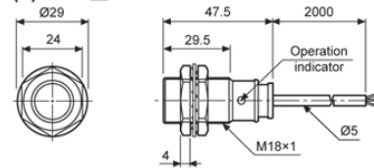
• PR(T)08-1.5D□



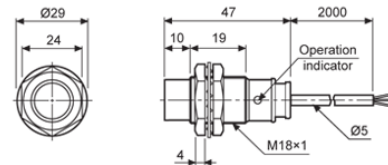
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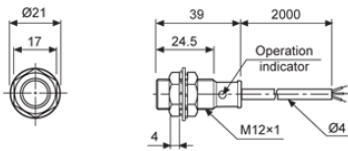
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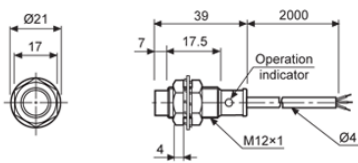
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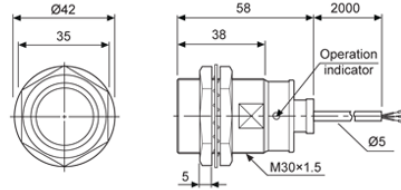
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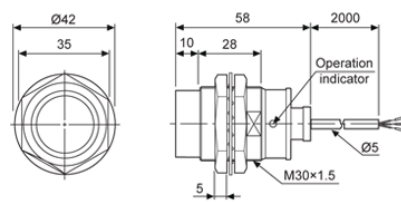
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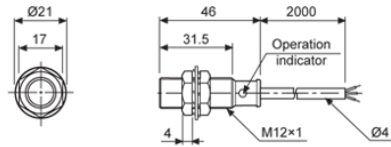
• PR(T)30-10D□



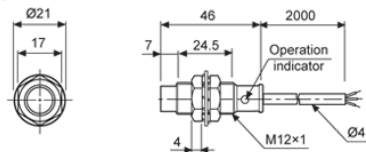
• PR(T)30-15D□



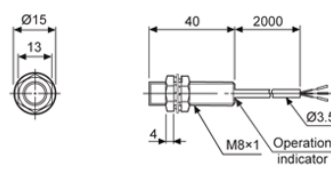
• PR(T)12-2D□



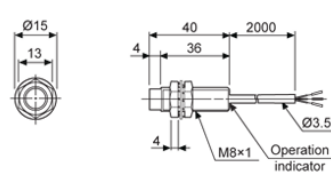
• PR(T)12-4D□



• PRL08-1.5D□

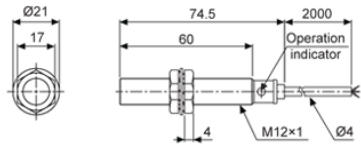


• PRL08-2D□

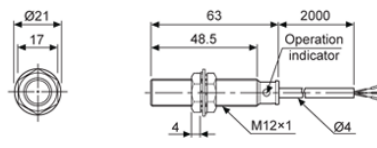


(unit: mm)

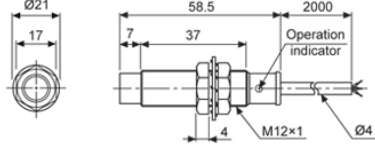
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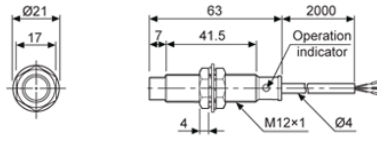
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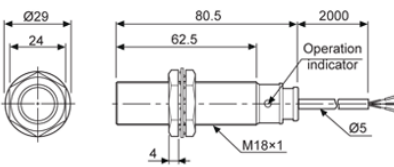
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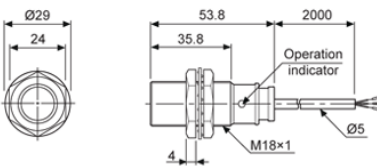
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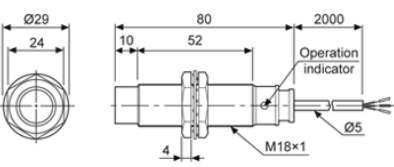
• PRL18-5D□ • PRL18-5A□



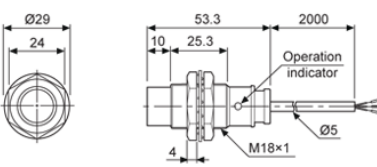
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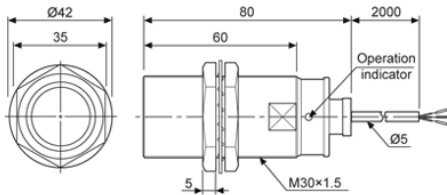
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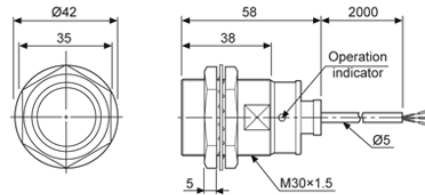
• PR18-8A□



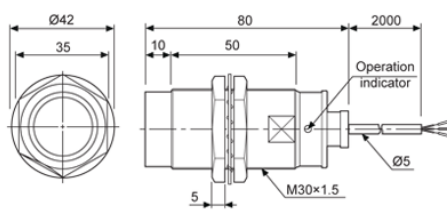
• PRL30-10D□ • PRL30-10A□



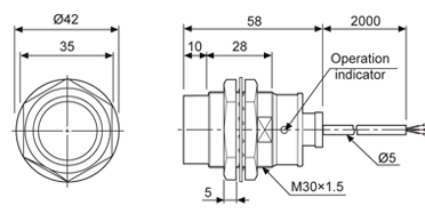
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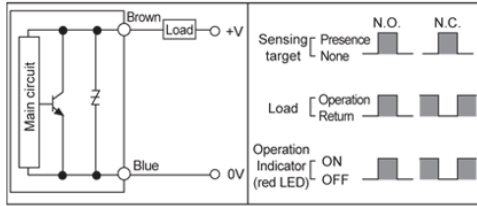
• PRL30-15D□ • PRL30-15A□



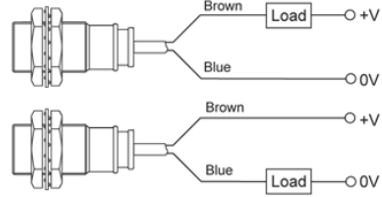
• PR30-15A□



© DC 2-wire type

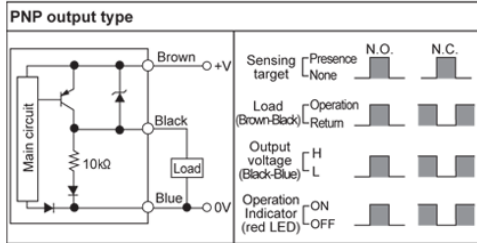
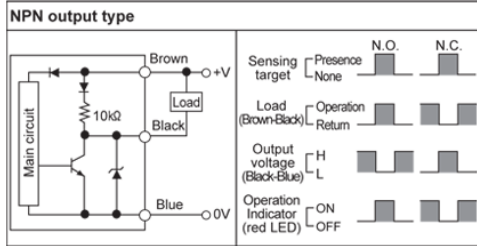


© DC 2-wire type

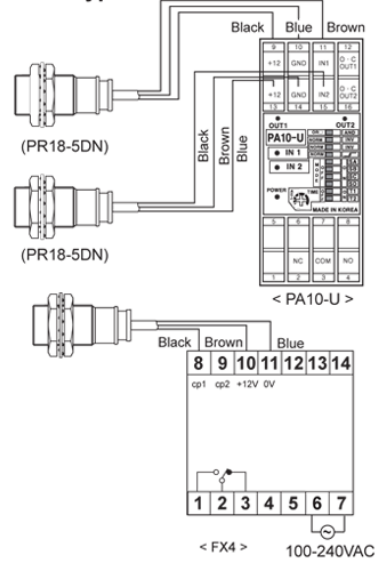


※The load can be connected to either wire.

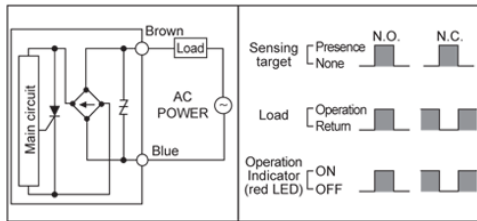
© DC 3-wire type



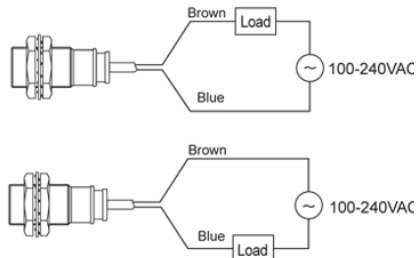
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※The load can be connected to either wire.

