

Cylindrical Inductive Long-Distance / Long-Distance Spatter-Resistant Proximity Sensors



PRD / PRDA Series (DC 3-wire) CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Major Features

- Excellent long-distance sensing and noise immunity with specialized sensor IC
- Built-in surge protection circuit, Output short over current protection circuit, reverse polarity protection
- Simple operation, reliable performance, and high durability
- Spatter-resistant type: PTFE coated for high heat resistance (prevent malfunction from welding spatter)
- Cable connector type / Connector type: easy maintenance and wiring
- Operation indicator (red LED)
- IP67 Protection structure (IEC standards)
- Durable and reliable alternative to micro switches and limit switches
- Strain relief cables
: improved flexural strength of cable connecting component
(except DIA. of sensing side \varnothing 8 mm)

Ordering Information

This is only for reference.

For selecting the specific model, follow the Autonics web site.

PRD ① ② ③ ④ - ⑤ D ⑥ - ⑦

① Characteristic

No mark: General type
A: Spatter-resistant type

② Connection

No mark: Cable type
W: Cable connector type
CM: Connector type

③ Body length

No mark: Normal
L: Long

④ DIA. of sensing side

Number: DIA. of sensing side (unit: mm)

⑤ Sensing distance

Number: Sensing distance (unit: mm)

⑥ Control output

N: NPN Normally open
N2: NPN Normally closed
P: PNP Normally open
P2: PNP Normally closed

⑦ Cable

No mark: Standard type
V: Oil resistant cable type

Sold Separately

- Connector cable,
connector connection cable
- Spatter protection cover
- Transmission coupler
- Fixed bracket

Specifications

Installation	Flush type			
General	PRD□08-2D□	PRD□12-4D□	PRD□18-7D□	PRD□30-15D□
Spatter-resistant	-	PRDACM12-4D□	PRDACM18-7D□	PRDACM30-15D□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	2 mm	4 mm	7 mm	15 mm
Setting distance	0 to 1.4 mm	0 to 2.8 mm	0 to 4.9 mm	0 to 10.5 mm
Hysteresis	≤ 15% of sensing distance	≤ 10% of sensing distance		
Standard sensing target: iron	8 × 8 × 1 mm	12 × 12 × 1 mm	20 × 20 × 1 mm	45 × 45 × 1 mm
Response frequency ⁰¹⁾	1 kHz	500 Hz	300 Hz	100 Hz
Affection by temperature	≤ ± 10% for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 15%)			
Indicator	Operation indicator (red)			
Approval	CE ENEC	CE ENEC	CE ENEC	CE ENEC

Installation	Non-flush type			
General	PRD□08-4D□	PRD□12-8D□	PRD□18-14D□	PRD□30-25D□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Setting distance	0 to 2.8 mm	0 to 5.6 mm	0 to 9.8 mm	0 to 17.5 mm
Sensing distance	4 mm	8 mm	14 mm	25 mm
Hysteresis	≤ 15% of sensing distance	≤ 10% of sensing distance		
Standard sensing target: iron	12 × 12 × 1 mm	25 × 25 × 1 mm	40 × 40 × 1 mm	75 × 75 × 1 mm
Response frequency ⁰¹⁾	800 Hz	400 Hz	200 Hz	100 Hz
Affection by temperature	≤ ± 10% for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 15%)			
Indicator	Operation indicator (red)			
Approval	CE ENEC	CE ENEC	CE ENEC	CE ENEC

01) 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.

Unit weight (package)	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm	
Cable	Normal	≈ 43 g (≈ 63 g)	≈ 62 g (≈ 74 g)	≈ 97 g (≈ 115 g)	≈ 143 g (≈ 180 g)
	Long	-	≈ 82 g (≈ 94 g)	≈ 127 g (≈ 145 g)	≈ 183 g (≈ 220 g)
Cable connector	Normal	≈ 25 g (≈ 45 g)	≈ 37 g (≈ 67 g)	≈ 62 g (≈ 80 g)	≈ 108 g (≈ 145 g)
	Long	-	≈ 32 g (≈ 55 g)	≈ 92 g (≈ 110 g)	≈ 130 g (≈ 203 g)
Connector	Normal	≈ 12 g (≈ 32 g)	≈ 20 g (≈ 49 g)	≈ 41 g (≈ 81 g)	≈ 138 g (≈ 197 g)
	Long	-	≈ 24 g (≈ 54 g)	≈ 60 g (≈ 78 g)	≈ 193 g (≈ 252 g)

Power supply	12-24 VDC= (ripple P-P: ≤ 10%), operating voltage: 10-30 VDC=
Current consumption	≤ 10 mA
Control output	≤ 200 mA
Residual voltage	DIA. of sensing side Ø 8 mm: ≤ 2 V DIA. of sensing side Ø 12 mm, Ø 18 mm, Ø 30 mm: ≤ 1.5 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation resistance	≥ 50 MΩ (500 VDC= megger)
Dielectric strength	DIA. of sensing side Ø 8 mm : 1,000 VAC~ 50/60 Hz for 1 min (between all terminals and case) (connector type: 1,500 VAC~ 50/60 Hz for 1 min (between all terminals and case)) DIA. of sensing side Ø 12 mm, Ø 18 mm, Ø 30 mm : 1,500 VAC~ 50/60 Hz for 1 min (between all terminals and case)
Vibration	1 mm amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s ² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (non-freezing or non-condensation)
Ambient humidity	35 to 95%RH, storage: 35 to 95%RH (non-freezing or non-condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type ⁰¹⁾ / Cable connector type ⁰¹⁾ / Connector type model
Cable spec. ⁰²⁾	DIA. of sensing side Ø 8 mm: Ø 3.5 mm, 3-wire DIA. of sensing side Ø 12 mm: Ø 4 mm, 3-wire DIA. of sensing side Ø 18 mm, Ø 30 mm: Ø 5 mm, 3-wire
Wire spec.	Ø 3.5 mm cable: AWG 24 (0.08 mm, 40-wire), insulator diameter: Ø 1 mm Ø 4 mm, Ø 5 mm cable : AWG 22 (0.08 mm, 60-wire), insulator diameter: Ø 1.25 mm
Connector spec.	M12 connector
Material	Standard type cable (black): polyvinyl chloride (PVC) Oil resistant cable (gray): polyvinyl chloride (oil resistant PVC)
General	Case/Nut: nickel plated brass (DIA. of sensing side Ø 8 mm connector type case: SUS303), washer: nickel plated iron, sensing side: PBT
Spatter-resistant	Case/Nut: PTFE coated brass, washer: PTFE coated iron, sensing side: PTFE

01) Except spatter-resistant type

02) Cable type: 2 m, Cable connector type: 300 mm

Cylindrical Inductive Long-Distance / Long-Distance Spatter-Resistant Proximity Sensors



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Major Features

- Excellent long-distance sensing and noise immunity with specialized sensor IC
- Built-in surge protection circuit, Output short over current protection circuit, reverse polarity protection
- Simple operation, reliable performance, and high durability
- Spatter-resistant type: PTFE coated for high heat resistance (prevent malfunction from welding spatter)
- Cable connector type: easy maintenance and wiring
- Connector type : easy maintenance and wiring, easy to check operation from various angles with 4-side LED
- Operation indicator (red LED)
- IP67 Protection structure (IEC standards)
- Durable and reliable alternative to micro switches and limit switches
- Strain relief cables : improved flexural strength of cable connecting component (except DIA. of sensing side \varnothing 8 mm)

Ordering Information

This is only for reference.

For selecting the specific model, follow the Autonics web site.

PRD ① ② ③ T ④ - ⑤ ⑥ ⑦ - ⑧

① Characteristic

No mark: General type
A: Spatter-resistant type

② Connection

No mark: Cable type
W: Cable connector type
CM: Connector type

③ Body length

No mark: Normal
L: Long

④ DIA. of sensing side

Number: DIA. of sensing side (unit: mm)

⑤ Sensing distance

Number: Sensing distance (unit: mm)

⑥ Power supply

D: 12-24 VDC=
X: 12-24 VDC= \equiv (non-polarity)

⑦ Control output

O: Normally open
C: Normally closed

⑧ Cable

No mark: Standard type
I: Standard type (IEC standards)
V: Oil resistant cable type
IV: Oil resistant cable type (IEC standards)

Sold Separately

- Connector cable,
- connector connection cable
- Transmission coupler
- Spatter protection cover
- Fixed bracket

Specifications

Installation	Flush type			
General	PRD□T08-2□	PRD□T12-4□	PRD□T18-7□	PRD□T30-15□
Spatter-resistant	-	PRDA□T12-4□	PRDA□T18-7□	PRDA□T30-15□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	2 mm	4 mm	7 mm	15 mm
Setting distance	0 to 1.4 mm	0 to 2.8 mm	0 to 4.9 mm	0 to 10.5 mm
Hysteresis	≤ 15 % of sensing distance	≤ 10 % of sensing distance		
Standard sensing target: iron	8 × 8 × 1 mm	12 × 12 × 1 mm	20 × 20 × 1 mm	45 × 45 × 1 mm
Response frequency ⁰¹⁾	1 kHz	450 Hz	250 Hz	100 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 15 %)			
Indicator	Operation indicator (red)			
Approval	CE ENEC	CE ENEC	CE ENEC	CE ENEC

Installation	Non-flush type			
General	PRD□T08-4□	PRD□T12-8□	PRD□T18-14□	PRD□T30-25□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	4 mm	8 mm	14 mm	25 mm
Setting distance	0 to 2.8 mm	0 to 5.6 mm	0 to 9.8 mm	0 to 17.5 mm
Hysteresis	≤ 15 % of sensing distance	≤ 10 % of sensing distance		
Standard sensing target: iron	12 × 12 × 1 mm	25 × 25 × 1 mm	40 × 40 × 1 mm	75 × 75 × 1 mm
Response frequency ⁰¹⁾	800 Hz	400 Hz	200 Hz	100 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 15 %)			
Indicator	Operation indicator (red)			
Approval	CE ENEC	CE ENEC	CE ENEC	CE ENEC

01) 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.

Unit weight (package) ⁰²⁾	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm	
Cable	Normal	≈ 43 g (≈ 63 g)	≈ 62 g (≈ 74 g)	≈ 97 g (≈ 115 g)	≈ 143 g (≈ 180 g)
	Long	-	≈ 72 g (≈ 84 g)	≈ 122 g (≈ 134 g)	≈ 221 g (≈ 184 g)
Cable connector	Normal	≈ 25 g (≈ 45 g)	≈ 32 g (≈ 55 g)	≈ 62 g (≈ 80 g)	≈ 130 g (≈ 145 g)
	Long	-	≈ 42 g (≈ 54 g)	≈ 65 g (≈ 77 g)	≈ 143 g (≈ 155 g)
Connector	Normal	≈ 10 g (≈ 32 g)	≈ 20 g (≈ 50 g)	≈ 42 g (≈ 60 g)	≈ 110 g (≈ 150 g)
	Long	-	≈ 26 g (≈ 38 g)	≈ 49 g (≈ 61 g)	≈ 134 g (≈ 146 g)
			≈ 60 g (≈ 78 g)	≈ 150 g (≈ 190 g)	

01) In case of normal body length, it is written in General type order.
In case of long body length, it is only available general type.

Power supply	12-24 VDC (ripple P-P: ≤ 10 %), operating voltage: 10-30 VDC
Leakage current	DIA. of sensing side Ø 8mm: ≤ 0.8 mA DIA. of sensing side Ø 12 mm, Ø 18 mm, Ø 30 mm: ≤ 0.6 mA
Control output	2 to 100 mA
Residual voltage ⁰²⁾	≤ 3.5 V (Non-polarity: ≤ 5 V)
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation resistance	≥ 50 MΩ (500 VDC = megger)
Dielectric strength	DIA. of sensing side Ø 8 mm : 1,000 VAC ~ 50/60 Hz for 1 min (between all terminals and case) (connector type: 1,500 VAC ~ 50/60 Hz for 1 min (between all terminals and case)) DIA. of sensing side Ø 12 mm, Ø 18 mm, Ø 30 mm : 1,500 VAC ~ 50/60 Hz for 1 min (between all terminals and case)
Vibration	1 mm amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s ² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (non-freezing or non-condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (non-freezing or non-condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type / Cable connector type / Connector type model
Cable spec. ⁰²⁾	DIA. of sensing side Ø 8 mm: Ø 3.5 mm, 2-wire DIA. of sensing side Ø 12 mm: Ø 4 mm, 2-wire DIA. of sensing side Ø 18 mm, Ø 30 mm: Ø 5 mm, 2-wire
Wire spec.	Ø 3.5 mm cable: AWG 24 (0.08 mm, 40-wire), insulator diameter: Ø 1 mm Ø 4 mm, Ø 5 mm cable : AWG 22 (0.08 mm, 60-wire), insulator diameter: Ø 1.25 mm
Connector spec.	M12 connector
Material	Standard type cable (black): polyvinyl chloride (PVC) Oil resistant cable (gray): polyvinyl chloride (oil resistant PVC)
General	Case/Nut: nickel plated brass (DIA. of sensing side Ø 8 mm connector type case: SUS303), washer: nickel plated iron, sensing side: PBT
Spatter-resistant	Case/Nut: PTFE coated brass, washer: PTFE coated iron, sensing side: PTFE

01) Check the condition of connected device.

02) Cable type: 2 m, Cable connector type: 300 mm