Autonics

Індуктивні датчики наближення

Каталог 2023

A8. Proximity Sensors

Proximity sensors are common, reliable, and durable solutions for applications requiring non-contact detection.

Cylindrical Inductive Long-Distance

Proximity Sensors

(DC 3-Wire)

PRD Series

Features

- Spatter-resistant type:
  PTFE coated for high heat resistance
  (prevent malfunction from welding spatter)
- Operation indicator (red LED)
- IP67 Protection structure (IEC standards)
- Strain relief cables:
  improved flexural strength of
  cable connecting component
  (except DIA. of sensing side Ø 8 mm)

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 EAC	CE EAC	CE EAC	CE EAC

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 EAC	CE EAC	CE EAC	CE EAC

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)	≈ 20g (≈ 49 g)	≈ 41 g (≈ 81 g)	≈ 138 g (≈ 197 g)
	Long	-	≈ 24 g (≈ 54 g)	≈ 60 g (≈ 78 g)	≈ 193 g (≈ 252 g)

View product detail

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 8mm: ≤ 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 8mm : 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 double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 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-core), insulator diameter: Ø 1 mm Ø 4 mm, Ø 5 mm cable : AWG 22 (0.08 mm, 60-core), 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

Proximity Sensors

(DC 2-Wire)

PRD Series

Features

- Spatter-resistant type:
  PTFE coated for high heat resistance
  (prevent malfunction from welding spatter)
- Operation indicator (red LED)
- IP67 Protection structure (IEC standards)
- Strain relief cables:
  improved flexural strength of
  cable connecting component
  (except DIA. of sensing side Ø 8 mm)

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 EAC	CE EAC	CE EAC	CE EAC

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 EAC	CE EAC	CE EAC	CE EAC

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) 01)		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)
		-	≈ 72 g (≈ 84 g)	≈ 122 g (≈ 134 g)	≈ 221 g (≈ 184 g)
	Long	-	≈ 82 g (≈ 94 g)	≈ 127 g (≈ 145 g)	≈ 183 g (≈ 220 g)
Cable connector	Normal	≈ 25 g (≈ 45 g)	≈ 32 g (≈ 55 g)	≈ 62 g (≈ 80 g)	≈ 130 g (≈ 145 g)
		-	≈ 42 g (≈ 54 g)	≈ 65 g (≈ 77 g)	≈ 143 g (≈ 155 g)
	Long	-	-	≈ 92 g (≈ 110 g)	-
Connector	Normal	≈ 10 g (≈ 32 g)	≈ 20g (≈ 50 g)	≈ 42 g (≈ 60 g)	≈ 110 g (≈ 150 g)
		-	≈ 26g (≈ 38 g)	≈ 49g (≈ 61 g)	≈ 134 g (≈ 146 g)
	Long	-	-	≈ 60 g (≈ 78 g)	≈ 150 g (≈ 190 g)

01) In case of normal body length, it is written in $\frac{\text{General type}}{\text{Spatter-resistant type}}$ order. In case of long body length, it is only available general type.

View product detail

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 [01]	≤ 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 double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 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-core), insulator diameter: Ø 1 mm Ø 4 mm, Ø 5 mm cable : AWG 22 (0.08 mm, 60-core), 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

Cylindrical Inductive Long-Distance

Proximity Sensors

(IO-Link)

PRD Series

Features

- Reduced installation work by identifying object IDs
- Malfunction and damage prevention through status monitoring
- Shortest time recovery through abnormal detection
- Mode indicator for check status
- IO-Link mode: Communication indicator (flashing green), operation indicator (orange), abnormal detect indicator (cross-flashing green, orange)
- SIO mode: Operation indicator (orange), stable indicator (green), abnormal detect indicator (cross-flashing green, orange)
- IP67 Protection rating (IEC standard)

Specifications

Installation	Flush type		
Model	**PRD□12-4D-□-IL2**	**PRD□18-7D-□-IL2**	**PRD□30-15D-□-IL2**
DIA. of sensing side	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	4 mm	7 mm	15 mm
Setting distance	0 to 2.8 mm	0 to 4.9 mm	0 to 10.5 mm
Hysteresis	≤ 10 % of sensing distance		
Standard sensing target: iron	12 × 12 × 1 mm	20 × 20 × 1 mm	45 × 45 × 1 mm
Response frequency [01]	500 Hz	250 Hz	100 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C		
Indicator [02]	IO-Link mode, SIO mode		
IO-Link mode	Communication indicator (flashing green), operation indicator (orange), Abnormal detect indicator (cross-flashing green, orange)		
SIO mode	Operation indicator (orange), stable indicator (green), Abnormal detect indicator (cross-flashing green, orange)		
Approval	CE cULus IO-Link	CE cULus IO-Link	CE cULus IO-Link

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.
02) In case of SIO mode, use the device within the range where the stable indicator (green) is ON.
If the sensing target is in the too close detection distance, the stable indicator turns OFF, but it is in a stable detection state.
In case of IO-Link mode, use the device within the range where unstable detection (Byte0_bit6) turns 0.
If the sensing target is in the too close detection distance, the too close detection (Byte0_bit5) is 1, but it is a stable detection state.

Installation	Non-flush type		
Model	**PRD□12-8D-□-IL2**	**PRD□18-14D-□-IL2**	**PRD□30-25D-□-IL2**
DIA. of sensing side	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	8 mm	14 mm	25 mm
Setting distance	0 to 5.6 mm	0 to 9.8 mm	0 to 17.5 mm
Hysteresis	≤ 10 % of sensing distance		
Standard sensing target: iron	25 × 25 × 1 mm	40 × 40 × 1 mm	75 × 75 × 1 mm
Response frequency [01]	400 Hz	200 Hz	100 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C		
Indicator [02]	IO-Link mode, SIO mode		
IO-Link mode	Communication indicator (flashing green), operation indicator (orange), Abnormal detect indicator (cross-flashing green, orange)		
SIO mode	Operation indicator (orange), stable indicator (green), Abnormal detect indicator (cross-flashing green, orange)		
Approval	CE cULus IO-Link	CE cULus IO-Link	CE cULus IO-Link

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.
02) In case of SIO mode, use the device within the range where the stable indicator (green) is ON.
If the sensing target is in the too close detection distance, the stable indicator turns OFF, but it is in a stable detection state.
In case of IO-Link mode, use the device within the range where unstable detection (Byte0_bit6) turns 0.
If the sensing target is in the too close detection distance, the too close detection (Byte0_bit5) is 1, but it is a stable detection state.

Unit weight (package)	**Ø 12 mm**	**Ø 18 mm**	**Ø 30 mm**
Cable	≈ 62 g (≈ 74 g)	≈ 97 g (≈ 115 g)	≈ 143 g (≈ 180 g)
Cable connector	≈ 37 g (≈ 67 g)	≈ 62 g (≈ 80 g)	≈ 108 g (≈ 145 g)
Connector	≈ 20g (≈ 49 g)	≈ 41 g (≈ 81 g)	≈ 138 g (≈ 197 g)

View product detail

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Current consumption	IO-Link mode: ≤ 25 mA, SIO mode: ≤ 20 mA
Control output	≤ 100 mA
Residual voltage [01)]	≤ 2 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation resistance	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,000 VAC~ 50 / 60 Hz for 1 min
Vibration	1.5 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	1000 m/s² (≈ 100 G) in each X, Y, Z direction for 3 times
Ambient temp. [02)]	-25 to 70 °C, storage: -25 to 70 °C (no freezing or condensation)
Ambient humi.	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection rating	IP67 (IEC standard)
Connection	Cable / Cable connector / connector models
Cable spec. [03)]	DIA. of sensing side Ø 12 mm: Ø 4 mm, 4-wire DIA. of sensing side Ø 18 mm, Ø 30 mm : Ø 5 mm, 4-wire
Wire spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Connector spec.	M12 plug connector
Material	Standard type cable (black): polyvinyl chloride (PVC), Oil resistant cable (gray): polyvinyl chloride (oil resistant PVC), case / nut: nickel plated brass, washer: nickel plated iron, sensing side: PBT
Comm. protocol	IO-Link

01) Load current: 100 mA, cable length: 2 m
02) UL approved surrounding air temperature 40 °C
03) Cable type: 2 m, Cable connector type: 300 mm

Software

Download the installation file and the manuals from the Autonics website.

[atIOLink]

atIOLink with purposes for setting, diagnosis, and maintenance of IO-Link device via IODD file is provided as the Port and Device Configuration Tool (PDCT).

[IODD (IO Device Description)]

This file contains information such as manufacturer information, process data, diagnostic data, and parameter setting of a sensor using IO-Link communication. By uploading the IODD file to PDCT Software, you can check the setting and communication data according to the user interface. Download the IODD file from the Autonics website.

Cylindrical Inductive

Proximity Sensors

(DC 3-Wire)

PR Series

Features

- Spatter-resistant type:
  PTFE coated for high heat resistance
  (prevent malfunction from welding spatter)
- Operation indicator (red LED)
- IP67 Protection structure (IEC standards)

Specifications

Installation	Flush type			
General	PR□08-1.5D□	PR□12-2D□	PR□18-5D□	PR□30-10D□
Spatter-resistant	-	PRA□12-2D□	PRA□18-5D□	PRA□30-10D□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	1.5 mm	2 mm	5 mm	10 mm
Setting distance	0 to 1.05 mm	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm
Hysteresis	≤ 10 % of sensing distance (DIA. of sensing side Ø 8 mm connector type: ≤ 15 %)			
Standard sensing target: iron	8 × 8 × 1 mm	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency 01)	1.5 kHz	1.5 kHz	500 Hz	400 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 20 %)			
Indicator	Operation indicator (red)			
Approval	CE EAC	CE EAC	CE EAC	CE EAC

Installation	Non-flush type			
General	PR□08-2D□	PR□12-4D□	PR□18-8D□	PR□30-15D□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	2 mm	4 mm	8 mm	15 mm
Setting distance	0 to 1.4 mm	0 to 2.8 mm	0 to 5.6 mm	0 to 10.5 mm
Hysteresis	≤ 10 % of sensing distance (DIA. of sensing side Ø 8 mm connector type: ≤ 15 %)			
Standard sensing target: iron	8×8×1 mm	12×12×1 mm	25×25×1 mm	45×45×1 mm
Response frequency 01)	1.0 kHz	500 Hz	350 Hz	200 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 20 %)			
Indicator	Operation indicator (red)			
Approval	CE EAC	CE EAC	CE EAC	CE EAC

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	≈ 52 g (≈ 64 g)	≈ 72 g (≈ 84 g)	≈ 110 g (≈ 122 g)	≈ 170 g (≈ 207 g)
	Short	-	≈ 70 g (≈ 82 g)	-	-
	Long	≈ 54 g (≈ 66 g)	≈ 76 g (≈ 88 g)	≈ 130 g (≈ 142 g)	≈ 210 g (≈ 247 g)
Cable connector	Normal	≈ 32 g (≈ 44 g)	≈ 42 g (≈ 54 g)	≈ 58 g (≈ 70 g)	≈ 122 g (≈ 134 g)
	Long	≈ 34 g (≈ 46 g)	-	≈ 78 g (≈ 90 g)	≈ 158 g (≈ 195 g)
Connector	Normal	≈ 10 g (≈ 32 g)	≈ 26 g (≈ 38 g)	≈ 49 g (≈ 61 g)	≈ 134 g (≈ 146 g)
	Long	-	-	≈ 73 g (≈ 85 g)	≈ 169 g (≈ 181 g)

View product detail

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: ≤ 2.0 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	1,500 VAC~ 50 / 60Hz for 1 min (between all terminals and case)
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type / 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-core), insulator DIA.: Ø 1 mm Ø 4 mm, Ø 5 mm cable : AWG 22 (0.08 mm, 60-core), insulator DIA.: 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

Proximity Sensors

(DC 2-Wire)

PR Series

Features

- Spatter-resistant type:
  PTFE coated for high heat resistance
  (prevent malfunction from welding spatter)
- Operation indicator (red LED)
- IP67 Protection structure (IEC standards)

Specifications

Installation	Flush type			
General	**PR□T08-1.5□**	**PR□T12-2□**	**PR□T18-5□**	**PR□T30-10□**
Spatter-resistant	**-**	**PRA□T12-2□**	**PRA□T18-5□**	**PRA□T30-10□**
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	1.5 mm	2 mm	5 mm	10 mm
Setting distance	0 to 1.05 mm	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm
Hysteresis	≤ 10 % of sensing distance (DIA. of sensing side Ø 8 mm connector type: ≤ 15 %)			
Standard sensing target: iron	8 × 8 × 1 mm	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency [01]	1.5 kHz	1.5 kHz	500 Hz	400 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 20 %)			
Indicator	Operation indicator (red)			
Approval	CE EAC	CE EAC	CE EAC	CE EAC

Installation	Non-flush type			
General	**PR□T08-2□**	**PR□T12-4□**	**PR□T18-8□**	**PR□T30-15□**
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	2 mm	4 mm	8 mm	15 mm
Setting distance	0 to 1.4 mm	0 to 2.8 mm	0 to 5.6 mm	0 to 10.5 mm
Hysteresis	≤ 10 % of sensing distance (DIA. of sensing side Ø 8 mm connector type: ≤ 15 %)			
Standard sensing target: iron	8 × 8 × 1 mm	12 × 12 × 1 mm	25 × 25 × 1 mm	45 × 45 × 1 mm
Response frequency [01]	1.0 kHz	500 Hz	350 Hz	200 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: ≤ ± 20 %)			
Indicator	Operation indicator (red)			
Approval	CE EAC	CE EAC	CE EAC	CE EAC

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	≈ 52 g (≈ 64 g)	≈ 72 g (≈ 84 g)	≈ 110 g (≈ 122 g)	≈ 170 g (≈ 207 g)
Cable connector	≈ 32 g (≈ 44 g)	≈ 42 g (≈ 54 g)	≈ 58 g (≈ 70 g)	≈ 122 g (≈ 134 g)
Connector	≈ 10 g (≈ 32 g)	≈ 26 g (≈ 38 g)	≈ 49 g (≈ 61 g)	≈ 142 g (≈ 154 g) [01]

01) Spatter-resistant type: ≈ 134 g (≈ 146 g)

View product detail

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Leakage current	≤ 0.6 mA
Control output	2 to 100 mA
Residual voltage	≤ 3.5 V (non-polarity [01]: ≤ 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	1,500 VAC~ 50 / 60 Hz for 1 min (between all terminals and case)
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G)in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or 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-core), insulator diameter: Ø 1 mm Ø 4 mm, Ø 5 mm cable : AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Connector spec.	M12 connector
Material	Standard type cable (black): polyvinyl chloride (PVC) Oil resistant cable type 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

Cylindrical Inductive

Proximity Sensors

(AC 2-Wire)

PR Series

Features

- Spatter-resistant type: PTFE coated for high heat resistance (prevent malfunction from welding spatter)
- Operation indicator (red LED)
- IP67 Protection structure (IEC standards)

Specifications

Installation	Flush type		
General	PR□12-2A□	PR□18-5A□	PR□30-10A□
Spatter-resistant	PRA□12-2A□	PRA□18-5A□	PRA□30-10A□
DIA. of sensing side	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	2 mm	5 mm	10 mm
Setting distance	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm
Hysteresis	≤ 10 % of sensing distance		
Standard sensing target: iron	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm
Response frequency 01)	20 Hz		
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C		
Indicator	Operation indicator (red)		
Approval	CE EAC	CE EAC	CE EAC

Installation	Non-flush type		
General	PR□12-4A □	PR□18-8A □	PR□30-15A □
DIA. of sensing side	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance	4 mm	8 mm	15 mm
Setting distance	0 to 2.8 mm	0 to 5.6 mm	0 to 10.5 mm
Hysteresis	≤ 10 % of sensing distance		
Standard sensing target: iron	12 × 12 × 1 mm	25 × 25 × 1 mm	45 × 45 × 1 mm
Response frequency 01)	20 Hz		
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C		
Indicator	Operation indicator (red)		
Approval	CE EAC	CE EAC	CE EAC

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 12 mm	Ø 18 mm	Ø 30 mm
Cable	Normal	≈ 72 g (≈ 84 g) 01)	≈ 118 g (≈ 130 g) 02)	≈ 170 g (≈ 207 g)
	Long	-	≈ 130 g (≈ 142 g)	≈ 208 g (≈ 245 g)
Cable connector	Normal	≈ 42 g (≈ 54 g)	≈ 66 g (≈ 78 g)	≈ 122 g (≈ 134 g)
	Long	-	≈ 78 g (≈ 90 g)	≈ 158 g (≈ 195 g)
Connector	Normal	≈ 30 g (≈ 42 g)	≈ 54 g (≈ 66 g)	≈ 142 g (≈ 154 g)
	Long	-	≈ 66 g (≈ 78 g)	≈ 182 g (≈ 194 g)

01) Spatter-resistant type: ≈ 66 g (≈ 78 g)
02) Spatter-resistant type: ≈ 106 g (≈ 118 g)

View product detail

Power supply	100 - 240 VAC⁓ 50 / 60 Hz, operating voltage: 85 - 264 VAC⁓
Leakage current	≤ 2.5 mA
Control output	DIA. of sensing side Ø 12 mm: 5 to 150 mA DIA. of sensing side Ø 18 mm, Ø 30 mm: 5 to 200 mA
Residual voltage	≤ 10 V
Protection circuit	Surge protection circuit
Insulation resistance	≥ 50 MΩ (500 VDC⎓ megger)
Insulation type	Double insulation or reinfored insulation (symbol: ⧈) dielectric strength between the measuring input part and the power part: general type 1 kV, spatter-resistant type 1.5 kV
Dielectric strength	General type : 2,500 VAC⁓ 50/60 Hz for 1 min (between all terminals and case) Spatter-resistant type : 1,500 VAC⁓ 50/60 Hz for 1 min (between all terminals and case)
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type / Cable connector type [01] / Connector type [01] model
Cable spec. [02]	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.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Connector spec.	M12 connector
Material	Standard type cable (black): polyvinyl chloride (PVC)
General	Case/Nut: nickel plated brass, 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 Full-Metal Long-Distance

Proximity Sensors

(DC 2-Wire)

PRFD Series

Features

- Long sensing distance
- High resistance to impact and wear caused by contact with workpieces or wire brushes (sensor head / housing : stainless steel)
- Reduced risk of malfunction caused by aluminum chips
- Spatter-resistant type: PTFE coating prevents malfunctions caused by welding spatter
- 360° ring type operation indicator (red LED) (except Ø 8 mm model)
- Oil resistant cable
- IP67 protection structure (IEC standards)

Specifications

Installation	Flush type			
General	PRFD□T08-2DO-□	PRFD□T12-3DO-□	PRFD□T18-7DO-□	PRFD□T30-12DO-□
Spatter-resistant	PRFDA□T08-2DO-□	PRFDA□T12-3DO-□	PRFDA□T18-7DO-□	PRFDA□T30-12DO-□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance [01]	2 mm	3 mm	7 mm	12 mm
Setting distance	0 to 1.4 mm	0 to 2.1 mm	0 to 4.9 mm	0 to 8.4 mm
Hysteresis	≤ 15 % of sensing distance			
Standard sensing target: iron	12 × 12 × 1 mm	12 × 12 × 1 mm	30 × 30 × 1 mm	54 × 54 × 1 mm
Response frequency [02]	150 Hz	80 Hz	80 Hz	50 Hz
Affection by temperature	≤ ± 20 % for sensing distance at ambient temperature 20 °C			
Indicator	Stability indicator (green), operation indicator (red)			
Approval	CE cULus EAC	CE cULus EAC	CE cULus EAC	CE cULus EAC
Unit weight (package)	≈ 55 g (≈ 80 g)	≈ 83 g (≈ 110 g)	≈ 97 g (≈ 132 g)	≈ 170 g (≈ 225 g)

01) Use accessories (nut, washer) made of SUS. Or, sensing distance cannot be guaranteed.
02) 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.

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Leakage current	≤ 0.8 mA
Control output	3 to 100 mA
Residual voltage	≤ 3.5 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation resistance	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,000 VAC~ 50 / 60Hz for 1 minute (between all terminals and case)
Vibration	1.5 mm double amplitude at frequency 10 to 55 Hz in each X, Y, Z direction for 2 hours
Shock	1,000 m/s² (≈ 100 G) in each X, Y, Z direction for 10 times (DIA. of sensing side Ø 8 mm: : 500 m/s² (≈ 50 G) in each X, Y, Z direction for 10 times)
Ambient temp. [01]	-25 to 70 °C, storage: -25 to 70 °C (no freezing or condensation)
Ambient humi.	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection	IP67 (IEC standards)
Connection	Cable type / Cable connector type model
Cable spec. [02]	DIA. of sensing side Ø 8 mm: Ø 4 mm, 2-wire DIA. of sensing side Ø 12 mm, Ø 18 mm, Ø 30 mm: Ø 5 mm, 2-wire
Wire spec.	AWG 22 (0.08 mm, 60-wire), insulator diameter: Ø 1.25 mm
Connector	M12 connector
Material	Oil resistant cable (dark gray): oil resistant polyvinyl chloride (PVC)
General	Case / Nut: stainless steel 303 (SUS303), washer: stainless steel 304 (SUS304), sensing side [03]: stainless steel 303 (SUS303)
Spatter-resistant	Case / Nut: stainless steel 303 (SUS303, PTFE coated), washer: stainless steel 304 (SUS304), sensing side [03]: stainless steel 303 (SUS303, PTFE coated)

01) UL approved surrounding air temperature 40 °C
02) Cable type: 2 m (option: 5 m), cable connector type: 300 mm
03) Thickness: DIA. of sensing side Ø 8 mm: 0.2 mm / DIA. of sensing side Ø 12 mm, Ø 18 mm: 0.4 mm / DIA. of sensing side Ø 30 mm: 0.5 mm

View product detail

Cylindrical
Inductive
Full-Metal
Proximity Sensors
(DC 2-Wire)

PRF Series

Features

- High resistance to impact and wear caused by contact with workpieces or wire brushes (sensor head / housing: stainless steel)
- Reduced risk of malfunction caused by aluminum chips
- Spatter-resistant type: PTFE coating prevents malfunctions caused by welding spatter
- 360° ring type operation indicator (red LED) (except Ø 8 mm model)
- Oil resistant cable
- IP67 protection structure (IEC standards)

Specifications

Installation	Flush type			
General	PRF□T08-1.5DO-□	PRF□T12-2DO-□	PRF□T18-5DO-□	PRF□T30-10DO-□
Spatter-resistant	PRFA□T08-1.5DO-□	PRFA□T12-2DO-□	PRFA□T18-5DO-□	PRFA□T30-10DO-□
DIA. of sensing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm
Sensing distance 01)	1.5 mm	2 mm	5 mm	10 mm
Setting distance	0 to 1.05 mm	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm
Hysteresis	≤ 15 % of sensing distance			
Standard sensing target: iron	8 × 8 × 1 mm	12 × 12 × 1 mm	30 × 30 × 1 mm	54 × 54 × 1 mm
Response frequency 02)	200 Hz	100 Hz	80 Hz	50 Hz
Affection by temperature	≤ ± 20 % for sensing distance at ambient temperature 20 °C			
Indicator	Operating indicator (red)			
Approval	CE cULus EAC	CE cULus EAC	CE cULus EAC	CE cULus EAC
Unit weight (package)	≈ 55 g (≈ 80 g)	≈ 83 g (≈ 110 g)	≈ 97 g (≈ 132 g)	≈ 170 g (≈ 225 g)

01) Use accessories (nut, washer) made of SUS. Or, sensing distance cannot be guaranteed.
02) 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.

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Leakage current	≤ 0.8 mA
Control output	3 to 100 mA
Residual voltage	≤ 3.5 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation resistance	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,000 VAC~ 50/60Hz for 1 minute (between all terminals and case)
Vibration	1.5 mm amplitude at frequency 10 to 55 Hz in each X, Y, Z direction for 2 hours
Shock	1,000 m/s² (≈ 100 G) in each X, Y, Z direction for 10 times (DIA. of sensing side Ø 8 mm : 500 m/s² (≈ 50 G) in each X, Y, Z direction for 10 times)
Ambient temp. 01)	-25 to 70 °C, storage: -25 to 70 °C (non-freezing or non-condensation)
Ambient humi.	35 to 95 %RH, storage: 35 to 95 %RH (non-freezing or non-condensation)
Protection	IP67 (IEC standards)
Connection	Cable type / Cable connector type model
Cable spec. 02)	DIA. of sensing side Ø 8 mm: Ø 4 mm, 2-wire DIA. of sensing side Ø 12 mm, Ø 18 mm, Ø 30 mm: Ø 5 mm, 2-wire
Wire spec.	AWG 22 (0.08 mm, 60-wire), insulator diameter: Ø 1.25 mm
Connector	M12 connector
Material	Oil resistant cable (dark gray): oil resistant polyvinyl chloride (PVC)
General	Case/Nut: SUS303, washer: SUS304, sensing side 03): SUS303
Spatter-resistant	Case/Nut: SUS303 (PTFE coated), washer: SUS304, sensing side 03): SUS303 (PTFE coated)

01) UL approved surrounding air temperature 40 °C
02) Cable type: 2 m (option: 5 m), cable connector type: 300 mm
03) Thickness: 0.8 mm (DIA. of sensing side Ø 8 mm: 0.4 mm)

View product detail

Cylindrical Inductive Transmission Couplers

PET Series

Features

- Inductive coupling allows signals to be generated and transmitted without additional power supply
- Stable operation in various environmental settings including dust or oil
- Applications: drilling, robotics, automated conveyors system, etc.

Specifications

Installation	Flush type
Model	**PET18-5**
Transmiting distance	5 mm
Setting distance	1 to 4.5 mm
Response time	≤ 1 ms
Indicator	Operation indicator (red)
Approval	EAC
Unit weight (package)	≈ 121 g (≈ 133 g)
Insulation type	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC⏦ 50 / 60 Hz for 1 min
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) X, Y, Z directions for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type model
Wire spec.	Ø 5 mm, 2-wire, 2 m
Connector spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Contact switch spec.	Contact resistance is ≤ 300 mΩ, open resistance is ≥ 10 MΩ, leakage current at OFF is zero.
Material	Nut/Case: nickel plated brass, washer: nickel plated steel, sensing side: PBT, Standard type cable (black): polyvinyl chloride (PVC)

View product detail

Rectangular Inductive

Proximity Sensors

(DC 3-Wire,
□ 8 / 12 / 50 mm)

PS Series

Features

- Alternate frequency models allow adjacent installation of multiple sensors without interference (PSN17-□-F model)
- Operation indicator (red LED)
- IP67 protection structure (IEC standard)

Specifications

Installation	Standard type / Upper side type		
Model	**PS08-2.5D□-□**	**PS12-4D□-□**	**PS50-30D□**
Sensing side length	8 mm	12 mm	50 mm
Sensing distance	2.5 mm	4 mm	30 mm
Setting distance	0 to 1.75 mm	0 to 2.8 mm	0 to 21 mm
Hysteresis	≤ 10 % of sensing distance (sensing side length 8 mm: ≤ 20 %)		
Standard sensing target: iron	8 × 8 × 1 mm	12 × 12 × 1 mm	90 × 90 × 1 mm
Response frequency 01)	1 kHz	500 Hz	50 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C (sensing side length 8 mm: ≤ ± 15 %)		
Indicator	Operating indicator (red)		
Approval	CE EAC	CE EAC	CE EAC
Unit weight (package)	≈ 16 g (≈ 30 g)	≈ 62 g (≈ 77 g)	≈ 220 g (≈ 256 g)

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.

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Current consumption	≤ 10 mA
Control output	Sensing side length 8 mm: ≤ 100 mA Sensing side length 12 mm, 50 mm: ≤ 200 mA
Residual voltage	Sensing side length 8 mm: ≤ 1.0 V Sensing side length 12 mm, 50 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	Between all terminals and case: 1,500 VAC⁓ 50 / 60Hz for 1 minute (sensing side length 8 mm - between all terminals and case: 1,000 VAC⁓ 50 / 60Hz for 1 minute
Vibration	1 mm double amplitude at frequency 10 to 55 Hz in each of X, Y, Z directions for 2 hours
Shock	500 m/s² (≈ 50 G) X, Y, Z directions for 3 times
Ambient temp.	-25 to 70 %RH, storage: -30 to 80 %RH (no freezing or condensation)
Ambient humi.	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection rating	IP67 (IEC standards)
Connection	Cable type
Cable spec.	Sensing side length 8 mm: Ø 2.5 mm, 3-wire, 1 m Sensing side length 12 mm: Ø 4 mm, 3-wire, 2 m Sensing side length 50 mm: Ø 5 mm, 3-wire, 2 m
Wire spec.	Ø 2.5 mm cable : AWG 28 (0.08 mm, 19-core), insulator diameter: Ø 0.9 mm Ø 4 mm, Ø 5 mm cable : AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Material	Sensing side length 8 mm Case: PC, Sensing side length 12 mm Case: Heat-resistant ABS, Sensing side length 50 mm Case: PBT, standard cable (black): polyvinyl chloride (PVC)

View product detail

Rectangular Inductive

Proximity Sensors

(DC 3-Wire,
□ 17 / 25 / 30 / 40 mm)

PS Series

Features

- Alternate frequency models allow adjacent installation of multiple sensors without interference (PSN17-□-F model)
- Operation indicator (red LED)
- IP67 protection structure (IEC standard)

Specifications

Installation	Standard type / Upper side type		Standard type			
Model	**PSN17-5D□□-□**	**PSN17-8D□□-□**	**PSN25-5D□**	**PSN30-10D□**	**PSN30-15D□**	**PSN40-20D□**
Sensing side length	18 mm	18 mm	25 mm	30 mm	30 mm	40 mm
Sensing distance	5 mm	8 mm	5 mm	10 mm	15 mm	20 mm
Setting distance	0 to 3.5 mm	0 to 5 mm	0 to 3.5 mm	0 to 7 mm	0 to 10.5 mm	0 to 14 mm
Hysteresis	≤ 10 % of sensing distance					
Standard sensing target: iron	18 × 18 × 1 mm	25 × 25 × 1 mm	25 × 25 × 1 mm	30 × 30 × 1 mm	45 × 45 × 1 mm	60 × 60 × 1 mm
Response frequency [01]	700 Hz	200 Hz	300 Hz	250 Hz	200 Hz	100 Hz
Affection by temperature	± 10 % for sensing distance at ambient temperature 20 °C					
Indicator	Operation indicator (red)					
Approval	CE EAC	CE EAC	CE EAC	CE EAC	CE EAC	CE EAC
Unit weight (package)	≈ 62 g (≈ 83 g)	≈ 62 g (≈ 83 g)	≈ 71 g (≈ 103 g)	≈ 96 g (≈ 165 g)	≈ 96 g (≈ 165 g)	≈ 135 g (≈ 225 g)

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.

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Current consumption	≤ 10 mA
Control output	≤ 200 mA
Residual voltage	≤ 1.5 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation type	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC~ 50/60 Hz for 1 min (between all terminals and case)
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temp.	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humi.	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standard)
Connection	Cable type model
Wire spec.	Ø 4 mm, 3-wire, 2 m
Connector spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Material	Case: Heat-resistant ABS, standard type cable (black): polyvinyl chloride (PVC)

View product detail

Rectangular Inductive
Proximity Sensors
(DC 2-Wire)

PS Series

Features

- Operation indicator (red LED)
- IP67 protection structure (IEC standard)

Specifications

Installation	Standard type / Upper side type
Model	PSNT17-5D□□
Sensing side length	18 mm
Sensing distance	5 mm
Setting distance	0 to 3.5 mm
Hysteresis	≤ 10 % of sensing distance
Standard sensing target: iron	18 × 18 × 1 mm
Response frequency 01)	700 Hz
Affection by temperature	± 10 % for sensing distance at ambient temperature 20 °C
Indicator	Operation indicator (red)
Approval	CE EAC
Unit weight (package)	≈ 58 g (≈ 79 g)

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.

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Leakage current	≤ 0.6 mA
Control output	2 to 100 mA
Residual voltage	≤ 3.5 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation type	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC~ 50 / 60 Hz for 1 min (between all terminals and case)
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type model
Wire spec.	Ø 4 mm, 2-wire, 2 m
Connector spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Material	Case: PBT, standard type cable (black): polyvinyl chloride (PVC)

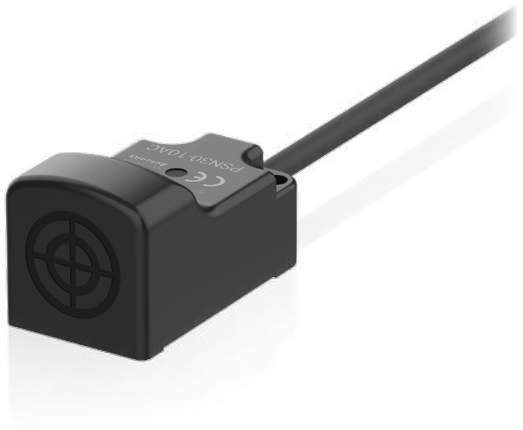
View product detail

Rectangular Inductive

Proximity Sensors

(AC 2-Wire)

PS Series



Features

- Operation indicator (red LED)
- IP67 protection structure (IEC standard)

Specifications

Installation	Standard type			
Model	**PSN25-5A□**	**PSN30-10A□**	**PSN30-15A□**	**PSN40-20A□**
Sensing side length	25 mm	30 mm	30 mm	40 mm
Sensing distance	5 mm	10 mm	15 mm	20 mm
Setting distance	0 to 3.5 mm	0 to 7 mm	0 to 10.5 mm	0 to 14 mm
Hysteresis	≤ 10 % of sensing distance			
Standard sensing target: iron	25 × 25 × 1 mm	30 × 30 × 1 mm	45 × 45 × 1 mm	60 × 60 × 1 mm
Response frequency 01)	20 Hz			
Affection by temperature	± 10 % for sensing distance at ambient temperature 20 °C			
Indicator	Operation indicator (red)			
Approval	CE EAC	CE EAC	CE EAC	CE EAC
Unit weight (package)	≈ 66 g (≈ 98 g)	≈ 92 g (≈ 161 g)	≈ 92 g (≈ 161 g)	≈ 130 g (≈ 219 g)

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.

Power supply	100 - 240 VAC⁓ 50 / 60 Hz, operating voltage: 85 - 264 VAC⁓
Leakage current	≤ 2.5 mA
Control output	5 to 200 mA
Residual voltage	≤ 10 V
Protection circuit	Surge protection circuit
Insulation type	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	Between all terminals and case: 1,500 VAC⁓ 50/60 Hz for 1 min
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection rating	IP67 (IEC standards)
Connection	Cable type model
Wire spec.	Ø 4 mm, 2-wire, 2 m
Connector spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Material	Case: Heat-resistant ABS, standard type cable (black): polyvinyl chloride (PVC)

View product detail

Rectangular Inductive Long-Distance Proximity Sensors

(DC 4-Wire)

AS Series

Features

- Long sensing distance 50 mm
- Power supply: 12 - 48 VDC⎓ (operating voltage : 10 - 65 VDC⎓)
- Simultaneous output (Normally Open + Normally Closed)
- Power indicator (greed LED) and operation indicator (red LED)
- IP67 protection structure (IEC standard)

Specifications

Installation	Upper side type
Model	**AS80-50D□**
Sensing side length	80 mm
Sensing distance	50 mm
Setting distance	0 to 35 mm
Hysteresis	≤ 15 % of sensing distance
Standard sensing target: iron	150 × 150 × 1 mm
Response frequency [01]	30 Hz
Affection by temperature	± 10 % for sensing distance at ambient temperature 20 °C
Indicator	Power indicator (green), operation indicator (yellow)
Approval	CE EAC
Unit weight	≈ 470 g

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.

Power supply	12 - 48 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 65 VDC⎓
Current consumption	≤ 20 mA
Control output	≤ 200 mA
Residual voltage	≤ 2 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation type	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC~ 50/60 Hz for 1 minute
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) X, Y, Z directions for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standard)
Connection	Cable type model
Wire spec.	Ø 5 mm, 4-wire, 2 m
Connector spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Material	Case: PC+ABS, standard type cable (black): polyvinyl chloride (PVC)

View product detail

Rectangular
Flat-Type Inductive
Proximity Sensors
(DC 3-Wire)

PFI Series

Features

- Flat, compact design (10 mm height) allows easy installation in limited spaces
- Operation indicator (red LED)
- IP67 protection structure (IEC standard)

Specifications

Installation	Upper side type
Model	**PFI25-8D□**
Sensing side length	25 mm
Sensing distance	8 mm
Setting distance	0 to 5.6 mm
Hysteresis	≤ 10 % of sensing distance
Standard sensing target: iron	25 × 25 × 1 mm
Response frequency 01)	200 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C
Indicator	Operation indicator (red)
Approval	CE EAC
Unit weight	≈ 70 g

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.

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Current consumption	≤ 10 mA
Control output	≤ 200 mA
Residual voltage	≤ 1.5 V
Protection circuit	Surge protection circuit, output short over current protection circuit, reverse polarity protection
Insulation type	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC~ 50 / 60 Hz for 1 min
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type model
Wire spec.	Ø 4 mm, 3-wire, 2 m
Connector spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Material	Case: PPS, standard type cable (black): polyvinyl chloride (PVC)

View product detail

Rectangular
Flat-Type Inductive
Proximity Sensors
(AC 2-Wire)

PFI Series

Features

- Flat, compact design (10 mm height) allows easy installation in limited spaces
- Operation indicator (red LED)
- IP67 protection structure (IEC standard)

Specifications

Installation	Upper side type
Model	**PFI25-8A□**
Sensing side length	25 mm
Sensing distance	8 mm
Setting distance	0 to 5.6 mm
Hysteresis	≤ 10 % of sensing distance
Standard sensing target: iron	25 × 25 × 1 mm
Response frequency 01)	20 Hz
Affection by temperature	≤ ± 10 % for sensing distance at ambient temperature 20 °C
Indicator	Operation indicator (red)
Approval	CE EAC
Unit weight	≈ 70 g

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.

Power supply	100 - 240 VAC⁓ 50 / 60 Hz, operating voltage: 85 - 264 VAC⁓
Leakage current	≤ 2.5 mA
Control output	5 to 150 mA
Residual voltage	≤ 10 V
Protection circuit	Surge protection circuit
Insulation type	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC⁓ 50/60 Hz for 1 min
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standards)
Connection	Cable type model
Wire spec.	Ø 4 mm, 2-wire, 2 m
Connector spec.	AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm
Material	Case: PPS, standard type cable (black): polyvinyl chloride (PVC)

View product detail

Cylindrical Capacitive
Proximity Sensors
(DC 3-Wire)

CR Series

Features

- Detect various materials including metal, iron, stone, plastic, water, and grain
- Built-in sensitivity adjuster for convenient configuration
- Operation indicator (red)
- Ideal for level detection and position control

Specifications

Installation	Non-flush type	
Model	**CR18-8D□**	**CR30-15D□**
DIA. of sensing side	Ø 18 mm	Ø 30 mm
Sensing distance	8 mm	15 mm
Setting distance	0 to 5.6 mm	0 to 10.5 mm
Hysteresis	≤ 20 % of sensing distance	
Standard sensing target: iron	50 × 50 × 1 mm	
Response frequency 01)	50 Hz	
Affection by temperature	≤ ± 20 % for sensing distance at ambient temperature 20 °C	
Indicator	Operation indicator (red)	
Approval	EAC	EAC
Unit weight (package)	≈ 76 g (≈ 88 g)	≈ 206 g (≈ 243 g)

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.

Power supply	12 - 24 VDC⎓ (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC⎓
Current consumption	≤ 15 mA
Control output	≤ 200 mA
Residual voltage	≤ 1.5 V
Protection circuit	Surge protection circuit, reverse polarity protection
Insulation resistance	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC~ 50 / 60Hz for 1 min (between all terminals and case)
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	DIA. of sensing side Ø 18 mm: IP66 (IEC standard) / DIA. of sensing side Ø 30 mm: IP65 (IEC standard)
Connection	Cable type
Cable spec.	DIA. of sensing side Ø 18 mm: Ø 4 mm, 3-wire, 2 m DIA. of sensing side Ø 30 mm: Ø 5 mm, 3-wire, 2 m
Wire spec.	AWG 22 (0.08 mm, 60-core), insulator DIA.: Ø 1.25 mm
Material	Standard type cable (black): polyvinyl chloride (PVC)
DIA. of sensing side Ø 18 mm	Case / Nut: PA6
DIA. of sensing side Ø 30 mm	Case / Nut: nickel-plated brass, washer: nickel-plated iron, sensing side: PBT

View product detail

Cylindrical Capacitive
Proximity Sensors
(AC 2-Wire)

CR Series

Features

- Detect various materials including metal, iron, stone, plastic, water, and grain
- Built-in sensitivity adjuster for convenient configuration
- Operation indicator (red)
- Ideal for level detection and position control

Specifications

Installation	Non-flush type	
Model	**CR18-8A□**	**CR30-15A□**
DIA. of sensing side	Ø 18 mm	Ø 30 mm
Sensing distance	8 mm	15 mm
Setting distance	0 to 5.6 mm	0 to 10.5 mm
Hysteresis	≤ 20 % of sensing distance	
Standard sensing target: iron	50 × 50 × 1 mm	
Response frequency 01)	20 Hz	
Affection by temperature	≤ ± 20 % for sensing distance at ambient temperature 20 °C	
Indicator	Operation indicator (red)	
Approval	EAC	EAC
Unit weight (package)	≈ 70 g (≈ 82 g)	≈ 200 g (≈ 237 g)

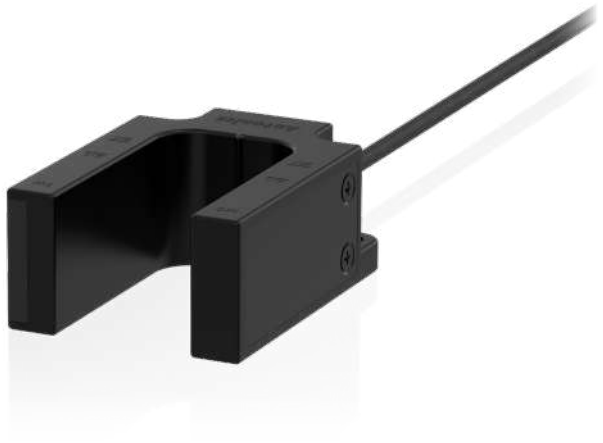
01) The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

Power supply	100 -240 VAC⁓ 50 / 60 Hz, operating voltage: 85 - 264 VAC⁓
Leakage current	≤ 2.2 mA
Control output	≤ 5 to 200 mA
Residual voltage	≤ 20 V
Protection circuit	Surge protection circuit
Insulation resistance	≥ 50 MΩ (500 VDC⎓ megger)
Dielectric strength	1,500 VAC⁓ 50 / 60Hz for 1 min (between all terminals and case)
Vibration	1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours
Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times
Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)
Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)
Protection structure	DIA. of sensing side Ø 18 mm: IP66 (IEC standard) / DIA. of sensing side Ø 30 mm: IP65 (IEC standard)
Connection	Cable type
Cable spec.	DIA. of sensing side Ø 18 mm: Ø 4 mm, 2-wire, 2 m DIA. of sensing side Ø 30 mm: Ø 5 mm, 2-wire, 2 m
Wire spec.	AWG 22 (0.08 mm, 60-core), insulator DIA.: Ø 1.25 mm
Material	Standard type cable (black): polyvinyl chloride (PVC)
DIA. of sensing side Ø 18 mm	Case / Nut: PA6
DIA. of sensing side Ø 30 mm	Case / Nut: nickel-plated brass, washer: nickel-plated iron, sensing side: PBT

View product detail

U-Shaped Magnetic
Proximity Sensors

MU Series



Features

- Non-voltage magnetic detection method
- Two wiring specifications of cable / cable connector type
- IP67 protection structure (IEC standard)

Specifications

Model		MU-1A-30-□	MU-1B-30-□
Contact		N.O.	N.C.
Operating distance [01]	OFF → ON	± 10 mm	
	ON → OFF	± 20 mm	
Standard sensing target		Steel plate - a galvanized steel sheet 1.6t	
Operating time		≤ 2 ms	
Release time		≤ 1 ms	
Operating frequency		≤ 500 Hz	
Approval		CE	
Unit weight (package)		Cable type: ≈ 132.5 g (≈ 172.3 g) Cable connector type: ≈ 107 g (≈ 147.2 g)	

01) Rated at the ambient temperature of 23 °C. It can be differed up to ±20 % according to the ambient temperature.

Switching voltage	≤ 24 VDC⎓
Life expectancy	≥ 100 million times (at a resistive load of 5 VDC⎓m 10 mA)
Insulated resistance	≥ 1,000 MΩ (500 VDC⎓ megger)
Dielectric strength	500 VAC~ 50/60 Hz for 1 minute (between all terminals and case)
Vibration	1.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 2 hours
Shock	100 m/s² (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 65 °C, storage: -10 to 70 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage : 35 to 85 %RH (no freezing or condensation)
Protection structure	IP67 (IEC standard)
Connection	Cable type / Cable connector type
Cable	Cable type: Ø 4, 2-wire, 2 m (UL Style 20276, AWG22) Cable connector type: Ø 4, 2-wire, 0.5 m (UL Style 20276, AWG22)
Material	Cover/Case: PC (915R)

[Applied REED SWITCH]

Model	ORD324-10-15 (STANDEX MEDER)
Contact	A (SPST-NO: single pole, single throw, normally open)
Contact rating [01]	≤ 10 W/VA
Voltage	Switching: ≤ 200 VDC⎓, Breakdown: ≥ 250 VDC⎓
Current	Switching: ≤ 0.5 A, Carry: ≤ 1.0 A
Ambient temperature	-40 to 125 °C, storage : -65 to 125 °C [02]
Material	Body: glass, leads: tin-plated Ni-Fe wire

01) Switching voltage and current should never exceed the wattage rating.
02) Long time exposure at elevated temperature may degrade solderability of the leads.

View product detail