Autonics



Індуктивні датчики наближення Каталог 2023

A8. Proximity Sensors

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

A8-1	Inductive	PRD Series	Cylindrical Inductive Long-Distance Proximity Sensors (DC 3-Wire)
			Cylindrical Inductive Long-Distance Proximity Sensors (DC 2-Wire)
			Cylindrical Inductive Long-Distance Proximity Sensors (IO-Link)
		PR Series	Cylindrical Inductive Proximity Sensors (DC 3-Wire)
			Cylindrical Inductive Proximity Sensors (DC 2-Wire)
			Cylindrical Inductive Proximity Sensors (AC 2-Wire)
		PRFD Series	Cylindrical Inductive Full-Metal Long-Distance Proximity Sensors (DC 2-Wire)
		PRF Series	Cylindrical Inductive Full-Metal Proximity Sensors (DC 2-Wire)
		PET Series	Cylindrical Inductive Transmission Couplers
		PS Series	Rectangular Inductive Proximity Sensors (DC 3-Wire, \Box 8 / 12 / 50 mm)
			Rectangular Inductive Proximity Sensors (DC 3-Wire, 🗆 17 / 25 / 30 / 40 mm)
			Rectangular Inductive Proximity Sensors (DC 2-Wire)
			Rectangular Inductive Proximity Sensors (AC 2-Wire)
		AS Series	Rectangular Inductive Long-Distance Proximity Sensors (DC 4-Wire)
		PFI Series	Rectangular Flat-Type Inductive Proximity Sensors (DC 3-Wire)
			Rectangular Flat-Type Inductive Proximity Sensors (AC 2-Wire)
A8-2	Capacitive	CR Series	Cylindrical Capacitive Proximity Sensors (DC 3-Wire)
			Cylindrical Capacitive Proximity Sensors (AC 2-Wire)
A8-3	Magnetic	MU Series	U-Shaped Magnetic Proximity Sensors

Cylindrical Inductive Long-Distance

Proximity Sensors

(DC 3-Wire)

PRD Series

Features

Spatter-resistant type:

Strain relief cables:

Operation indicator (red LED)

improved flexural strength of cable connecting component (except DIA. of sensing side Ø 8 mm)

PTFE coated for high heat resistance (prevent malfunction from welding spatter)

IP67 Protection structure (IEC standards)



Specifications

Installation		Flush type				
General		PRD 08-2D	PRD 12-4D	PRD 🗆 18-7 D 🗔	PRD[]30-15D []]	
Spatter-resist	tant	-	PRDACM12-4D	PRDACM18-7D	PRDACM30-15D	
DIA. of sensin	g side	Ø8mm	Ø 12 mm	Ø 18 mm	Ø 30 mm	
Sensing dista	nce	2 mm	4 mm	7 mm	15 mm	
Setting distan	ice	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 sens target: iron	sing	8 × 8 × 1 mm	12 × 12 × 1 mm	20 × 20 × 1 mm	45 × 45 × 1 mm	
Response free	quency ⁰¹⁾	1 kHz	500 Hz	300 Hz	100 Hz	
Affection by temperature		\leq ± 10 % for sensing of (DIA. of sensing side Q	listance at ambient tem 0 8 mm: ≤ ± 15 %)	perature 20 °C		
Indicator		Operation indicator (re	ed)			
Approval		C€ EHE	C€ EHE	C€ ERE	C€ ERE	
Installation		Non-flush type				
General		PRD 08-4D	PRD 12-8D	PRD[]18-14D []	PRD[]30-25D[]]	
DIA. of sensin	g side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm	
Setting distan	ice	0 to 2.8 mm	0 to 5.6 mm	0 to 9.8 mm	0 to 17.5 mm	
Sensing dista	nce	4 mm	8 mm	14 mm	25 mm	
Hysteresis		≤ 15 % of sensing distance	nsing ≤ 10 % of sensing distance			
Standard sens target: iron	sing	12 × 12 × 1 mm	25 × 25 × 1 mm	40 × 40 × 1 mm	75 × 75 × 1 mm	
Response free	quency ⁰¹⁾	800 Hz	400 Hz	200 Hz	100 Hz	
Affection by temperature		\leq ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: \leq ± 15 %)				
Indicator		Operation indicator (re	ed)			
Approval		C€ ERE	C€ ERE	C € ERE	C € ERE	
		the average value. The star ensing distance for the dista		I and the width is set as 2 t	imes of the standard	
Unit weight (p	oackage)	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm	
Cable N	lormal	≈ 43 g (≈ 63 g)	≈ 62 g (≈ 74 g)	≈ 97 g (≈ 115 g)	≈ 143 g (≈ 180 g)	
Le	ong	-	≈ 82 g (≈ 94 g)	≈ 127 g (≈ 145 g)	≈ 183 g (≈ 220 g)	
	lormal	≈ 25 g (≈ 45 g)	≈ 37 g (≈ 67 g)	≈ 62 g (≈ 80 g)	≈ 108 g (≈ 145 g)	
connector Lo	ong	-	≈ 32 g (≈ 55 g)	≈ 92 g (≈ 110 g)	≈ 130 g (≈ 203 g)	
Connector N	ormal	≈ 12 g (≈ 32 g)	≈ 20g (≈ 49 g)	≈ 41 g (≈ 81 g)	≈ 138 g (≈ 197 g)	
Lo	ong	-	≈ 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 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 \sim 50/60 Hz for 1 min (between all terminals and case) (connector type: 1,500 VAC \sim 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 \sim 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
24) E	

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:

Strain relief cables:

Operation indicator (red LED)

improved flexural strength of cable connecting component (except DIA. of sensing side Ø 8 mm)

PTFE coated for high heat resistance (prevent malfunction from welding spatter)

IP67 Protection structure (IEC standards)



Specifications

Installation		Flush type					
General		PRD T08-2	PRD T12-4	PRD T18-7	PRD T30-15		
Spatter-res	sistant	-	PRDA T12-4	PRDA T18-7	PRDA T30-15		
DIA. of sense	sing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm		
Sensing dis	stance	2 mm	4 mm	7 mm	15 mm		
Setting dist	tance	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 se target: iron		8 × 8 × 1 mm	12 × 12 × 1 mm	20 × 20 × 1 mm	45 × 45 × 1 mm		
Response f	requency ⁰¹⁾	1 kHz	450 Hz	250 Hz	100 Hz		
Affection b temperatur	<i>2</i>	≤ ± 10 % for sensing of (DIA. of sensing side)	distance at ambient ter Ø 8 mm: ≤ ± 15 %)	nperature 20 °C			
Indicator		Operation indicator (r	ed)				
Approval		C€ERE	C€ERE	C€EHE	C€ERE		
Installation		Non-flush type					
General		PRD	PRD712-8	PRD	PRD		
DIA. of sense	sing side	Ø 8 mm	Ø 12 mm	Ø 18 mm	Ø 30 mm		
Sensing dis	stance	4 mm	8 mm	14 mm	25 mm		
Setting dist	tance	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 f	requency ⁰¹⁾	800 Hz	400 Hz	200 Hz	100 Hz		
Affection b temperatur	<i>,</i>	\leq ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: \leq ± 15 %)					
Indicator		Operation indicator (red)					
Approval		C€ ERE	C€ ERE	C€ ERE	C€ ERE		
		the average value. The star ensing distance for the dist		d and the width is set as 2	times of the standard		
Unit weight	t (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)		
		-	≈ 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	Normal	≈ 25 g (≈ 45 g)	≈ 32 g (≈ 55 g)	≈ 62 g (≈ 80 g)	≈ 130 g (≈ 145 g)		
connector		-	≈ 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)		





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⁾	\leq 3.5 V (Non-polarity: \leq 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/s ² (\approx 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

Α

Cylindrical Inductive **Long-Distance**

Proximity Sensors (IO-Link)

PRD Series

Features

detection

green, orange)

 Reduced installation work by identifying object IDs

 $\boldsymbol{\cdot}$ Malfunction and damage prevention through status monitoring

Mode indicator for check status

 $\boldsymbol{\cdot}$ Shortest time recovery through abnormal

· IO-Link mode: Communication indicator (flashing green), operation indicator (orange), abnormal detect indicator (cross-flashing

· 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	\leq 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	\leq ± 10 % for sensing distance at ambient temperature 20 °C			
Indicator ⁰²⁾ IO-Link mode, SIO mode				
IO-Link mode	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 🕲 es uster 🚷 IO-Link	CE 🕲 🛯 🕲 IO-Link	CE 🕲 us us the D-Link	
01) The response frequency is	the average value. The standard sen	ising target is used and the width is s	set as	

O1) 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.
O2) 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_bit6) turns 0.
If the sensing target is in the too close detection distance, the too close detection (Byte0_bit6) 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	\leq 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	\leq ± 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 🕲 📾 🐼 IO-Link	CE @ 10-Link	CE 🕲 🛚 urra 🚷 IO-Link	
01) The response frequency is	the average value. The standard sen	sing target is used and the width is	set as	

O1) 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.
O2) 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 (urms 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

A8-1

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 \sim 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/s ² (\approx 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-res	istant	-	PRA[]12-2D	PRA 🗆 18-5D 🚞	PRA[]30-10D	
DIA. of sensing side		Ø8mm	Ø 12 mm	Ø 18 mm	Ø 30 mm	
Sensing dis	tance	1.5 mm	2 mm	5 mm	10 mm	
Setting dist	ance	0 to 1.05 mm	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm	
Hysteresis		\leq 10 % of sensing dist	ance (DIA. of sensing s	ide Ø 8 mm connector	type: ≤ 15 %)	
Standard se target: iron	ensing	8 × 8 × 1 mm	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm	
Response f	requency ⁰¹⁾	1.5 kHz	1.5 kHz	500 Hz	400 Hz	
Affection by temperature		\leq ± 10 % for sensing d (DIA. of sensing side Ø	listance at ambient ten 0 8 mm: ≤ ± 20 %)	nperature 20 °C		
Indicator		Operation indicator (re	ed)			
Approval		C€ ERE	C€ ERE	C€ ERE	C€ ERE	
Installation		Non-flush type				
General		PR 08-2D	PR[]12-4D	PR[]18-8D []	PR[]30-15D []	
DIA. of sensing side		Ø8mm	Ø 12 mm	Ø 18 mm	Ø 30 mm	
Sensing dis	tance	2 mm	4 mm	8 mm	15 mm	
Setting dist	ance	0 to 1.4 mm	0 to 2.8 mm	0 to 5.6 mm	0 to 10.5 mm	
Hysteresis		\leq 10 % of sensing distance (DIA. of sensing side Ø 8 mm connector type: \leq 15 %)				
Standard se target: iron	ensing	8×8×1mm	12×12×1 mm	25×25×1 mm	45×45×1 mm	
Response f	requency ⁰¹⁾	1.0 kHz	500 Hz	350 Hz	200 Hz	
Affection by temperature	,	\leq ± 10 % for sensing distance at ambient temperature 20 °C (DIA. of sensing side Ø 8 mm: \leq ± 20 %)				
Indicator		Operation indicator (red)				
Approval		C€ EHE	C€ EHE	C€ ERE	C€ EHE	
		the average value. The stan ensing distance for the dista		I and the width is set as 2 t	imes of the standard	
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)	-	-	
		F4 (00)	70 (00)	100 (110)	010 (017)	

Unit weight	(раскаде)	0011111		0 10 11111	0.50 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)
	Long	-	-	≈ 73 g (≈ 85 g)	≈ 169 g (≈ 181 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: ≤ 2.0 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 \sim 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/s ² (\approx 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

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

Cylindrical Inductive

Proximity Sensors

(DC 2-Wire)

PR Series

Features

Spatter-resistant type:

Operation indicator (red LED)

PTFE coated for high heat resistance (prevent malfunction from welding spatter)

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	PRA 🗆 T18-5 🗔	PRA T30-10	
DIA. of sensing side	Ø8mm	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 dist	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	\leq ± 10 % for sensing of (DIA. of sensing side (distance at ambient ten Ø 8 mm: ≤ ± 20 %)	nperature 20 °C		
Indicator	Operation indicator (r	ed)			
Approval	C€ ERE	C€ ERE	C€ERE	C€ ERE	
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 dist	ance (DIA. of sensing s	ide 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 of (DIA. of sensing side of	distance at ambient ten Ø 8 mm: ≤ ± 20 %)	nperature 20 °C		
Indicator	Operation indicator (r	ed)			
Approval	C€ERE	C€ERE	C€ERE	C€ERE	
01) The response frequency is sensing target, 1/2 of the se			d and the width is set as 2 t	imes of the standard	
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) Constitues and interact to use of 1	24 = (-140 =)				

Connector 01) Spatter-resistant type: \approx 134 g (\approx 146 g)



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	\leq 3.5 V (non-polarity ⁰¹): \leq 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/s ² (\approx 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
1) Chook the condition of con-	

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-res	istant	PRA[]12-2A[]	PRA[]18-5A[]	PRA[]30-10A[]		
DIA. of sense	sing side	Ø 12 mm	Ø 18 mm	Ø 30 mm		
Sensing dis	tance	2 mm	5 mm	10 mm		
Setting dist	ance	0 to 1.4 mm	0 to 3.5 mm	0 to 7 mm		
Hysteresis		\leq 10 % of sensing distance				
Standard so target: iron	ensing	12 × 12 × 1 mm	18 × 18 × 1 mm	30 × 30 × 1 mm		
Response f	requency ⁰¹⁾	20 Hz				
Affection b temperatur		\leq ± 10 % for sensing distance	at ambient temperature 20 °C			
Indicator		Operation indicator (red)				
Approval		C€ERE	C€ERE	C€ERE		
Installation		Non-flush type				
General		PR□12-4A □	PR□18-8A □	PR□30-15A □		
DIA. of sense	sing side	Ø 12 mm	Ø 18 mm	Ø 30 mm		
Sensing dis	tance	4 mm	8 mm	15 mm		
Setting dist	ance	0 to 2.8 mm	0 to 5.6 mm	0 to 10.5 mm		
Hysteresis		\leq 10 % of sensing distance				
Standard so target: iron	ensing	12 × 12 × 1 mm	25 × 25 × 1 mm	45 × 45 × 1 mm		
Response f	requency ⁰¹⁾	20 Hz				
Affection b temperatur		\leq ± 10 % for sensing distance	at ambient temperature 20 °C			
Indicator		Operation indicator (red))			
Approval		C€ERE	C€EHE	C€ERE		
		he average value. The standard sens nsing distance for the distance.	sing target is used and the width is s	et as 2 times of the standard		
Unit weight	(package)	Ø 12 mm	Ø 18 mm	Ø 30 mm		
Cable	Normal	\approx 72 g (\approx 84 g) ⁰¹⁾	\approx 118 g (\approx 130 g) $^{\circ2)}$	≈ 170 g (≈ 207 g)		
	Long	-	$\approx 130 \text{ cm} (\approx 142 \text{ cm})$	$\approx 208 \text{cm} (\approx 245 \text{cm})$		

Cable	Normal	\approx 72 g (\approx 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)



Power supply	100 - 240 VAC \sim 50 / 60 Hz, operating voltage: 85 - 264 VAC \sim
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 \sim 50/60 Hz for 1 min (between all terminals and case) Spatter-resistant type : 1,500 VAC \sim 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/s ² (\approx 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 Α

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)



View product detail

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	\leq ± 20 % for sensing d	istance at ambient temp	perature 20 °C				
Indicator	Stability indicator (gree	en), operation indicator (red)				
Approval	CE (U) IS UND [A]	CE @	CE @ususte [H[CC (U) IS UND [A]			
Unit weight (package)	≈ 55 g (≈ 80 g)	≈ 83 g (≈ 110 g)	≈ 97 g (≈ 132 g)	≈ 170 g (≈ 225 g)			
02) The response freque	washer) made of SUS. Or, se ncy is the average value. The the sensing distance for the	he standard sensing target	uaranteed. is used and the width is se	t as 2 times of the standard			
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 circui	t, output short over curr	ent protection circuit, rev	verse polarity protection			
Insulation resistance	≥ 50 MΩ (500 VDC= r	megger)					
Dielectric strength	1,000 VAC \sim 50 / 60Hz	for 1 minute (between a	all terminals and case)				
Vibration	1.5 mm double amplitue	de at frequency 10 to 55	5 Hz in each X, Y, Z direct	tion for 2 hours			
Shock	(DIA. of sensing side Ø	each X, Y, Z direction fo 8 mm: each X, Y, Z direction for					
Ambient temp. ⁰¹⁾	-25 to 70 °C, storage: -	-25 to 70 °C (no freezing	g or condensation)				
Ambient humi.	35 to 95 %RH, storage	: 35 to 95 %RH (no free	zing or condensation)				
Protection	IP67 (IEC standards)						
Connection	Cable type / Cable con	nector type model					
Cable spec. 02)	DIA. of sensing side Ø	8 mm: Ø 4 mm, 2-wire 12 mm, Ø 18 mm, Ø 30 r	nm: Ø 5 mm, 2-wire				
Wire spec.	AWG 22 (0.08 mm, 60-	wire), insulator diamete	r: Ø 1.25 mm				
Connector	M12 connector						
Material	Oil resistant cable (dar	k gray): oil resistant poly	vinyl chloride (PVC)				
General	washer: stainless steel	Case / Nut: stainless steel 303 (SUS303), washer: stainless steel 304 (SUS304), sensing side ⁰³ : stainless steel 303 (SUS303)					
Spatter-resistant	washer: stainless steel sensing side ⁰³ : stainle						
02) Cable type: 2 m (optio	sensing side ⁰³ : stainless steel 303 (SUS303, PTFE coated) 1) UL approved surrounding air temperature 40 °C 12) Cable type: 2 m (option: 5 m), cable connector type: 300 mm 3) Thickness: DIA. of sensing side Ø 8 mm: 0.2 mm / DIA. of sensing side Ø 12 mm, Ø 18 mm: 0.4 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

Cylindrical Inductive **Full-Metal Proximity Sensors**

• High resistance to impact and wear caused by contact with workpieces or wire brushes

 Spatter-resistant type: PTFE coating prevents malfunctions caused by welding spatter • 360° ring type operation indicator (red LED)

• IP67 protection structure (IEC standards)

(sensor head / housing: stainless steel) Reduced risk of malfunction caused by

(DC 2-Wire)

PRF Series

Features

aluminum chips

(except Ø 8 mm model)

• Oil resistant cable



View product detail

Specifications

	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	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 dista	ance				
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	\leq ± 20 % for sensing d	istance at ambient temp	erature 20 °C			
Indicator	Operating indicator (re	d)				
Approval	C€ c⊕us usres [A[C€ 0.00 us us the [A][C€ (𝔃) == 100 €	CE ((1)) as Listed []][
Unit weight (package)	≈ 55 g (≈ 80 g)	≈ 83 g (≈ 110 g)	≈ 97 g (≈ 132 g)	≈ 170 g (≈ 225 g)		
2) The response frequ	t, washer) made of SUS. Or, s lency is the average value. ⁻ If the sensing distance for the	The standard sensing target		et as 2 times of the standar		
Power supply	12 - 24 VDC== (ripple	P-P: ≤ 10 %), operating v	voltage: 10 - 30 VDC==			
Leakage current	≤ 0.8 mA					
	3 to 100 mA					
Control output	3 to 100 mA					
	3 to 100 mA ≤ 3.5 V					
Control output Residual voltage Protection circuit	≤ 3.5 V	t, output short over curr	ent protection circuit, rev	verse polarity protection		
Residual voltage	≤ 3.5 V		ent protection circuit, rev	verse polarity protection		
Residual voltage Protection circuit Insulation resistance	≤ 3.5 V Surge protection circui ≥ 50 MΩ (500 VDC= r			verse polarity protection		
Residual voltage Protection circuit Insulation	≤ 3.5 V Surge protection circui ≥ 50 MΩ (500 VDC= r 1,000 VAC~ 50/60Hz	negger)	terminals and case)			
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration	≤ 3.5 V Surge protection circui ≥ 50 MΩ (500 VDC= r 1,000 VAC~ 50/60Hz 1.5 mm amplitude at fre 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø	negger) for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo	terminals and case) ach X, Y, Z direction for 2 r 10 times			
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC= r 1,000 VAC~ 50/60Hz 1.5 mm amplitude at frr 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø : 500 m/s ² (≈ 50 G) in e	negger) for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times)	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock Ambient temp. ⁰¹⁾	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC == r 1,000 VAC~ 50/60Hz 1.5 mm amplitude at frr 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø : 500 m/s ² (≈ 50 G) in e -25 to 70 °C, storage:	for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm each X, Y, Z direction for	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation)	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock Ambient temp. ⁰¹⁾ Ambient humi.	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC == r 1,000 VAC~ 50/60Hz 1.5 mm amplitude at frr 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø : 500 m/s ² (≈ 50 G) in e -25 to 70 °C, storage:	for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm each X, Y, Z direction for -25 to 70 °C (non-freezin	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation)	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock Ambient temp. ^{on} Ambient humi. Protection	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC == r 1,000 VAC~ 50/60Hz 1.5 mm amplitude at frr 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø : 500 m/s ² (≈ 50 G) in e -25 to 70 °C, storage: 35 to 95 %RH, storage	for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm each X, Y, Z direction for -25 to 70 °C (non-freezin : 35 to 95 %RH (non-fre	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation)	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock Ambient temp. ^{on)} Ambient humi. Protection Connection	≤ 3.5 V Surge protection circui ≥ 50 MΩ (500 VDC== 1 1,000 VAC~ 50/60Hz 1.5 mm amplitude at fra 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø -25 to 70 °C, storage: 35 to 95 %RH, storage IP67 (IEC standards) Cable type / Cable cor DIA. of sensing side Ø	megger) for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm -25 to 70 °C (non-freezin : 35 to 95 %RH (non-free mector type model	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation) ezing or non-condensati	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock Ambient temp. ⁰¹⁾ Ambient humi. Protection Connection Cable spec. ⁰²⁾	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC= 1 1,000 VAC~ 50/60Hz 1.5 mm amplitude at from 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø 1,000 m/s ² (≈ 50 G) in e -25 to 70 °C, storage: 35 to 95 %RH, storage IP67 (IEC standards) Cable type / Cable corr DIA. of sensing side Ø DIA. of sensing side Ø	for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm -25 to 70 °C (non-freezin : 35 to 95 %RH (non-fre inector type model 8 mm: Ø 4 mm, 2-wire	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation) ezing or non-condensation ezing or non-condensation nm: Ø 5 mm, 2-wire	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock Ambient temp. ⁰¹⁾ Ambient humi. Protection Connection Cable spec. ⁰²⁾	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC= 1 1,000 VAC~ 50/60Hz 1.5 mm amplitude at from 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø 1,000 m/s ² (≈ 50 G) in e -25 to 70 °C, storage: 35 to 95 %RH, storage IP67 (IEC standards) Cable type / Cable corr DIA. of sensing side Ø DIA. of sensing side Ø	for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm -25 to 70 °C (non-freezin : 35 to 95 %RH (non-fre inector type model 8 mm: Ø 4 mm, 2-wire 12 mm, Ø 18 mm, Ø 30 n	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation) ezing or non-condensation ezing or non-condensation nm: Ø 5 mm, 2-wire	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength Vibration Shock Ambient temp. ⁰¹⁾ Ambient humi. Protection Connection Cable spec. ⁰²⁾ Wire spec. Connector	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC= 1 1,000 VAC~ 50/60Hz 1.5 mm amplitude at from 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø -25 to 70 °C, storage: 35 to 95 %RH, storage IP67 (IEC standards) Cable type / Cable cor DIA. of sensing side Ø DIA. of sensing side Ø DIA. of sensing side Ø AWG 22 (0.08 mm, 60- M12 connector	for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm -25 to 70 °C (non-freezin : 35 to 95 %RH (non-fre inector type model 8 mm: Ø 4 mm, 2-wire 12 mm, Ø 18 mm, Ø 30 n	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation) ezing or non-condensation ezing or non-condensation mm: Ø 5 mm, 2-wire r: Ø 1.25 mm	2 hours		
Residual voltage Protection circuit Insulation resistance Dielectric strength	≤ 3.5 V Surge protection circuit ≥ 50 MΩ (500 VDC= 1 1,000 VAC~ 50/60Hz 1.5 mm amplitude at from 1,000 m/s ² (≈ 100 G) in (DIA. of sensing side Ø -25 to 70 °C, storage: 35 to 95 %RH, storage IP67 (IEC standards) Cable type / Cable cor DIA. of sensing side Ø DIA. of sensing side Ø AWG 22 (0.08 mm, 60- M12 connector Oil resistant cable (dar	for 1 minute (between all equency 10 to 55 Hz in e each X, Y, Z direction fo 8 mm -25 to 70 °C (non-freezin : 35 to 95 %RH (non-fre inector type model 8 mm: Ø 4 mm, 2-wire 12 mm, Ø 18 mm, Ø 30 n -wire), insulator diameter	terminals and case) ach X, Y, Z direction for 2 r 10 times 10 times) ng or non-condensation) ezing or non-condensation ezing or non-condensation mm: Ø 5 mm, 2-wire r: Ø 1.25 mm vinyl chloride (PVC)	2 hours		

02) Cable type: 2 m (option: 5 m), cable connector type: 300 mr 03) Thickness: 0.8 mm (DIA. of sensing side Ø 8 mm: 0.4 mm)

Α

Cylindrical Inductive

Transmission Couplers

PET Series

Features

 Inductive coupling allows signals to be generated and transmitted without

Stable operation in various environmental

Applications: drilling, robotics, automated

additional power supply

conveyors system, etc.

settings including dust or oil



Specifications

Installation	Flush type
Model	PET18-5
Transmiting distance	5 mm
Setting distance	1 to 4.5 mm
Response time	≤1ms
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 \sim 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/s ² (\approx 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 \leq 300 m Ω , open resistance is \geq 10 M Ω , 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)



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 (sensing side length 8 mm: ≤	at ambient temperature 20 °C ± 15 %)				
Indicator	Operating indicator (red)					
Approval	C€ERE	C€ERE	C€ERE			
	\approx 16 g (\approx 30 g) the average value. The standard sen ensing distance for the distance.	\approx 62 g (\approx 77 g) sing target is used and the width is	≈ 220 g (≈ 256 g) set as 2 times of the standard			
Power supply	12 - 24 VDC== (ripple P-P: ≤ 1	0 %), operating voltage: 10 - 3	0 VDC==			
Current consumption	≤ 10 mA					
Control output	Sensing side length 8 mm: < Sensing side length 12 mm, 5					
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	r)				
Dielectric strength	(sensing side length 8 mm -	se: 1,500 VAC \sim 50 / 60Hz for 1 se: 1,000 VAC \sim 50 / 60Hz for 1				
Vibration	1 mm double amplitude at free	quency 10 to 55 Hz in each of 2	X, Y, Z directions for 2 hours			
Shock	500 m/s² (≈ 50 G) X, Y, Z dire	ctions for 3 times				
Ambient temp.	-25 to 70 %RH, storage: -30 t	o 80 %RH (no freezing or cond	densation)			
Ambient humi.	35 to 95 %RH, storage: 35 to	95 %RH (no freezing or conde	ensation)			
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	: AWG 22 (0.08 mm, 60-core), insulator diameter: Ø 1.25 mm 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

Α

Proximity Sensors (DC 3-Wire, 17 / 25 / 30 / 40 mm)

 Alternate frequency models allow adjacent installation of multiple sensors without interference (PSN17-D-F model)

IP67 protection structure (IEC standard)

Operation indicator (red LED)

PS Series

Features



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 sens	≤ 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 sen	sing distance a	t ambient temp	erature 20 °C		
Indicator	Operation indi	cator (red)				
Approval	C€ EÆ	C€ERE	C€ERE	C€ERE	C€ ERE	C€ERE
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 t sensing target, 1/2 of the se			sing target is used	and the width is s	set as 2 times of th	e standard
Power supply	12 - 24 VDC=	: (ripple P-P: ≤ 1	IO %), operating	voltage: 10 - 3	0 VDC==	
Current consumption	≤ 10 mA					
Control output	≤ 200 mA					
Residual voltage	≤ 1.5 V					
Protection circuit	Surge protect protection	on circuit, outp	ut short over cu	rrent protectior	n circuit, reverse	e polarity
Insulation type	≥ 50 MΩ (500	VDC== megge	r)			
Dielectric strength	1,500 VAC \sim 5	60/60 Hz for 1 m	nin (between all	terminals and c	case)	
Vibration	1 mm double a for 2 hours	amplitude at fre	quency 10 to 55	5 Hz (for 1 min) i	in each X, Y, Z d	irection
Shock	500 m/s² (≈ 5	0 G) in each X, `	Y, Z direction for	r 3 times		
Ambient temp.	-25 to 70 °C, s	storage: -30 to	80 °C (no freezi	ing or condensa	ation)	
Ambient humi.	35 to 95 %RH	, storage: 35 to	95 %RH (no fre	ezing or conde	ensation)	
Protection structure	IP67 (IEC stan	dard)				
Connection	Cable type mo	odel				
Wire spec.	Ø 4 mm, 3-wi	re, 2 m				
Connector spec.	AWG 22 (0.08	mm, 60-core),	insulator diame	ter: Ø 1.25 mm		
Material	Case: Heat-re standard type		oolyvinyl chlorid	e (PVC)		



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	\pm 10 % for sensing distance at ambient temperature 20 °C
Indicator	Operation indicator (red)
Approval	C E ERE
Unit weight (package)	≈ 58 g (≈ 79 g)
	he average value. The standard sensing target is used and the width is set as 2 times of the standard nsing distance for the distance.
Power supply	12 - 24 VDC= (ripple P-P: \leq 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 \sim 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/s ² (\approx 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)



A

Proximity Sensors

(AC 2-Wire)

PS Series

Features

 \cdot 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	\pm 10 % for sensing distance at ambient temperature 20 $^{\circ}\mathrm{C}$					
Indicator	Operation indicator (red)					
Approval	C€ EHE	C€ ERE	C€ EHE	C€ EHE		
Unit weight (package)	≈ 66 g (≈ 98 g)	≈ 92 g (≈ 161 g)	≈ 92 g (≈ 161 g)	≈ 130 g (≈ 219 g)		
(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						

01) The response frequency is the average value. The standard sensing target, $1/2 \ {\rm of}$ the sensing distance for the distance. sing ta

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 $\geq 50 \text{ M}\Omega \text{ (500 VDC} = \text{megger)}$	
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, 2 for 2 hours	Z direction
Shock 500 m/s ² (\approx 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)	



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	\pm 10 % for sensing distance at ambient temperature 20 °C
Indicator	Power indicator (green), operation indicator (yellow)
Approval	C€ ER[
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 \sim 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)



Α

Rectangular Flat-Type Inductive

Proximity Sensors

• Flat, compact design (10 mm height) allows easy installation in limited spaces

IP67 protection structure (IEC standard)

Operation indicator (red LED)

(DC 3-Wire)

PFI Series

Features



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	\leq ± 10 % for sensing distance at ambient temperature 20 °C	
Indicator	Operation indicator (red)	
Approval	C € ERL	
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: \leq 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/s ² (\approx 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)	



Rectangular Flat-Type Inductive

Proximity Sensors

(AC 2-Wire)

PFI Series



Features

• Flat, compact design (10 mm height) allows easy installation in limited spaces

 \cdot 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	\leq 10 % of sensing distance
Standard sensing target: iron	25 × 25 × 1 mm
Response frequency ⁰¹⁾	20 Hz
Affection by temperature	\leq ± 10 % for sensing distance at ambient temperature 20 °C
Indicator	Operation indicator (red)
Approval	C E ERE
Unit weight	≈ 70 g
	he average value. The standard sensing target is used and the width is set as 2 times of the standard nsing distance for the distance.
Power supply	100 - 240 VAC \sim 50 / 60 Hz, operating voltage: 85 - 264 VAC \sim
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 \sim 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/s ² (\approx 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

Α

Cylindrical Capacitive

Proximity Sensors

 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

(DC 3-Wire)

CR Series

Features



Specifications

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 15 mm Standard sensing target: iron 50 × 50 × 1 mm	Installation	Non-flush type	
Sensing distance 8 mm 15 mm Setting distance 0 to 5.6 mm 0 to 10.5 mm Hysteresis ≤ 20 % of sensing distance	Model	CR18-8D	CR30-15D
Setting distance0 to 5.6 mm0 to 10.5 mmHysteresis≤ 20 % of sensing distanceStandard sensing target: iron50 × 50 × 1 mmResponse frequency®50 HzAffection by emperature≤ ± 20 % for sensing distance at ambient temperature 20 °CIndicatorOperation indicator (red)ApprovalHIHIUnit weight (package)≈ 76 g (≈ 88 g)Power supply12 - 24 VDC=: (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC=:Power supply12 - 24 VDC=: (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC=:Current consumption≤ 15 mAControl output≤ 200 mAResidual voltage≤ 15.5 VProtection circuitSurge protection circuit, reverse polarity protectionInsulation resistance≥ 50 MΩ (500 VDC=: megger)Dielectric strength1,500 VAC~ 50 / 60Hz for 1 min (between all terminals and case)Vibration1 mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hoursShock500 m/s² (= 50 G) in each X, Y, Z direction for 3 timesAmbient temperature-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)Protection structureDIA. of sensing side Ø 18 mm: IP66 (IEC standard)DiA. of sensing side Ø 18 mm: IP65 (IEC standard)JA of sensing side Ø 18 mm: Ø 4 mm, 3-wire, 2 m	DIA. of sensing side	Ø 18 mm	Ø 30 mm
Hysteresis ≤ 20 % of sensing distance Standard sensing target: iron 50 × 50 × 1 mm Response frequency ⁰⁰ 50 Hz Affection by temperature 5 ± 20 % for sensing distance at ambient temperature 20 °C Indicator Operation indicator (red) Approval HI Eff 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 standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the width is set as 2 times of the standard sensing target is used and the s	Sensing distance	8 mm	15 mm
Standard sensing target: iron 50 × 50 × 1 mm Response frequency ⁰⁰ 50 Hz Affection by temperature ≤ ± 20 % for sensing distance at ambient temperature 20 °C Indicator Operation indicator (red) Approval FII 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. ≈ 206 g (≈ 243 g) 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) Protection structure DIA. of sensing side Ø 18 mm: IP66	Setting distance	0 to 5.6 mm	0 to 10.5 mm
target: iron SO Hz Affection by temperature Affection by temperature \$ ± 20 % for sensing distance at ambient temperature 20 °C Indicator Operation indicator (red) Approval Eff. Unit weight (package) ≈ 76 g (≈ 88 g) ≈ 206 g (≈ 243 g) 0) 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 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 1mm 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	Hysteresis	≤ 20 % of sensing distance	
Affection by temperature ≤ ± 20 % for sensing distance at ambient temperature 20 °C Indicator Operation indicator (red) Approval ENI Unit weight (package) ≈ 76 g (≈ 88 g) ≈ 76 g (≈ 88 g) = 206 g (≈ 243 g) (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. 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 1mm 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 freezing or condensation) Ambient tumperature -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) Ambient humidity 35 to 95 %RH, storage: 35 to 95 %RH (no freezi	•	50 × 50 × 1 mm	
temperature Operation indicator (red) Approval Eff. Eff. Unit weight (package) ≈ 76 g (≈ 88 g) ≈ 206 g (≈ 243 g) OTH 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. Eff. 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 MQ (500 VDC== megger) Dielectric strength 1,500 VAC~ 50 / 60Hz for 1 min (between all terminals and case) Vibration 1mm 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 30 mm: IP66 (IEC standard) / DIA. of sensing side Ø 30 mm: IP65 (IEC standard) / DIA. of sensing side Ø 30 mm: IP65 (IEC standard) / DIA.	Response frequency ⁰¹⁾	50 Hz	
ApprovalHIHIUnit 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.≈ 206 g (≈ 243 g)Power supply12 - 24 VDC== (ripple P-P: ≤ 10 %), operating voltage: 10 - 30 VDC==Current consumption≤ 15 mAControl output≤ 200 mAResidual voltage≤ 1.5 VProtection circuitSurge protection circuit, reverse polarity protectionInsulation resistance≥ 50 MQ (500 VDC== megger)Dielectric strength1,500 VAC~ 50 / 60Hz for 1 min (between all terminals and case)Vibration1mm double amplitude at frequency 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hoursShock500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 timesAmbient temperature-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)Ambient humidity35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)Protection structureDIA. of sensing side Ø 18 mm: IP66 (IEC standard) / DIA. of sensing side Ø 30 mm: IP65 (IEC standard)ConnectionCable typeCable spec.DIA. of sensing side Ø 18 mm: Ø 4 mm, 3-wire, 2 m		s ± 20 % for sensing distance at ambient temperature 20 °C	
Image: Structure Image: Structure Unit weight (package) ≈ 76 g (≈ 88 g) ≈ 206 g (≈ 243 g) Image: Structure image: Structure image: Structure 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 1mm 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) Anbient humidity A of sensing side Ø 18 mm: IP66 (IEC standard) / DIA. of sensing side Ø 30 mm: IP65 (IEC standard) DIA. of sensing side Ø 18 mm: Ø 4 mm, 3-wire, 2 m	Indicator	Operation indicator (red)	
O1) 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 1mm 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) 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	Approval	EAC	EAC
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 1mm 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 30 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		0, 0,	0 (0,
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 30 mm: IP66 (IEC standard) / DIA. of sensing side Ø 30 mm: IP66 (IEC standard) Connection Cable type Cable spec. DIA. of sensing side Ø 18 mm: Ø 4 mm, 3-wire, 2 m			
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) 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	Power supply	12 - 24 VDC== (ripple P-P: \leq 10 %), operating voltage: 10 - 30 VDC==	
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	Current consumption	≤ 15 mA	
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	Control output	≤ 200 mA	
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	Residual voltage	≤ 1.5 V	
Dielectric strength 1,500 VAC~ 50 / 60Hz for 1 min (between all terminals and case) Vibration 1mm 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	Protection circuit	Surge protection circuit, reverse polarity protection	
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	Insulation resistance	≥ 50 MΩ (500 VDC megger)	
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	Dielectric strength	1,500 VAC ~ 50 / 60Hz for 1 min (between all terminals and case)	
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	Vibration		
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	Shock	500 m/s² (≈ 50 G) in each X, Y, Z direction for 3 times	
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	Ambient temperature	-25 to 70 °C, storage: -30 to 80 °C (no freezing or condensation)	
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	Ambient humidity	35 to 95 %RH, storage: 35 to 95 %RH (no freezing or condensation)	
Cable spec. DIA. of sensing side Ø 18 mm: Ø 4 mm, 3-wire, 2 m	Protection structure	0	
	Connection	Cable type	
DIA. of sensing side Ø 30 mm; Ø 5 mm, 3-wire, 2 m	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	Wire spec.	AWG 22 (0.08 mm, 60-core), insulator DIA.: Ø 1.25 mm	
Material Standard type cable (black): polyvinyl chloride (PVC)	Material	Standard type cable (black): polyvinyl chloride (PVC)	
DIA. of sensing side Case / Nut: PA6 Ø 18 mm		Case / Nut: PA6	
DIA. of sensing side Case / Nut: nickel-plated brass, washer: nickel-plated iron, sensing side: PBT			



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	\leq ± 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)	
	frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard at, 1/2 of the sensing distance for the distance.		
Power supply	100 -240 VAC \sim 50 / 60 Hz, operating voltage: 85 - 264 VAC \sim		
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 \sim 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		



U-Shaped Magnetic Proximity Sensors

 \cdot Non-voltage magnetic detection method

IP67 protection structure (IEC standard)

 $\boldsymbol{\cdot}$ Two wiring specifications of cable /

cable connector type

MU Series

Features



Specifications

Model		MU-1A-30-🗆	MU-1B-30-🗆	
Contact		N.O.	N.C.	
Operating $OFF \rightarrow ON$		± 10 mm		
distance ⁰¹⁾	$ON \to OFF$	± 20 mm		
Standard se	nsing target	Steel plate - a galvanized steel sheet 1.6t		
Operating ti	me	≤ 2 ms		
Release time	Э	≤1ms		
Operating fr	equency	≤ 500 Hz		
Approval		CE		
Unit weight	nit 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 vo	switching voltage ≤ 24 VDC			
Life expecta	.ife expectancy ≥ 100 million times (at a resistive load of 5 VDC=m 10 mA)		DCm 10 mA)	
Insulated res	nsulated resistance ≥ 1,000 MΩ (500 VDC= megger)			
Dielectric st	strength 500 VAC \sim 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	hock 100 m/s ² (≈ 10 G) in each X, Y, Z direction for 3 times			
Ambient ten	-10 to 65 °C, storage: -10 to 70 °C (no freezing or condensation)			
Ambient hur	mbient humidity 35 to 85 %RH, storage : 35 to 85 %RH (no freezing or condensation)			
Protection s	tection 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	aterial 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		

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

