

# Cylindrical Inductive Full-Metal Long-Distance / Long-Distance Spatter-Resistant Proximity Sensors



## PRFD / PRFDA Series (DC 2-wire) CATALOG

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

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

### 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
- Excellent noise immunity with specialized sensor IC
- Built-in surge protection circuit, output short over current protection circuit, reverse polarity protection
- 360° ring type operation indicator (red LED) (except Ø 8 mm model)
- Oil resistant cable
- IP67 protection structure (IEC standards)

### Ordering Information

This is only for reference.  
For selecting the specific model, follow the Autonics web site.

**PRFD ① ② T ③ - ④ D O - ⑤**

- ① **Characteristic**  
No-mark: General type  
A: Spatter-resistant type
- ② **Connection**  
No-mark: Cable type  
W: Cable connector type
- ③ **DIA. of sensing side**  
Number: DIA. of sensing side (unit: mm)
- ④ **Sensing distance**  
Number: Sensing distance (unit: mm)
- ⑤ **Cable**  
V: Oil resistant cable type  
IV: Oil resistant cable type (IEC standards)

### Specifications

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

<b>Power supply</b>	12-24 VDC (ripple P-P: ≤ 10%), operating voltage: 10-30 VDC
<b>Leakage current</b>	≤ 0.8 mA
<b>Control output</b>	3 to 100 mA
<b>Residual voltage</b>	≤ 3.5 V
<b>Protection circuit</b>	Surge protection circuit, output short over current protection circuit, reverse polarity protection
<b>Insulation resistance</b>	≥ 50 MΩ (500 VDC megger)
<b>Dielectric strength</b>	1,000 VAC ~ 50/60Hz for 1 minute (between all terminals and case)
<b>Vibration</b>	1.5 mm amplitude at frequency 10 to 55 Hz in each X, Y, Z direction for 2 hours
<b>Shock</b>	1,000 m/s <sup>2</sup> (≈ 100 G) in each X, Y, Z direction for 10 times (DIA. of sensing side Ø 8 mm) : 500 m/s <sup>2</sup> (≈ 50 G) in each X, Y, Z direction for 10 times
<b>Ambient temp.<sup>01)</sup></b>	-25 to 70 °C, storage: -25 to 70 °C (non-freezing or non-condensation)
<b>Ambient humi.</b>	35 to 95 %RH, storage: 35 to 95 %RH (non-freezing or non-condensation)
<b>Protection</b>	IP67 (IEC standards)
<b>Connection</b>	Cable type / Cable connector type model
<b>Cable spec.<sup>02)</sup></b>	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
<b>Wire spec.</b>	AWG 22 (0.08 mm, 60-wire), insulator diameter: Ø 1.25 mm
<b>Connector</b>	M12 connector
<b>Material</b>	Oil resistant cable (dark gray): oil resistant polyvinyl chloride (PVC)
<b>General</b>	Case / Nut: stainless steel 303 (SUS303), washer: stainless steel 304 (SUS304), sensing side <sup>03)</sup> : stainless steel 303 (SUS303)
<b>Spatter-resistant</b>	Case / Nut: stainless steel 303 (SUS303, PTFE coated), washer: stainless steel 304 (SUS304), sensing side <sup>03)</sup> : 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

### Sold Separately

- Connector cable, Connector connection cable
- Spatter protection cover
- Fixing bracket
- Transmission coupler