

Model specifications for stand-alone type

Type			Stand-alone (IO-Link device)	Stand-alone unit, infrared light source (IO-Link device)	Analog output	
Model	1-output and 1-switchable-output/input ^{*1}		Cable	D4RF-T	D4IF-T	-
			Connector	D4RF-TC4	D4IF-TC4	-
	1-output and 1-switchable-output/input, short-range/high accuracy ^{*1}		Cable	D4RF-T-Y	-	-
	2-output and 1-input		Cable	D4RF-TD	-	-
	2-output and 1-input, short-range/high accuracy		Cable	D4RF-TD-Y	-	-
	Analog output		Cable	-	-	D4RF-TA
	Analog output, short-range/high accuracy		Cable	-	-	D4RF-TA-Y
Light source			4-element Red LED (Wavelength: 660 nm)		Infrared LED (Wavelength: 1,450 nm) ^{*2}	4-element Red LED (Wavelength: 660 nm)
Response time			16 μs, 70 μs, 250 μs, 500 μs, 1 ms, 2 ms, 8 ms			
Teach Mode			1 point, 2 points, Auto, Through, 1-point Zone, 2-point Zone, Manual		Channel A (Analog output) setting: Analog 2 points teach, Analog auto teach, Manual Channel 1 (Control output) setting: 1 point, 2 points, Auto, Through, 1-point Zone, 2-point Zone, Manual	
Display	Digital display		OLED display 128 x 22 pixel Menu languages: English, Japanese, Korean, Simplified Chinese, Spanish			
	Indicators		2 x Output indicator (orange) Power indicator (green): Lights up when power is on (Blinks during IO-Link communication)		Control output indicator (orange), Analog output indicator (orange) Power indicator (green): Lights up when power is on	
Interface	Control output		NPN/PNP, open collector or Push-pull selectable by setting 1-output: Max. 100 mA, 2-output: Max. 50 mA /30 VDC residual voltage 1.8 V or less		NPN/PNP, open collector or Push-pull selectable by setting Max. 50 mA/30 VDC residual voltage 1.8 V or less	
	Analog output		-		Current output: 4 to 20 mA, load impedance: 300 ohm or less Voltage output: 0 to 10 V, 1 to 5 V, output impedance: 100 ohm or less selectable by setting	
	External input		Teach, Counter-reset, Emitter off or Preset loading ^{*3}		Teach, Counter-reset, Emitter off, Hold out reset or Preset loading ^{*3}	
	IO-Link		Control output 1 is switchable to IO-Link		-	
IO-Link	Revision		1.1		-	
	Baud rate		COM 3 (230.4kbps)		-	
	Number of process input data bytes		4 bytes		-	
	Minimum cycle time		0.5 ms		-	
Timer function			On delay, Off delay, On/off delay, Pulse output, On delay pulse Adjustable 1 to 30,000 ms			
Output mode			Light ON/Dark ON, selectable by setting			
Connection			Cable type: 2 m, 5 wires with 2-output and 1-input type, 4 wires with 1-output and 1-switchable-output/input type, Minimum bending radius: 4 x Cable diameter Connector type: M8 4-pin connector	Cable type: 2 m, 4 wires with 1-output and 1-switchable-output/input type, Minimum bending radius: 4 x Cable diameter Connector type: M8 4-pin connector	Cable type: 2 m, Minimum bending radius: 4 x Cable diameter	
Rating	Supply voltage	SIO mode	12 to 30 VDC ±10% including 10% ripple (p-p)		12 to 24 VDC ± 10% including 10% ripple (p-p)	
		IO-Link mode	18 to 30 VDC ±10% including 10% ripple (p-p)		-	
	Current consumption	Eco mode: Off	Max. 870 mW (29 mA or less at 30 VDC, 33 mA or less at 24 VDC, 52 mA or less at 12 VDC)		Max. 840 mW (35 mA or less at 24 VDC, 52 mA or less at 12 VDC)	
		Eco mode: On	Max. 780 mW (26 mA or less at 30 VDC, 29 mA or less at 24 VDC, 43 mA or less at 12 VDC)		Max. 744 mW (31 mA or less at 24 VDC, 43 mA or less at 12 VDC)	
NRTL certification			UL Listed or Recognized Components Proximity Switch Certified for US and Canada.		UL Recognized Component Proximity Switch Certified for US and Canada	
Weight			Cable type: approx. 71 g, Connector type: approx. 25 g		Approx. 71 g	

*1: Analog output cannot be switched between input and output.

*2: The 1,450 nm wavelength band has a large attenuation of water components.

*3: Preset loading selectable only on 2-output and 1-output type.

Model specifications for interconnection type

Type			Standard interconnection		Interconnection for communication unit			
			With display and keys		With display and keys		Without display and keys	
			Main unit	Expansion unit	Main unit	Expansion unit	Main unit	Expansion unit
Model	1-output and 1-switchable-output/input	Cable	D4RF-TM	D4RF-TS	-	-	-	-
		Connector	D4RF-TMC4	D4RF-TSC4	-	-	-	-
	2-output and 1-input	Cable	D4RF-TDM	D4RF-TDS	-	-	-	-
	2-output and 1-input, short-range/high accuracy	Cable	D4RF-TDM-Y	D4RF-TDS-Y	-	-	-	-
	Without output/input wires	Connector	-	-	-	-	D4RF-MC4	-
	Cable-less type		-	-	D4RF-TM-0	D4RF-TS-0	-	D4RF-S
Light source			4-element Red LED (Wavelength: 660 nm)					
Response time	Stand-alone use		16 μ s, 70 μ s, 250 μ s, 500 μ s, 1 ms, 2 ms, 8 ms	-	-	-	-	-
	Interconnection use		22 μ s, 70 μ s, 250 μ s, 500 μ s, 1 ms, 2 ms, 8 ms					
Teach Mode			1 point, 2 points, Auto, Through, 1-point Zone, 2-point Zone, Manual					
Display	Digital display		OLED display 128 x 22 pixel Menu languages: English, Japanese, Korean, Simplified Chinese, Spanish					
	Indicators		2 x Output indicator (orange), Power indicator (green): Lights up when power is on					
Interface	Control output*1		NPN/PNP open collector or Push-pull selectable by setting 1-output: Max. 100 mA, 2-output: Max. 50 mA/ 30 VDC, residual voltage: 1.8 V or less		-			
	External input		Teach, Counter-reset, Emitter off or Preset loading ²		-			
Number of units with cross talk prevention			Response time 22 μ s: 2 units, 70 μ s: 3 units, 250 μ s: 4 units, 500 μ s: 9 units, 1 ms: 9 units, 2 ms: 12 units, 8 ms: 14 units (including main unit)					
Timer function			On delay, Off delay, On/off delay, Pulse output, On delay pulse, Adjustable 1 to 30,000 ms					
Output mode			Light ON/Dark ON, selectable by setting					
Number of connectable units			Max. 16 units (including main unit)					
Connection			Cable type: 2 m, Minimum bending radius: 4 x Cable diameter 5 wires with 2-output and 1-input main unit, 4 wires with 1-output and 1-switchable-output/input main unit, 3 wires with 2-output and 1-input expansion unit, 2 wires with 1-output and 1-switchable-output/input expansion unit, Connector type: M8 4-pin connector		Without cable or connector		Connector type: M8 4-pin connector (For supplying power)	Without cable or connector
Rating	Supply voltage		Supplied directly or from communication unit ³ 12 to 24 VDC $\pm$ 10% including 10% ripple (p-p)	Supplied from main unit or communication unit ³ 12 to 24 VDC $\pm$ 10% including 10% ripple (p-p)	Supplied from communication unit ³ 12 to 24 VDC $\pm$ 10% including 10% ripple (p-p)		Supplied directly or from communication unit ³ 12 to 24 VDC $\pm$ 10% including 10% ripple (p-p)	Supplied from communication unit ³ 12 to 24 VDC $\pm$ 10% including 10% ripple (p-p)
	Current consumption ¹	Eco mode: Off	Max. 792 mW (33 mA or less at 24 VDC, 52 mA or less at 12 VDC)		Max. 720 mW (30 mA or less at 24 VDC, 49 mA or less at 12 VDC)		Max. 624 mW (26 mA or less at 24 VDC, 41 mA or less at 12 VDC)	
		Eco mode: On	Max. 696 mW (29 mA or less at 24 VDC, 43 mA or less at 12 VDC)		Max. 624 mW (26 mA or less at 24 VDC, 41 mA or less at 12 VDC)			-
NRTL certification			UL Listed or Recognized Components Proximity Switch Certified for US and Canada.					
Weight			Cable type: approx. 71 g, Connector type: approx. 25 g		Approx. 23 g			

*1: The load current and ambient temperature are limited by the number of connected units (including interconnection main unit) as shown in the table below.

Standard interconnection use: 20 mA when connected with a 1-output setting or 10 mA with a 2-output setting.

*2: Preset loading selectable only on 2-output and 1-output type.

*3: For details on supplying power from the communication unit, refer to the instruction manual of the respective communication unit.

*4: The upper ambient temperature limit is as follows depending on the number of connected units.

3 to 5 connected units: 50°C, 6 to 16 connected units: 45°C (When used as UL certified product, 6 to 8 connected units: 45°C, 9 to 16 connected units: 40°C)

● Specifications are subject to change without prior notice.

Common specifications

Insulation resistance		20 megaohms or more (with 500 VDC)
Warm-up time		300 ms
Applicable regulations	EMC	EU EMC directive (2014/30/EU) UK directive EMC (The Electromagnetic Compatibility Regulations 2016)
	Environment	EU RoHS directive (2011/65/EU) UK RoHS (The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012) China RoHS (MIIT Order No.32)
Applicable standards		EN 60947-5-2
Company standards		Noise resistance: Feilen Level 4 cleared
Protection circuit		Reverse connection protection, Overcurrent protection
Environmental resistance	Ambient temperature/humidity	-25 to 55°C/35 to 85% RH (no freezing or condensation)
	Ambient illuminance	Sunlight: 10,000 lx or less, Incandescent light: 3,000 lx or less
	Vibration resistance	10 to 55 Hz, Double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions
	Shock resistance	Approx. 50 G (500 m/s ²) 3 times in each of the X, Y, and Z directions
Degree of protection		IP54
Material		Housing, Cover: PC
Included accessories		Mounting bracket, Instruction manual



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