

Industry Standard-sized Photoelectric Sensors

Z4 Series



Features

- IO-Link support: Connectable to various field networks via IO-Link Master
- Enhanced ambient illuminance resistance

Lineup

Detection method		Sensing distance	Model (Models in parentheses are connector types)	
			NPN type	PNP type
Through-beam		25 m	Z4T-2500N (Z4T-2500CN4)	Z4T-2500P (Z4T-2500CP4)
Retro-reflective		0.01 ... 4 m	Z4R-400N (Z4R-400CN4)	Z4R-400P (Z4R-400CP4)
Diffuse-reflective		0 ... 1 m	Z4D-100N (Z4D-100CN4)	Z4D-100P (Z4D-100CP4)
Limited diffuse-reflective		10 ... 90 mm	Z4D-L09N (Z4D-L09CN4)	Z4D-L09P (Z4D-L09CP4)
Wide-angle diffuse-reflective		1 ... 200 mm	Z4D-W20N	Z4D-W20P

Accessories

Reflectors

Model	Description
V-61	Standard, 60.9 × 50.9 mm, 0.01 ... 4 m
V-42	Small, 42 × 35 mm, 0.01 ... 2.4 m
P45A	Vertical, 54 × 12.4 mm, 0.01 ... 1.4 m
P25	Side-mounted, 32 × 14 mm, 0.01 ... 1.6 m
V-30	Ultra-small, 43 × 23 mm, 0.01 ... 2.2 m

Connector cables

Model	Description
M84CN-2S	Straight, 2 m
M84CN-5S	Straight, 5 m
M84CN-10S	Straight, 10 m
M84CN-2L	L-shaped, 2 m
M84CN-5L	L-shaped, 5 m
M84CN-10L	L-shaped, 10 m

- Minimum bending radius: 24 mm (When fixed in place)

- Mounting bracket is not included. Purchase as necessary.
- Reflector is not included with the retro-reflective type. Purchase an optional reflector.
- For the connector type, purchase an optional connector cable.

Mounting brackets

Model	Description
BEF-W100-B	For cable type, Floor-mounted
BEF-W100-A	For connector type, Back-mounted
BEF-W100-C	For cable type, Floor-mounted

Protective mounting brackets

Model	Description
LK-S01	Floor-mounted
LK-S02	Wall-mounted

Slit masks (For Through-beam)

Model	Description
BL-W100	Width: 0.5 mm, 1 mm, 2 mm, 2 sheets
BL-100-M1-10pcs	Width: 1 mm, Stainless steel, 10 pieces
BL-100-M05	Width: 0.5 mm, Stainless steel, 2 pieces

Anti-interference filter (For Through-beam)

Model	Description
BL-100-POLF	POL filter, vertical and horizontal, 2 sets of each

Specifications

Type			Through-beam	Retro-reflective	Diffuse-reflective	Limited diffuse-reflective	Wide-angle diffuse-reflective	
Model	NPN	Cable	Z4T-2500N	Z4R-400N	Z4D-100N	Z4D-L09N	Z4D-W20N	
		Connector	Z4T-2500CN4	Z4R-400CN4	Z4D-100CN4	Z4D-L09CN4	-	
	PNP	Cable	Z4T-2500P	Z4R-400P	Z4D-100P	Z4D-L09P	Z4D-W20P	
		Connector	Z4T-2500CP4	Z4R-400CP4	Z4D-100CP4	Z4D-L09CP4	-	
Sensing distance			25 m	0.01 ... 4 m*1	0 ... 1 m*2	10 ... 90 mm*3	1 ... 200 m*4	
Light source			4-element red LED, Wavelength: 632 nm					
Spot size			Approx. ø1,800 mm at 25 m	Approx. ø280 mm at 4 m	Approx. ø75 mm at 1 m	Approx. ø8 mm at 90 mm	Approx. □45 mm at 50 mm	
Response time			500 µs Max.	550 µs Max.				
Hysteresis			-	-	Max. 20 %	Max. 10 %	Max. 20 %	
Sensitivity adjustment			1-turn potentiometer					
Indicators			Output indicator (orange LED), Stability indicator (green LED) (No indicators equipped on through-beam type emitter)					
Control output			NPN/PNP Open collector, Max. 100 mA / 30 VDC (Residual voltage 1.8 V Max.)					
Output mode			Light ON, Dark ON selectable by switch					
IO-Link specification			Ver. 1.1, Baud rate: COM 3 (230.4 kbps), Number of process input data bytes: 2 bytes, Minimum cycle time: 0.5 ms					
Connection			Cable type: 2 m long, ø3.8 mm (Minimum bending radius: Cable diameter x 4 (When fixed in place)) Connector type: M8 4-pin					
Rating	Supply voltage	IO-Link mode: 18 ... 30 VDC, SIO mode: 10 ... 30 VDC including 10 % ripple (p-p)						
	Current consumption*5	Emitter: 14 mA Max. Receiver: 20 mA Max.		20 mA Max.				
Applicable regulations	EMC	EMC directive (2014/30/EU)						
	Environment	RoHS directive (2011/65/EU), China RoHS (MIIT Order No. 32)						
Applicable standards			EN 60947-5-2					
Company standards			Noise resistance: Feilen Level 3 cleared					
NRTL certification*6			UL Recognized Components, Proximity Switch Certified for US and Canada					
Environmental resistance	Ambient temperature/humidity	-25 ... +55°C/35 ... 85 % RH (No condensation or freezing)						
	Storage temperature/humidity	-40 ... +70°C/35 ... 95 % RH (No condensation or freezing)						
	Ambient illuminance	Sunlight: 50,000 lx Max., Incandescent lamp: 5,000 lx Max.						
	Vibration resistance	10 ... 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y and Z						
	Shock resistance	Approx. 100 G (1,000 m/s²), 3 times in each of the X, Y and Z						
Degree of protection			IP67 (IEC 60529)					
Material			Housing: ABS, Front cover: PMMA					
Weight			Emitter; Cable type: Approx. 50 g, Connector type: Approx. 8 g Receiver; Cable type: Approx. 55 g, Connector type: Approx. 10 g		Cable type: Approx. 55 g, Connector type: Approx. 10 g			
Included items			Instruction manual					

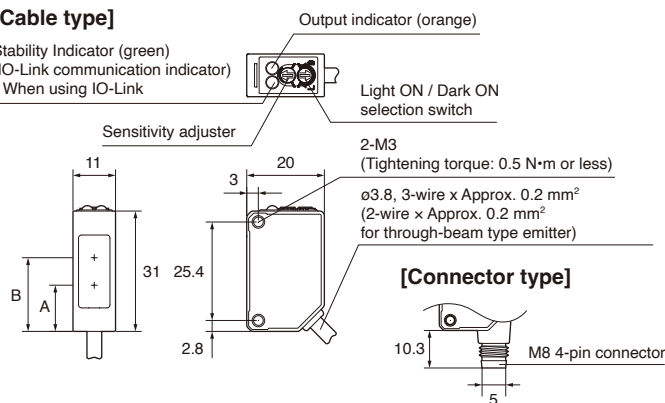
*1. Reflector V-61 *2. White paper: 200 x 200 mm *3. White paper: 100 x 100 mm *4. White paper: 300 x 300 mm *5. Not including control output load current.
*6. Under UL certification, please use the product with a supply voltage of 24 VDC, current consumption of 40 mA, and an ambient temperature up to 40°C

Dimensions

(Unit: mm)

[Cable type]

Stability Indicator (green)
(IO-Link communication indicator)
* When using IO-Link



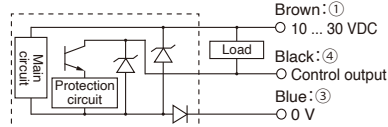
Type	A: Emitter optical axis	B: Receiver
Through-beam	-	19 (Emitter & Receiver)
Diffuse-reflective	11.9	19
Retro-reflective		19
Limited diffuse-reflective		18.8
Wide-angle diffuse-reflective		18.8

Never use these products as sensing devices for personnel protection.
Doing so could lead to serious injury or death.
Before use please read an instruction manual.

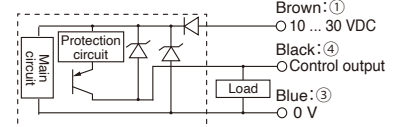
• Specifications are subject to change without prior notice.

Circuit diagram

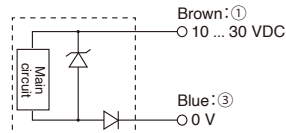
NPN type



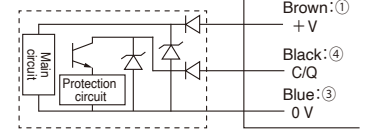
PNP type



Through-beam type emitter

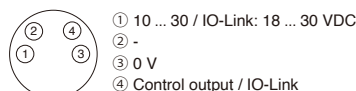


IO-Link mode



* When using NPN type for an IO-Link connection, use OPTEX FA's IO-Link Master UR Series or IO-Link Master with sink support.

[M8 connector pin assignments]



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