

Industry-standard photoelectric sensor

Z4 Series



Features

IO-Link connection supported

- Easy integration in application with Fieldbus/IO-Link network
- Monitoring of light receiving level for sensing status and maintenance time prediction
- Parameter setting of sensitivity, ON/OFF mode and timer via network

Enhanced ambient illuminance resistance against sunlight, incandescent and LED lights

Brighter status indicators for remote status monitoring

Lineup

| Optical system | | Sensing distance | Model | |
|----------------------------|--|------------------|--------------------------|--------------------------|
| | | | NPN type | PNP type |
| Through-beam | | 25 m | Z4T-2500N Z4T-2500CN4 | Z4T-2500P Z4T-2500CP4 |
| Retro reflective | | 0.01 to 4 m | Z4R-400N Z4R-400CN4 | Z4R-400P Z4R-400CP4 |
| Diffuse reflective | | 0 to 1 m | Z4D-100N Z4D-100CN4 | Z4D-100P Z4D-100CP4 |
| Limited diffuse reflective | | 10 to 90 mm | Z4D-L09N Z4D-L09CN4 | Z4D-L09P Z4D-L09CP4 |

Accessories

Reflectors

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

M8 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 |

Mounting brackets

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

- 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.
- For IO-Link connection with USB adapter and master unit, use 3rd party product in the market.

Specifications

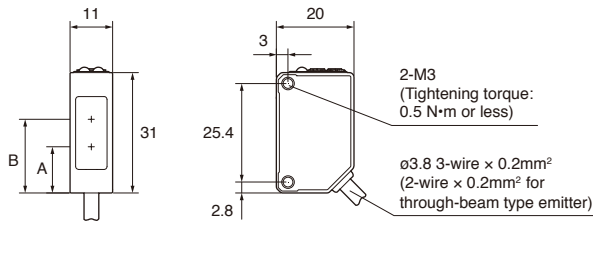
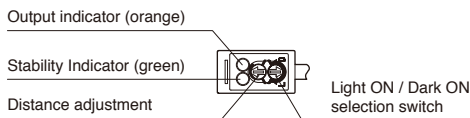
| Model | | Cable type | Through-beam | Retro reflective | Diffuse reflective | Limited diffuse reflective | | | |
|--------------------------|-----------------------|--|--------------|---|--------------------|--|--|---|--|
| NPN | M8 connector type | Z4T-2500N | Z4R-400N | Z4D-100N | Z4D-L09N | | | | |
| | | Z4T-2500CN4 | Z4R-400CN4 | Z4D-100CN4 | Z4D-L09CN4 | | | | |
| PNP | Cable type | Z4T-2500P | Z4R-400P | Z4D-100P | Z4D-L09P | | | | |
| | M8 connector type | Z4T-2500CP4 | Z4R-400CP4 | Z4D-100CP4 | Z4D-L09CP4 | | | | |
| Sensing distance | | 25 m | | 0.01 to 4 m*1 | | 0 to 1 m*2 | | 10 to 90 mm*3 | |
| Light source | | 4-element red LED, Wavelength: 632 nm | | | | | | | |
| Spot size | | Approx. ø1800 mm (At distance of 25 m) | | Approx. ø280 mm (At distance of 4 m) | | Approx. ø75 mm (At distance of 1 m) | | Approx. ø8 mm (At distance of 90 mm) | |
| Response time | | 500 µs or less | | | | | | | |
| Hysteresis | | - | | - | | 20 % Max. | | 10 % Max. | |
| Sensitivity adjustment | | 1-turn potentiometer or via IO-Link network | | | | | | | |
| Indicators | | Output indicator: Orange, Stability indicator: Green (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 by selection switch or via IO-Link network | | | | | | | |
| IO-Link specification | | Ver. 1.1, Transmission rate: COM 3 (230.4 kbps), Process data length: 4 byte, Min. cycle time: 1.0 ms | | | | | | | |
| Timer function | | ON delay / OFF delay / One-shot only via IO-Link network | | | | | | | |
| Cable connection | | Cable: 2m, ø3.8 mm / Connector: M8 4-pin | | | | | | | |
| Protection circuit | | Reverse connection protection, Overcurrent protection | | | | | | | |
| Rating | Supply voltage | 10 to 30 VDC, including 10% ripple (p-p) | | | | | | | |
| | Current consumption*4 | Emitter: 14 mA or less Receiver: 20 mA or less | | 20 mA or less | | 20 mA or less | | 20 mA or less | |
| Applicable regulations | EMC | EMC directive (2014/30/EU) | | | | | | | |
| | RoHS | RoHS directive (2011/65/EU), China RoHS (Directive 32) | | | | | | | |
| Applicable standards | | EN 60947-5-2 | | | | | | | |
| NRTL Certification | | UL Recognized Component (Under development) | | | | | | | |
| Environmental resistance | Ambient temperature | -25 to +55°C (No freezing) | | | | | | | |
| | Ambient humidity | 35 to 85% RH (No condensation) | | | | | | | |
| | Ambient illuminance | Sunlight: 50,000 lx or less, Incandescent lamp: 5,000 lx or less | | | | | | | |
| | Vibration resistance | 10 to 55 Hz, double amplitude 1.5 mm, 2 hours in each of the XY and Z directions | | | | | | | |
| | Shock resistance | 1000 m/s ² (Approx. 100 G), 3 times in each of the XY and Z directions | | | | | | | |
| Protection category | | IP67 | | | | | | | |
| Material | | Housing: ABS, Front cover: PMMA | | | | | | | |
| Weight without cable | | Approx. 10 g | | | | | | | |
| Included accessories | | Instruction manual | | | | | | | |

*1. With the V-61 reflector *2. Using a 200 x 200 mm white sheet paper *3. Using a 100 x 100 mm white sheet paper *4. Not including control output load current

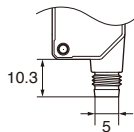
Dimensions

(Unit: mm)

[Cable type]



[Connector type]



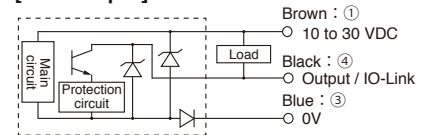
| Type | A:Emitter optical axis | B:Receiver optical axis |
|----------------------------|------------------------|-------------------------|
| Through-beam | - | 19(Emitter & Receiver) |
| Retro reflective | 11.9 | 19 |
| Diffuse reflective | | 19 |
| Limited diffuse reflective | | 18.8 |

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.

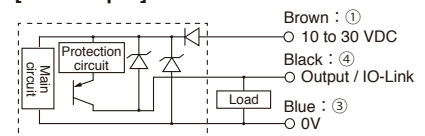
• Specifications are subject to change without prior notice.

Circuit diagram

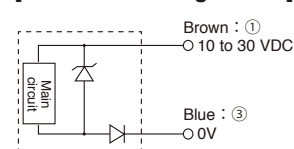
[NPN output]



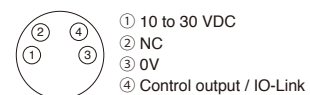
[PNP output]



[Emitter for through-beam]



[M8 connector pin layout]



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