

Z-M Series



IP69K: Highly water resistant

- Tough structure for food processing line needs washing with high temperature and high pressure water.
- Achieves long sensing distance.



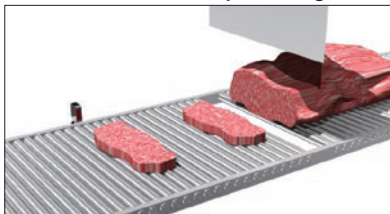
For production line needs washing



For production line with detergent splash



For meat and fresh food processing line



Selection table

Type		Sensing distance	Part number
Through beam		30m	ZT-M3000N
Retro reflective		0.01~5.5m	ZR-M550N
Diffuse		0~800mm	ZD-M80N
BGS on another page		10~100mm (20~100mm)	BGS-ZM10N
		10~300mm (20~300mm)	BGS-ZM30N

● Part number of PNP type has suffix "P" : ZT-M3000N→ZT-M3000P

Accessories

Reflector for retro reflective type

V-61
59.8×40.2mm



Sensing distance: 0.01~5.5m

V-42
82×29.8mm



Sensing distance: 0.015~4m

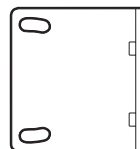
P45A
60×18mm



Sensing distance: 0.015~1.5m

Wall mounting bracket

BEF-W100-A



Protective mounting bracket
2mm thick SUS bracket

LK-501

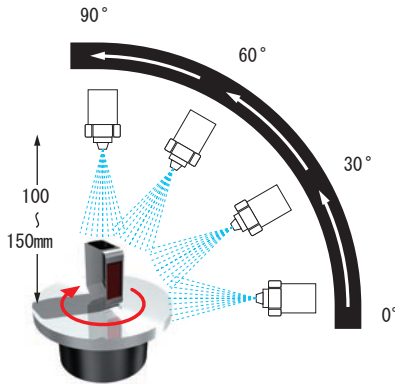


LK-502



IP69K protection

IP69K is an rating of German standard DIN 40050-9 extends the IEC 60529 rating system for high-pressure, high-temperature wash-down applications.



Test condition:

A sensor on the turn table that rotates 5 times per minutes.

Pressure: 80~100bar
 Flow rate: 14~16 litre/minute
 Temperature: +80°C / -5°C
 Distance from nozzle: 100~150mm
 Nozzle angle: 0°, 30°, 60°, 90°
 Testing period: 30sec per every angle

* IP69K doesn't mean to guarantee that the sensor works under the test condition above. The sensor won't work correctly when the lens gets wet and the light is refracted.

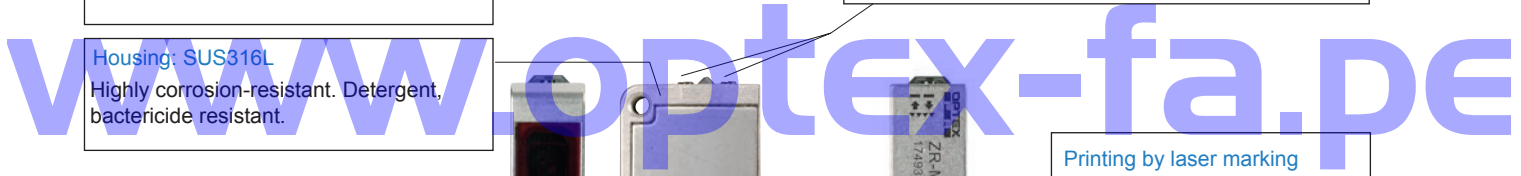
High-pressure, high-temperature, detergent wash-down resistant Tough structure

Top cover: Poly Ether Sulphone (PES)
 Oil, detergent, high-temperature resistant.
 Top level protection in transparent plastic.

Housing: SUS316L
 Highly corrosion-resistant. Detergent, bactericide resistant.



SW, Pot: Poly Ether Etherketone (PEEK)
 Shock, scratch, stress, heat resistant. Highly resistant to chemical except concentrated sulfuric acid.



Printing by laser marking
 There is no label attached so you don't have to care about interfusion into foods of the label unsticked.

Lens PPSU for thru-beam, diffuse type
 Chemical, heat resistant. Very stable material.
Lens PMMA with SiO coating for retro reflective type
 Oil, scratch resistant. Water repellent and anti-static.

Gasket (FKM), cable (PVC)
 Chemical, oil resistant and flexible.

Longest sensing distance in the class

High brightness LED by 4 element enables longest sensing distance in the class.

4 element LED (A InGaP-LED)



Through beam type
 Sensing distance: 30m



Retro reflective type
 Sensing distance: 5.5m



Diffuse type
 Sensing distance: 80mm



Stainless steel housing type Z-M series

Specifications

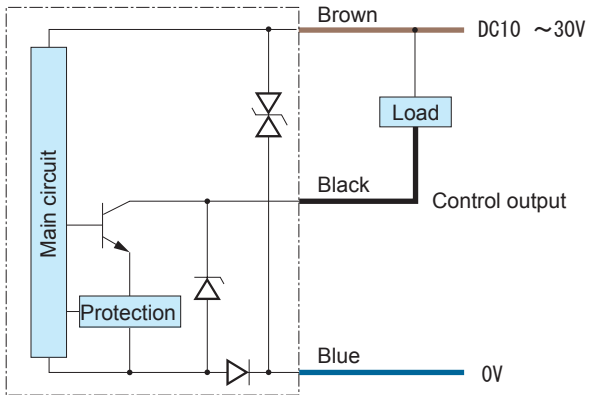
Type	Through beam	Retro reflective	Diffuse
Part number	ZT-M3000N	ZR-M550N	ZD-M80N
Sensing distance	30m	0.01~5.5m ^{※1}	0~800mm ^{※2}
Light source	4 element red LED		
Spot size	φ 1200mm at 30m	φ 300mm at 5.5m	φ 40mm at 800mm
Response time	250 μs max.		
Hysteresis	—	—	20% max.
Sensitivity adjustment	1 turn potentiometer		
Indicator	Red LED: output, Green LED: stable, Emitter of thru-beam type doesn't have indicator		
Control output	NPN (PNP) Open collector, Max.100mA/DC30V		
Operating mode	Light ON/Dark ON selectable by switch		
Cable	Cable length: 2m, φ 4		
Power supply	DC10~30V including 10% ripple		
Power consumption	Emitter:15mA max. Receiver:15mA max.	18mA max.	18mA max.
Conformity	CE Feilen Level 3		
Operating temp./humid.	-25~+55°C no condensation / 35~85%RH		
Environmental illuminance	Sunlight: 10,000 lux max. Incandescent lamp: 3,000 lux max.		
Vibration resistance	10~55Hz double amplitude 1.5mm X, Y, Z 2hours		
Shock resistance	100G (1000m/s ²) X, Y, Z 3times		
Protection category	IEC :IP67 DIN :IP69K	IEC :IP67 DIN :IP69K Reflector is IP67	IEC :IP67 DIN :IP69K
Material	Housing: SUS316L Top cover: PES Lens: PPSU Switch, Pot: PEEK Cable: PVC Gasket: FKM	Housing: SUS316L Top cover: PES Lens: PMMA Switch, Pot: PEEK Cable: PVC Gasket: FKM	Housing: SUS316L Top cover: PES Lens: PPSU Switch, Pot: PEEK Cable: PVC Gasket: FKM
Weight	Approx. 20g excluding cable		
Accessory	Mounting bracket:BEF-W100B	Mounting bracket:BEF-W100B Reflector: V-61	Mounting bracket:BEF-W100B

※1. With V-61

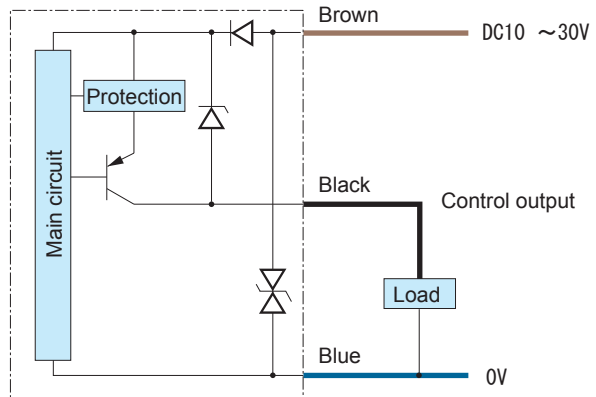
※2. With 200mm x 200mm white paper

Input/Output Diagrams

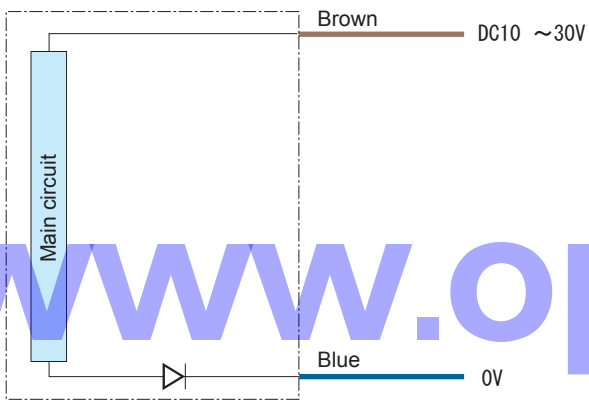
■ NPN type



■ PNP type



■ Through beam emitter



Notes

- When using switching regulator for power supply, please connect frame ground to earth ground.
- Wiring close to high voltage or power line to motors may cause malfunction because of inductive noise. Please wire separated from those lines.
- Please wait around 100msec before use sensor output after power up.

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Stainless steel housing type Z-M series

Dimensions

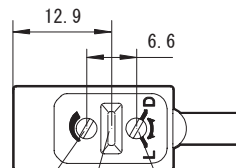
Unit: mm

Sensor

- Through beam
Emitter



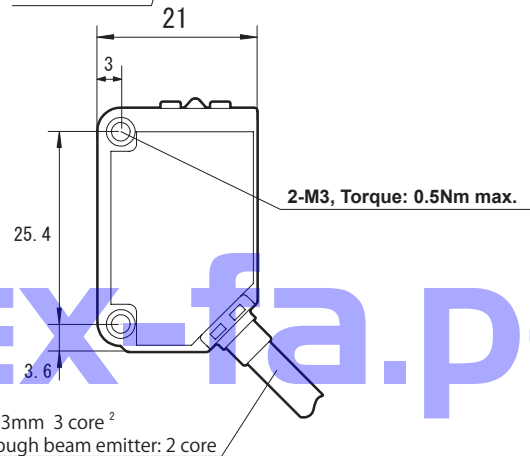
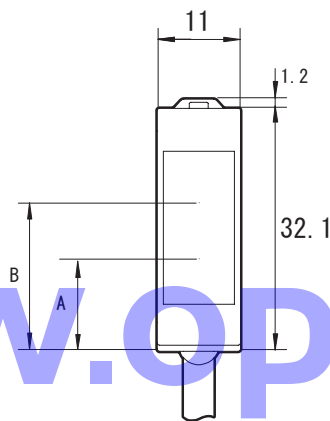
- Through beam
Receiver
- Diffuse type
- Retro reflective
type



Sensitivity
adjustment pot.

Switch
Light ON / Dark ON

Red LED: output
Green LED: stable



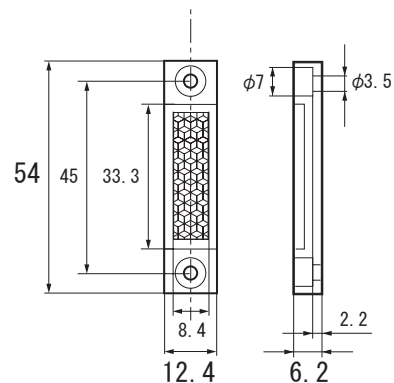
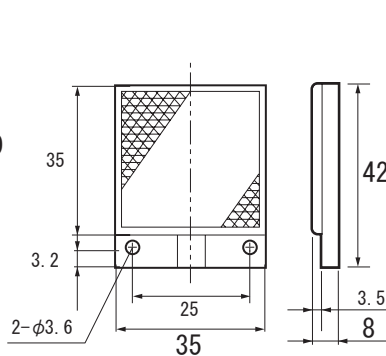
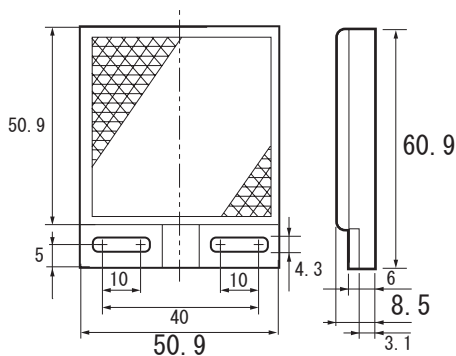
Type	A Light axis	B Light axis
Through beam	19.6	19.6
Diffuse	12.2	19.1
Retro reflective		19.6

Reflector

■ V-61 Bundled with retro reflective type

■ V-42

■ P45A



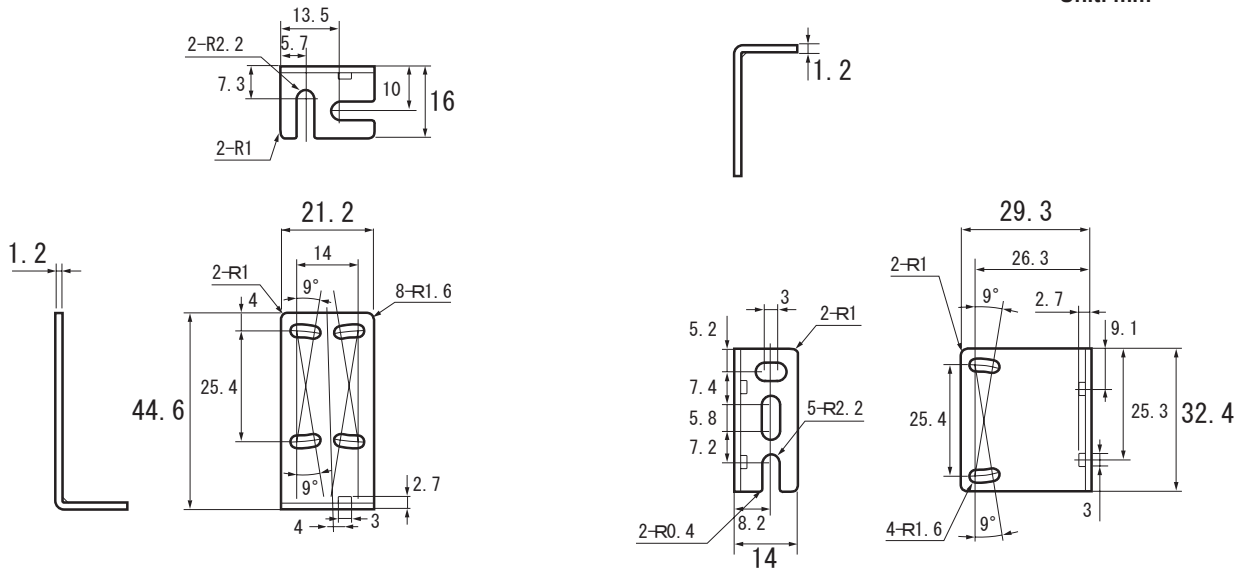
Stainless steel housing type Z-M series

Mounting bracket

■ BEF-W100-B Bundled with sensor

■ BEF-W100-A

Unit: mm

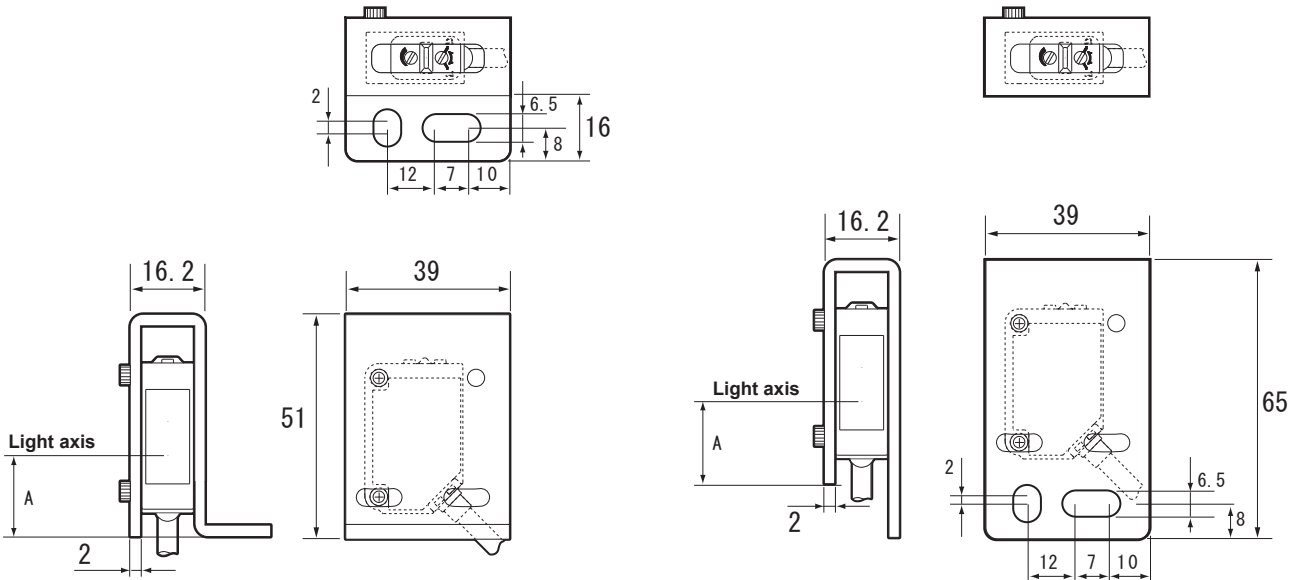


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Protective mounting bracket

■ LK-S01

■ LK-S02

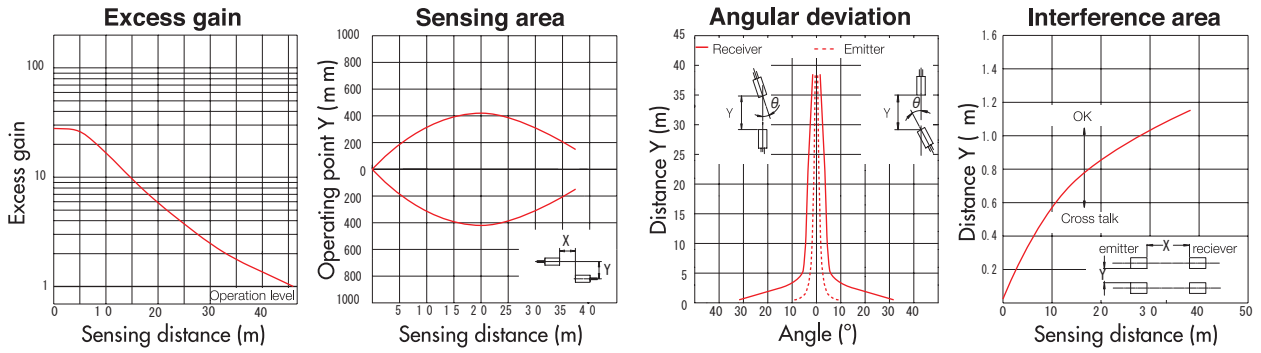


Type	A Light axis
Through beam	26.6
Diffuse Retro reflective	19.2

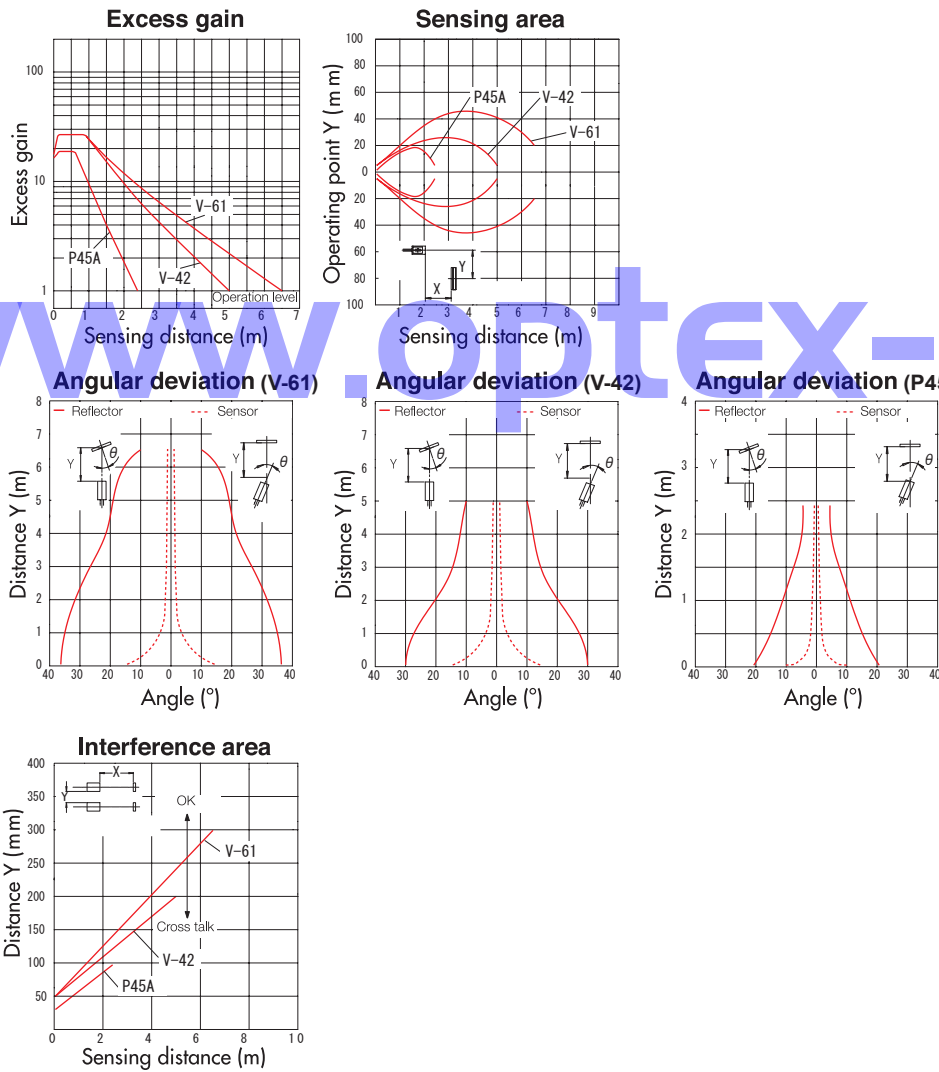
Stainless steel housing type Z-M series

Typical characteristic data

ZT-M3000N



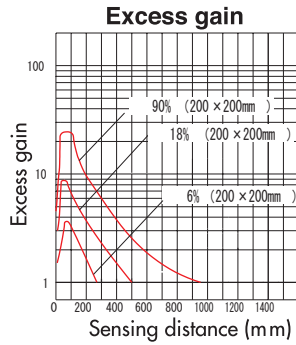
ZR-M550N



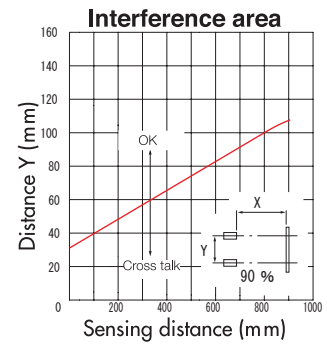
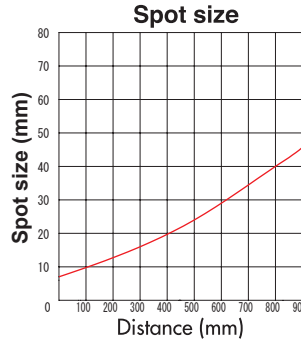
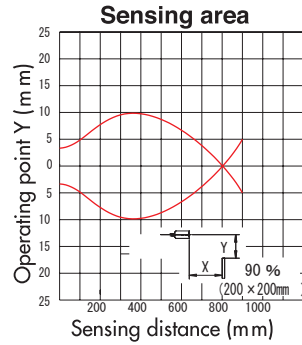
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Stainless steel housing type Z-M series

ZD-M80N



90%: White paper
18%: Gray paper
6%: Black paper



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