

Photoelectric Sensor ZM Series



Instruction Manual

- ZD-M80 □□□□
- ZR-M550 □□□□
- ZT-M3000 □□□□
- BGS-ZM10 □□□□
- BGS-ZM30 □□□□

- Thank you for purchasing the photoelectric sensor ZM Series. Please check the package and the contents before use.
- Carefully read the instruction manual to ensure correct operation of the product.
- Keep the instruction manual for future reference.

Specification

Detection system		Thru-beam type	Retro reflective type	Diffuse reflective type	BGS reflective type	
Model	2m Cable	ZT-M3000N	ZR-M550N	ZD-M80N	BGS-ZM10N	BGS-ZM30N
		ZT-M3000P	ZR-M550P	ZD-M80P	BGS-ZM10P	BGS-ZM30P
	M8 Connector	ZT-M3000CN4	ZR-M550CN4	ZD-M80CN4	BGS-ZM10CN4	BGS-ZM30CN4
		ZT-M3000CP4	ZR-M550CP4	ZD-M80CP4	BGS-ZM10CP4	BGS-ZM30CP4
M8(3-Pin) Connector	ZT-M3000CN3	ZR-M550CN3	ZD-M80CN3	BGS-ZM10CN3	BGS-ZM30CN3	
	ZT-M3000CP3	ZR-M550CP3	ZD-M80CP3	BGS-ZM10CP3	BGS-ZM30CP3	
M12 Connector	ZT-M3000N-M12	ZR-M550N-M12	ZD-M80N-M12	BGS-ZM10N-M12	BGS-ZM30N-M12	
	ZT-M3000P-M12	ZR-M550P-M12	ZD-M80P-M12	BGS-ZM10P-M12	BGS-ZM30P-M12	
Detection range *1		30m	0.01 to 5.5m	800mm	20 to 100mm	20 to 300mm
Light source				Visible light red LED		
Spot size		φ1200mm at 30m	φ300mm at 5.5m	φ40mm at 800mm	□ 6mm at 80mm	□ 19mm at 250mm
Supply voltage 10 to 30V DC including Ripple (P-P) 10%						
Current consumption		Transmitter: 15mA max. Receiver: 15mA max.	18mA max.		28mA max.	
Response time		50 μs max.			500 μs max.	
Hysteresis		-		20% max.	3% max. [white paper: 100x100mm]	5% max. [white paper: 100x100mm]
Operating mode Light ON (ON at light entering) / Dark ON (ON at light blocked) switchable						
Control output NPN/PNP Open collector 100mA/ 30V DC max.						
Ambient temp/humidity At operation: -25 to +55° C/35 to 85% RH, At storage: -40 to +70° C/35 to 95% RH (No freeze and condensation)						
Ambient light Sunlight: 10,000 lx max., HF lamp: 3,000 lx max.						
Protection structure *2		IEC standard IP67 / DIN standard IP69K				

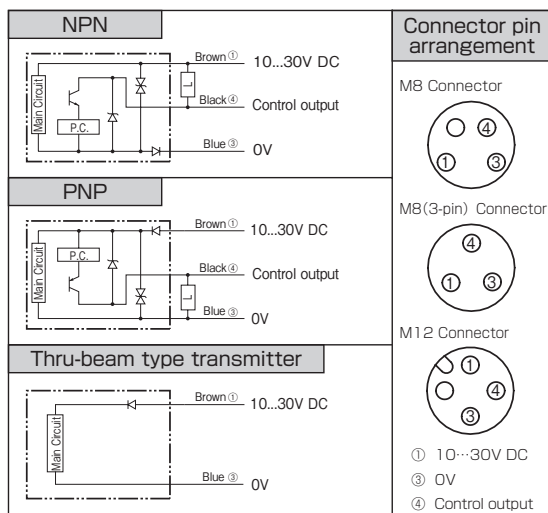
*1 The detection range for each model is as follows: Retro reflective type: with reflector V-61, Diffuse reflective type: with white paper 200x200mm, BGS type: with white paper 100x100mm.
*2 Cable type: IP69K in DIN standard, M8/M12 connector type: IP67 in IEC standard according to connector specification.

CAUTION Safety Precautions

- Wiring and connecting/disconnecting with the power ON is dangerous. Ensure the work with the power OFF.
- Avoid the following places for use of the product.
 1. Place of much dusts
 2. Place generating a corrosive gas
 3. Place of direct vibration and/or shock
 4. Place of direct sunlight
 5. In water, outdoor
- This product is not explosion-proof type. Do not use the product near flammable, explosive gases or liquids.
- Keep sensor cables away from electric cables or power cables. Same wiring may generate induction, causing malfunction and/or breakage.
- In using a switching regulator, ensure correct grounding of frame ground terminal (FG).
- It takes 100ms for the sensor to become ready for detection after the power is on. Use the sensor after 100ms passed from power ON.
- Ensure to use the product under the rated voltage. Provide a safety measure such as safety circuit which can minimize a supposed risk when breakage should occur.
- Some using condition may cause high temperature in sensor surface, which may cause burns. Even low temperatures may cause burns; do not touch with bare hands.
- Avoid use of cleaning agent of high concentration, organic solvent, water spray of higher pressure than standard, for they deteriorate the protection structure of product.
- Never disassemble, repair or modify the product.

Do not use the product as a safe equipment to protect human body.

Input/Output Circuit

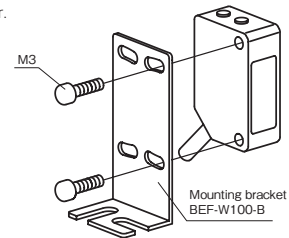


Mounting

- Use the cable extension of 0.3 mm or larger, and 100m or shorter.
- Tightening torque should be 0.5N·m max.

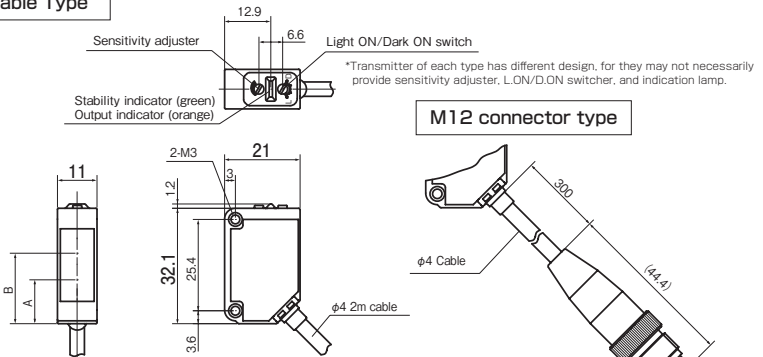
Mounting brackets [Material: SUS]

Model BEF-W100-A	Attached to M8 connector type
Model BEF-W100-B	Attached to cable/M12 connector type



Dimensional outlines

Cable Type



Transmitting center (A)/Receiving center (B)

Detection system	A	B
Thru-beam type	19.6	19.6
Diffuse reflective type	12.2	19.1
Retro reflective type	10.7	19.6
BGS type(BGS-ZM10)	10.7	18.5...20.2
BGS type(BGS-ZM30)	10.7	18.5...20.5

- The product specifications are improved without notice.
- For inquiries/comments on the product, contact us to the following address:

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