Ramco Innovations 800-280-6933 www.ramcoi.com

Photoelectric Sensor

Z SERIES

- ZT- 1200 □□□ - □
- ZR- 350 □□□ - □
- ZD- 70 □□□ - □
- ZD- L09 □□□ - □
- ZD- W20 □□□ - □
- ZR- Q200 □□□ - □
- ZR- X250 □□□ - □
- ZR-QX200 □□□ - □
- BGS-Z □□□ - □

INSTRUCTION MANUAL

- Confirm if the item meets your needs.
- Before the use, you should first thoroughly read this manual and operate correctly as mentioned.
- You should keep this manual at hand for proper use.

Carefully read and understand the safety precautions before operation. The important information is provided to protect your health and property. Do not apply any other installing or operating procedure other than that described in this manual.

Safety Precautions

CAUTION

- It is dangerous to wire or attach/remove the connector with the power on. Make sure to turn off the power before operation.
- Make sure to use the product with the protective cover attached and closed.
- Installing in the following places may result in malfunction:
  1. A dusty or steamy place
  2. A place generating corrosive gas
  3. A place directly receiving scattering water or oil.
  4. A place suffered from heavy vibration or impact.
- The product is not designed for outdoor use.
- Do not use the sensor in transient state after power on (approx. 100 ms).
- Do not wire with the high voltage cable or the power line. Failure to do this will cause malfunction by induction or damage.
- The sensor performance or digital display values may depend on the individual units or the condition of detected product.
- This product is not an explosion-proof construction. Do not use the product under flammable, explosive gas or liquid environment.
- Do not use the product in water.
- Do not disassemble, repair, or convert the product. Failure to do this may cause failure, fire, or electric shock.
- Operate within the rated range.

This product cannot be used as a safety device to protect human body.

SPECIFICATION

	Through beam		Retro ref.	Diffused ref.	Limited range	Wide angle(divergent)
Cable type	ZT-1200(N,P)(D)(-B)	ZT-1200(N,P)IR	ZR-350(N,P)(D)(-B)	ZD-70(N,P)(-B)	ZD-L09(N,P)(-B)	ZD-W20(N,P)
Connector type	ZT-1200C(N,P)(D)(-B)	ZT-1200C(N,P)IR	ZR-350C(N,P)(D)(-B)	ZD-70C(N,P)(-B)	ZD-L09C(N,P)(-B)	ZD-W20C(N,P)
Detecting distance	12m		0~3.5m(V-61)	0~70cm	10~90mm	1~200mm※1
Light Source	Red LED	IR LED	Red LED			
Spot size	φ1.5m/at 12m		φ350mm/at 3.5m	φ100mm/at 700mm	φ12mm/at 90mm	φ30mm/at 50mm
Supply voltage	DC10~30V Including ripple (P−P) 10%					
Current consumption	Sender : 20mA max.		20mA max.			
	Receiver : 15mA max.					
Response time	500μs max.					
Control output	NPN/PNP Open collector 100mA max./DC30V					
Operation mode	Light ON, Dark ON Selectable by switch or Dark ON fixed("-D"type)					
Sensitivity adjustment	1 turn volume/Not equippend("-D"type)					
Indicator	Output indicator(orange LED)/Stable indicator(green LED)					
Ambient temp./humidity	−25~55℃/35~85%RH					
protection category/material	IP67/Case : ABS (glass included) Front cover, Lens : PMMA					

	Transparent objects	Retro Coax.	Retro Coax. Transparent	BGS	
Cable type	ZR-Q200(N,P)(-B)	ZR-X250(N,P)	ZR-QX200(N,P)	BGS-Z10(N,P)	BGS-Z30(N,P)
Connector type	ZR-Q200C(N,P)(-B)	ZR-X250C(N4,N3,P4,P3)	ZR-QX200C(N4,N3,P4,P3)	BGS-Z10C(N,P)	BGS-Z30C(N,P)
Detecting distance	0.01~2m(V-61)	0~2.5m(V-61)	0~2m(P250F)	5~100mm※2	10~300mm※2
Light Source	Red LED				
Spot size	φ300mm/at 2m	φ60mm/at 2m		φ10mm/at 100mm	φ30mm/at 300mm
Supply voltage	DC10~30V Including ripple (P−P) 10%				
Current consumption	20mA max.			30mA max.	
Response time	500μs max.	250μs max.	500μs max.		
Control output	NPN/PNP Open collector 100mA max./DC30V				
Operation mode	Light ON, Dark ON Selectable by switch				
Sensitivity adjustment	1 turn volume			4 turn(endless)	
Indicator	Output indicator(orange LED)Stable indicator(green LED)		Output indicator(orange LED)	Output indicator(orange LED)/Stable indicator(green LED)	
Ambient temp./humidity	−25~55℃/35~85%RH				
protection category/material	IP67/Case : ABS (glass included) Front cover, Lens : PMMA				

'D' in the type : Sensitivity adjustor is not equipped and dark on fixed.

'-B' in the type : Without accessories. (bracket, reflector)

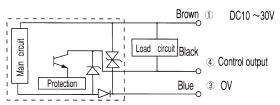
'N4' 'P4' is 4pin type. 'N3' 'P3' is 3pin type

※1 White90% 250×200mm

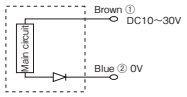
※2 White90% 100×100mm

INPUT AND OUTPUT CIRCUIT DIAGRAMS

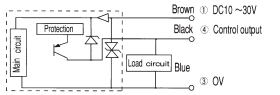
NPN type



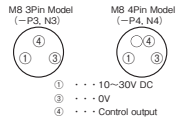
Through beam emitter



PNP type

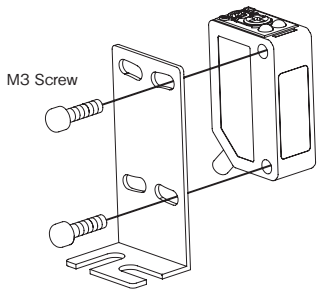


Connector pin No.



Attachment

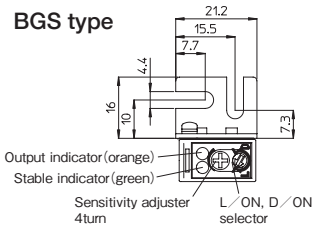
Tightening torque need to be under 0.5N•m.



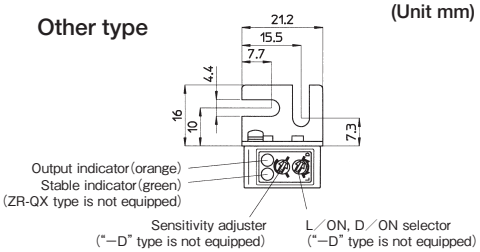
DIMENSIONS

(Unit mm)

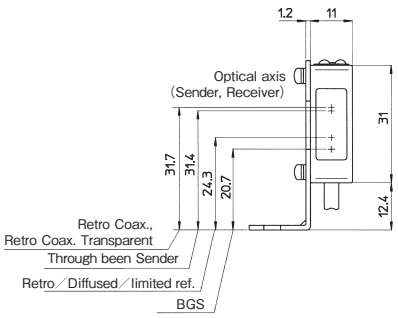
BGS type

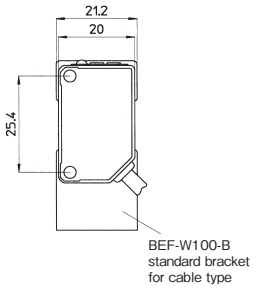


Other type

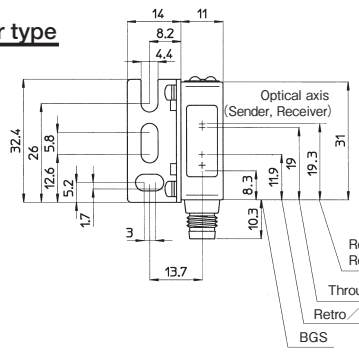


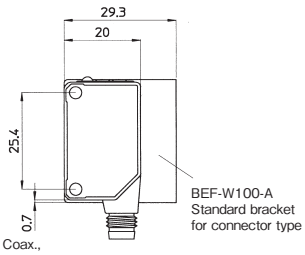
Cable type





Connector type





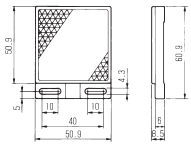
Adjusting the potentiometer

①	A	①Set the detectable object at the detection position and turn the potentiometer from MIN toward MAX until the output indicator(orange) light up. Call it position A.
②	B	②Remove detectable object and turn the potentiometer from MAX toward MIN position where the output indicator(orange) is extinguished. Call it position B.
③	A C B	③Point C midway between A and B is the optimum sensitivity position. The position A and B may reverse by types and detecting situation .

Reflectors

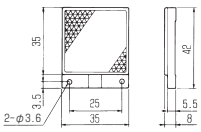
●Type : V-61
Standard for Retro Types except ZR-QX200.

3.5m : ZR-types
2.5m : ZR-X types



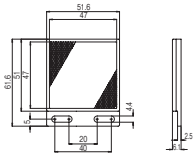
●Type : R250F
Standard for ZR-QX200.

2.0m : ZR-QX200 only



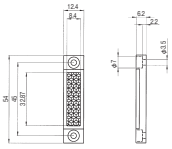
●Type : V-42
Optional reflector for all except ZR-QX200

2.0m : ZR-types
1.5m : ZR-X types



●Type : P45
Optional reflector for all except ZR-QX200

1.2m : ZR-types
0.8m : ZR-X types



! Must not use this item as safety equipment for the purpose of human body protection.

- Specifications and equipment are subject to change without any obligations on the part of manufacture.
- For more information, questions and comments regarding products, please contact us below.

Manufactured and sold by :

OPTEX FA CO., LTD.

Ramco Innovations
800-280-6933 or 515-225-6933
www.ramcoi.com
nsales@ramcoi.com