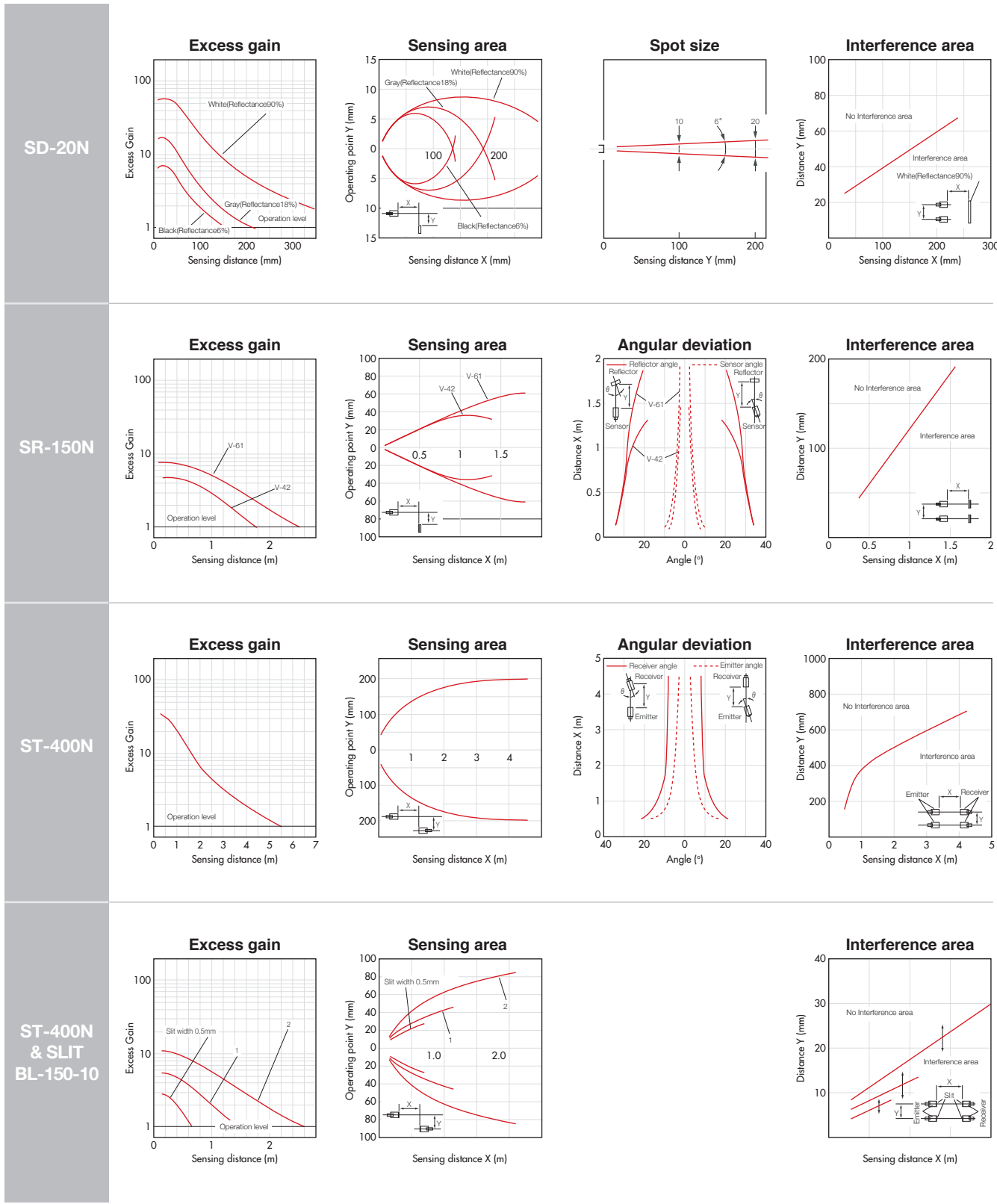


Технические особенности:

- **Миниатюрный размер:** Датчик имеет очень компактные габариты, что позволяет использовать его в ограниченном пространстве.
- **Лазерный источник света:** Использует красный полупроводниковый лазер (класс 2 FDA, 650 нм) для формирования тонкого и четкого светового пятна. Это обеспечивает высокую точность обнаружения мелких объектов.
- **Высокая скорость отклика:** Время отклика составляет 250 мкс (0.25 мс) или менее, что делает его пригодным для высокоскоростных производственных линий.
- **Диффузный тип обнаружения:** Излучатель и приемник находятся в одном корпусе. Датчик обнаруживает объекты по отраженному от них свету.
- **Регулировка чувствительности:** Может иметь однооборотный потенциометр для настройки дальности обнаружения.
- **Выход NPN:** Датчик оснащен выходным каскадом типа NPN.
- **Выбираемый режим работы:** Переключатель режимов Light-ON/Dark-ON (включение при наличии/отсутствии света) для гибкости применения.
- **Надежная конструкция:** Имеет степень защиты IP67, что обеспечивает устойчивость к пыли и влаге, а также высокую ударопрочность (до 50 G).
- **Тип обнаружения:** Диффузное отражение
- **Источник света:** Красный лазерный диод (650 нм)
- **Дальность обнаружения:** До 400 мм (с белой бумагой 100x100 мм) для похожих моделей, точная дальность для ZD-L06N-B может быть меньше.
- **Размер лазерного пятна:** Около $\varnothing$ 2 мм на расстоянии 400 мм.
- **Время отклика:** 250 мкс (0.25 мс) или менее.
- **Напряжение питания:** 10-30 В DC (постоянный ток), включая 10% пульсаций (p-p).
- **Потребление тока:** До 20 мА.
- **Выход:** 1 NPN выход, открытый коллектор, макс. 100 мА / 30 В DC.
- **Режим работы выхода:** Light ON / Dark ON (выбирается переключателем).
- **Индикаторы:** Оранжевый светодиод (индикатор выхода), зеленый светодиод (индикатор стабильности/излучения лазера).
- **Рабочая температура:** От -10°C до +50°C (без замерзания).
- **Влажность:** 35% до 85% RH (без конденсации).
- **Виброустойчивость:** 10-55 Гц, двойная амплитуда 1.5 мм, 2 часа по каждой оси X, Y, Z.

- **Ударопрочность:** Прибл. 50 G (500 м/с^2), 3 раза по каждой оси X, Y, Z.
- **Степень защиты:** IP67.
- **Материал корпуса:** ABS (армированный стекловолокном).
- **Материал передней крышки/линзы:** PMMA.
- **Тип подключения:** Кабель (обычно 2 метра) или коннектор M8.

Reference (typical)



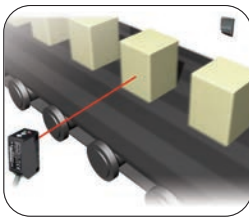
Photoelectric Sensor

Z / BGS-Z series

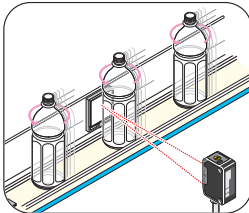


- High Performance, Low Cost! All models offer cost and space savings.
 - ZR-Q series. Ideal for detection of transparent objects! Plastic bottles, film, etc.
 - ZR-X/QX series, Coaxial beam. Sensing through narrow opening is possible!
 - BGS-Z series. High performance in small package!!
- Tough sensor! 100G shock resistance and IP67 ratings.

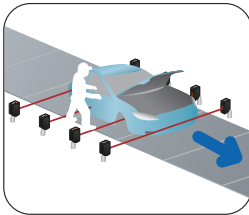
Applications



For material handling (ZR-350)



Beverage industry (ZR-QX200)



Car on the production line (ZT-1200)



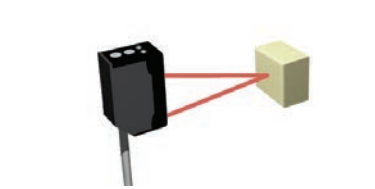
PCB (BGS-Z10N)

Thru-Beam type



ZT-1200N / ZT-1200P
ZT-1200CN / ZT-1200CP

Convergent type



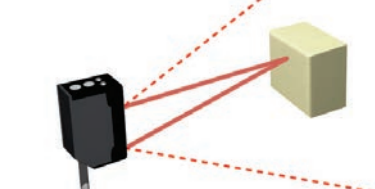
ZD-L09N / ZD-L09P
ZD-L09CN / ZD-L09CP

Retro Reflective type



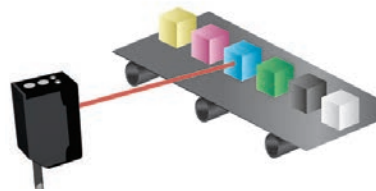
ZR-350N / ZR-350P
ZR-350CN / ZR-350CP

Diffuse type (incl, divergent type)



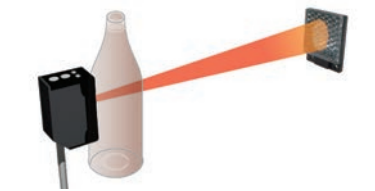
Diffuse
ZD-70N / ZD-70P
ZD-70CN / ZD-70CP
Divergent
ZD-W20N / ZD-W20P
ZD-W20CN / ZD-W20CP

BGS type



BGS-Z30N / BGS-Z30P
BGS-Z30CN / BGS-Z30CP
BGS-Z10N / BGS-Z10P
BGS-Z10CN / BGS-Z10CP

Coaxial LED type



General use
ZR-X250N / ZR-X250P
ZR-X250CN / ZR-X250CP
Transparent objects
ZR-QX200N / ZR-QX200P
ZR-QX200CN / ZR-QX200CP

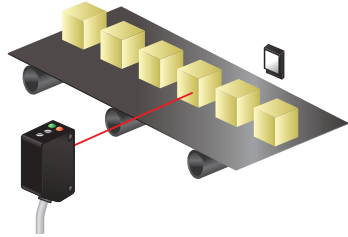
General Purpose

- **100G shock resistance, IP67 ratings. Tough sensor !**
- **ZR-Q series, ideal for detection of PET bottles, transparent objects, etc.**
- **Standard models for cost saving.**

Features

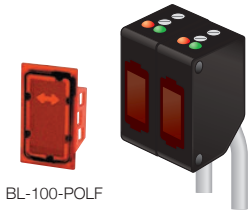
500μsec response

Good for fast moving objects.



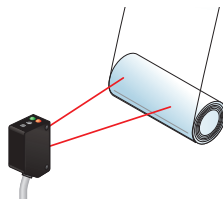
Cross-talk prevention

With built-in cross-talk prevention, it is possible to mount two sensors side-by-side without mutual interference.
(Use part number BL-100-POLF for thru-beam type sensors.)



ZD-W20 wide angle applications

The Divergent type ZD-W20 provides a wide angle beam that can be used to detect transparent film by collecting the reflected light from the material surface.



IP67 rating

Hose it down!
Water-tightness is tested to IP67.



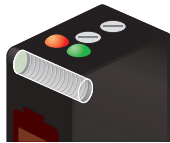
Rugged 100G shock rating

Rigid design for high resistance to mechanical shock



Threaded mounting holes

Prevents sensor from being damaged when it's mounted.



Specifications

Model		Thru-beam	Polarized Retro-reflective	Diffuse-reflective	Convergent	Divergent	Glass detection
Cable type	NPN	ZT-1200N	ZR-350N	ZD-70N	ZD-L09N	ZD-W20N	ZR-Q200N
	PNP	ZT-1200P	ZR-350P	ZD-70P	ZD-L09P	ZD-W20P	ZR-Q200P
M8 Connector type	NPN	ZT-1200CN	ZR-350CN	ZD-70CN	ZD-L09CN	ZD-W20CN	ZR-Q200CN
	PNP	ZT-1200CP	ZR-350CP	ZD-70CP	ZD-L09CP	ZD-W20CP	ZR-Q200CP
Sensing distance		12 m	3.5m (V-61 reflector)	70cm	1-9 cm	1-200 mm	2 m (V-61 reflector)
Response time		0.5 msec					
Spot size		1.5m @ 12 meter	350mm @ 3.5 meter	100mm @ 700mm	12mm @ 90mm	30mm @ 50mm	300mm @ 2 meter
Operating mode		Light On/Dark On selectable					
Hysteresis		NIL		20% Max	10% Max	20% Max	NIL
Light source		Red LED					
Sensitivity adjustment		1-turn trimmer (240 degree)					
Control output		NPN or PNP Open collector, 100mA Max / 30V DC					
Supply voltage		DC 10 - 30V incl. 10% ripple					
Power consumption		20mA Max					
LED Indicator		Dual Indicator (Output : orange, Stable : green)					
Protection category		IP67					
Shock resistance		100G (1,000m/S ²)					
Environmental illuminance		Sunlight : 10,000 lux Max., Incandescent lamp : 3,000 lux max.					
Operating temp/humidity		-25 to 55°C / 35 to 85%RH					
Materials		ABS with glass fiber (Case), PMMA (Lens)					

Retro-Reflective with Coaxial LED

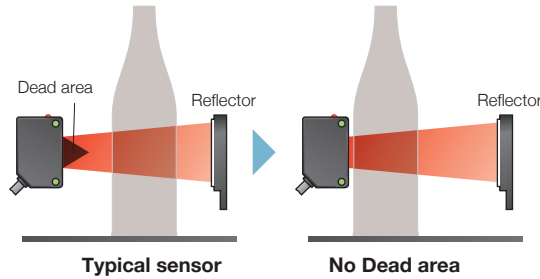
The best for transparent Plastic / Glass detection

- **Coaxial LED source gives extremely tight alignment to the target.**
- **Alignment of sensor is easy thanks to bright projected LED spot.**
- **250 μsec fast response (ZR-X, coaxial beam type)**
- **World's standard model ZR-Q (general type) and ZR-QX (coaxial beam type) for Plastic and Glass applications.**

Features

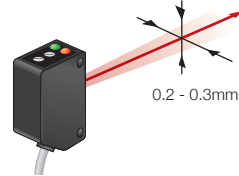
Zero dead area!

The sensor has no dead area in the sensing field. This makes it ideal for use on conveyors where the position of the target changes.



Repeat Accuracy

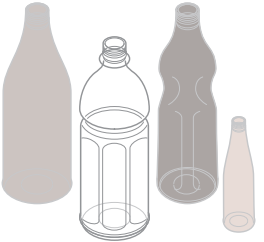
Very tight Repeat Accuracy, 0.2 - 0.3mm for BGS type. Even Thru-beam and Retro types have 0.3mm Repeat Accuracy(*).
*=Tested at the middle point of sensing range.



Good selection of sensors for various types of bottles.

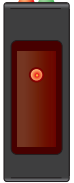
Glass and plastic bottles come in various shapes / sizes and with many different contours which require testing in the field to determine the best sensor for the application.

The Z series is offered with both Co-axial and Conventional LED light sources to provide a solution for the detection of any bottle type.



Coaxial LED

Coaxial LED light source provides extremely tight alignment to the target, Alignment of sensor is very easy thanks to bright projected LED spot.



Specifications

Model		Retro Reflective for Transparent				Polarized Retro-reflective (Coaxial Beam)	
		General Use		Coaxial Beam			
		2m Cable	M8QD 4pin	2m Cable	M8QD 4pin	2m Cable	M8QD 4pin
Type	NPN	ZR-Q200N	ZR-Q200CN	ZR-QX200N	ZR-QX200CN4	ZR-X250N	ZR-X250CN4
	PNP	ZR-Q200P	ZR-Q200CP	ZR-QX200P	ZR-QX200CP4	ZR-X250P	ZR-X250CP4
Sensing distance		0.01 - 2 meter (V-61 reflector)		0 - 2 meter (P250F reflector)		0 - 2.5 meter (V-61 reflector)	
Response time		0.5 msec				250μs	
Spot size		φ300mm / at 2m		φ60mm / at 2m		φ60mm / at 2m	
Operating mode		Light On / Dark On selectable					
LED Indicator		Output : orange, Stable : green		Output : orange		Output : orange, Stable : green	
Light source		Red LED					
Sensitivity adjustment		1-turn pot.					
Control output		NPN or PNP open collector, 100mA max / DC30V					
Supply voltage		DC 10 - 30V, including 10% ripple					
Power consumption		20mA max					
Protection category		IP 67					
Shock resistance		100G (1,000m/S ²)					
Environmental illuminance		Sunlight : 10,000 lux max., Incandescent lamp : 3,000 lux max					
Operating temp/humidity		-25 to 55°C/ 35 to 85% RH					
Materials		ABS(Case), PMMA(Lens)					

"M8-QD in 3 pins for European machines " are available with extension code of -CN(P)3, for instance, "ZR-QX200CN3".

BGS - LED Type

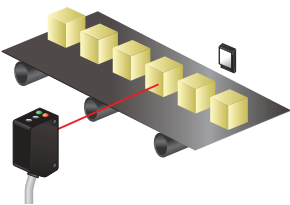
General purpose applications

- **BGS (Background Suppression Type) Sensors are not influenced by the background, available with conventional LED light source.**

Features

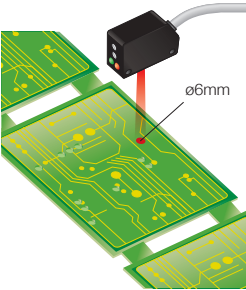
500μsec response

Good for fast moving objects.



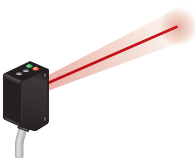
Large projected spot size

The LED version of the BGS sensors projects a large 6 mm spot that will not be affected by small holes in a PC board. For PC boards that may have larger holes, the BGS-Z30 has an 18 mm projected spot size.



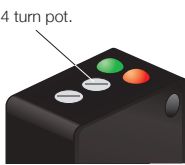
High power narrow beam LED

LED beam spot can be seen easily even in bright environment that helps installation.



4 Turn adjustment pot.

A four turn adjustment pot. is built-in for precise adjustment of the sensing distance. The potentiometer has a slip clutch that protects it from damage when it is turned past the end.



Specifications

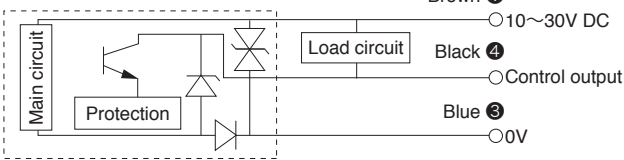
Model		long distance		short distance	
		2m Cable	M8QD 4pin	2m Cable	M8QD 4pin
Type	NPN	BGS-Z30N	BGS-Z30CN	BGS-Z10N	BGS-Z10CN
	PNP	BGS-Z30P	BGS-Z30CP	BGS-Z10P	BGS-Z10CP
Adjustable distance		50 - 300 mm (*1)		20 -100 mm (*1)	
Sensing distance		10 - 300 mm (*1)		5 -100 mm (*1)	
Response time		500μs			
Spot size		φ30mm / 300mm		φ10mm / 100mm	
Hysteresis (white to white)		5%		3%	
Operation mode		Light On / Dark On selectable			
LED Indicator		Output : orange, Stable : green			
Light source		Red LED			
Sensitivity adjustment		4-turn, endless pot.			
Control output		NPN or PNP open collector, 100mA max / DC30V			
Supply voltage		DC 10 - 30V, including 10% ripple			
Power consumption		30mA max			
Protection category		IP 67			
Shock resistance		100G (1,000m/S ²)			
Environmental illuminance		Sunlight : 10,000 lux max., Incandescent lamp : 3,000 lux max			
Ambient temp / humidity		-25 to 55°C / 35 to 85% RH			
Materials		ABS(Case), PMMA(Lens)			

"M8-QD in 3 pins for European machines " are available with extention code of -CN(P)3, for instance, "ZR-QX200CN3".

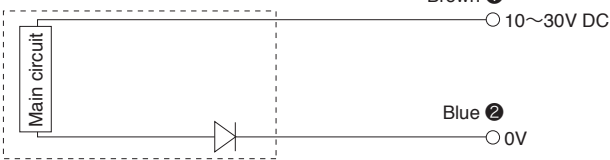
*1 white paper 100 X 100mm

Circuit diagram

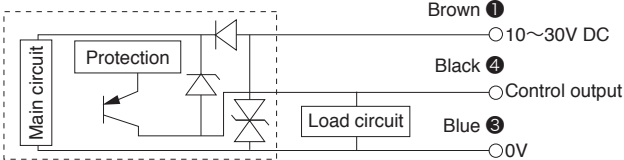
NPN output



Emitter of Thru-beam type

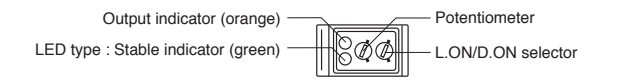


PNP output

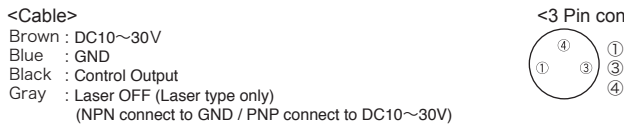
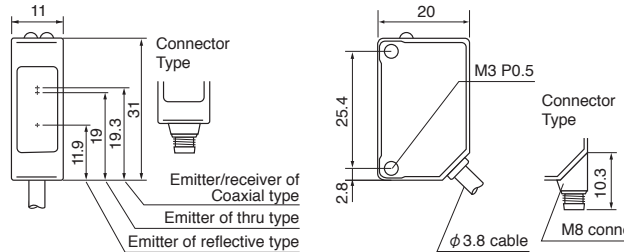


Dimensions

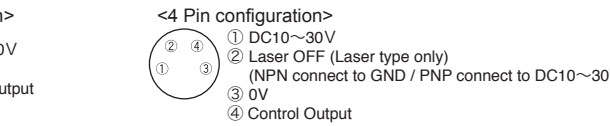
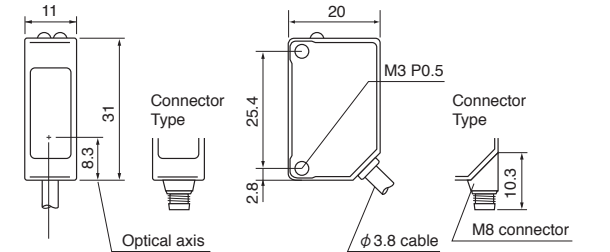
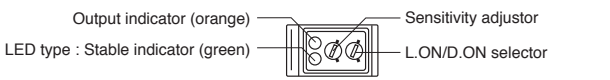
General Use Type except BGS



Remark : ZR-QX type (coaxial beam for transparent detection) has single LED (orange for output indicator).

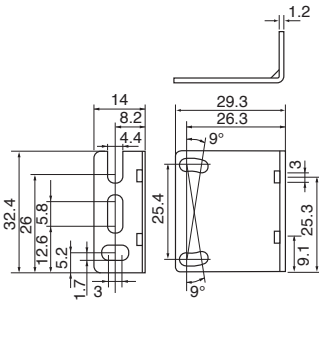


BGS Type



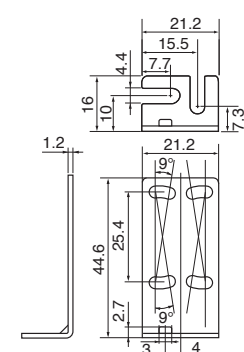
Standard bracket BEF-W100-A

Accessory for M8 QD type sensors

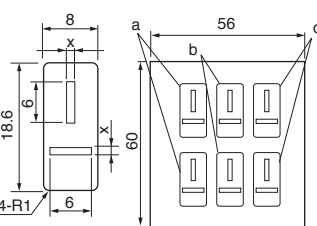


Standard bracket BEF-W100-B

Accessory for cabled type sensors

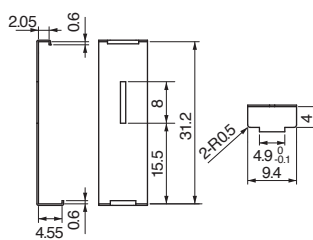


Slit mask BL-160-SK (for Thru-beam type)



Type	Size	Attached to	Object size (Min)	Scanning range
Slit a	0.5mm	Receiver, Emitter	0.4mm	0.8mm
Slit b	1mm	Receiver, Emitter	0.6mm	2.5mm
Slit c	2mm	Receiver, Emitter	1.5mm	5mm

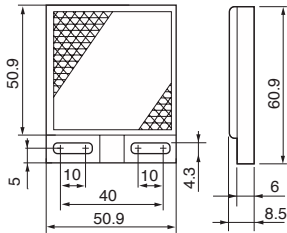
Metal (SUS) Slit mask BL-100-M1 (for Thru-Beam Type)



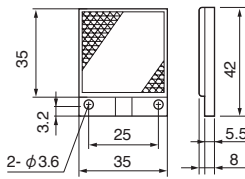
(Unit : mm)

Reflectors for LED Type

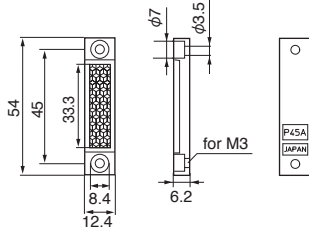
Standard reflector V-61
(Standard, LED type)



Small reflector V-42
(Optional, LED type)

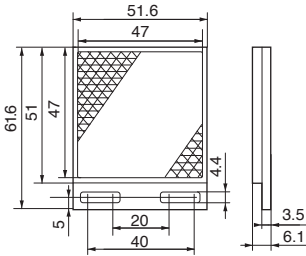


Tiny reflector P45A
(Optional, LED type)

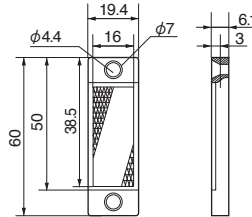


Reflectors for Coaxial LED Type

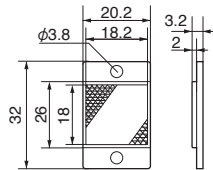
P250F
(Standard,ZR-QX200)



PL20F
(Optional)



PL10F
(Optional)



Detection distance by reflectors

	P250F	PL20F	PL10F
ZR-QX	4.0	2.8	1.0

(Unit : meter)

Options

Standard reflector V-61
(Except ZR-QX200)



P250F (ZR-QX200,standard)



JCN-S : M8 Straight type



JCN-S : 2 meter
JCN-5S : 5 meter
JCN-10S : 10 meter

Small reflector V-42



PL20F (Optional)



JCN-L : L-shape M8 type



JCN-L : 2 meter
JCN-5L : 5 meter
JCN-10L : 10 meter

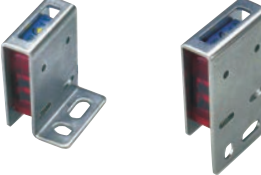
Tiny reflector P45A



PL10F (Optional)



Protective mounting brackets
LK-S01 LK-S02

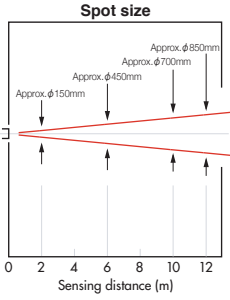
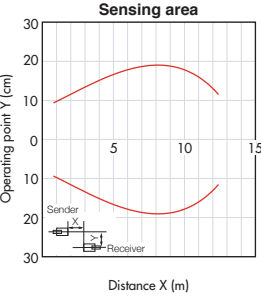
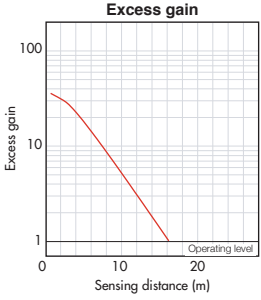


BL-100-POLF: Cross-talk
prevention filter for ZT-1200

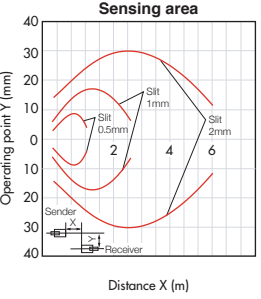
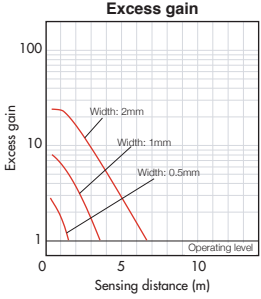


Reference (typical)

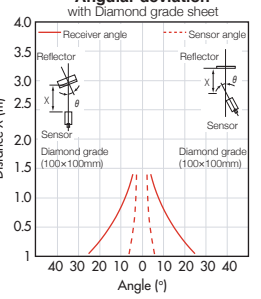
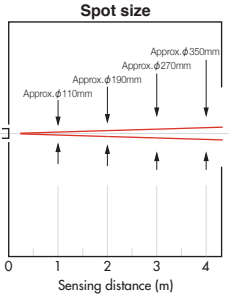
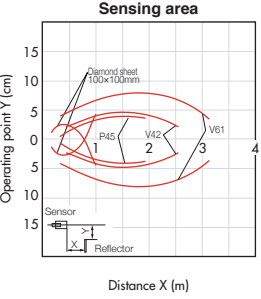
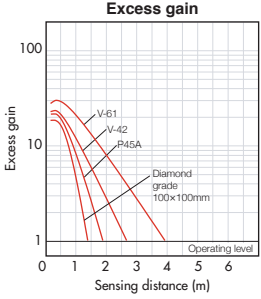
ZT-1200



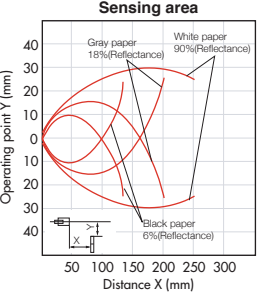
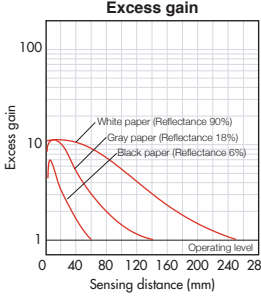
ZT-1200 & SLIT



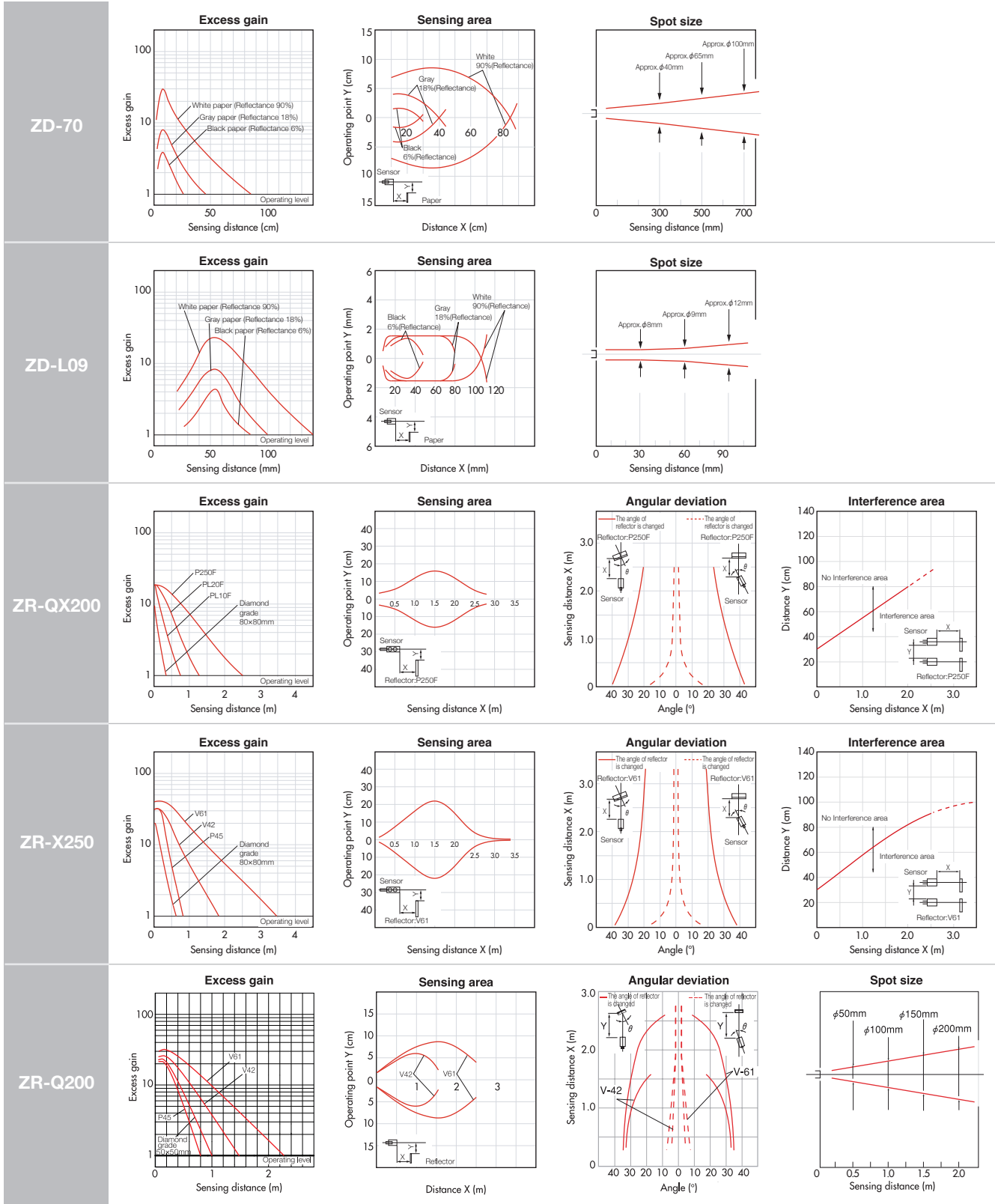
ZR-350



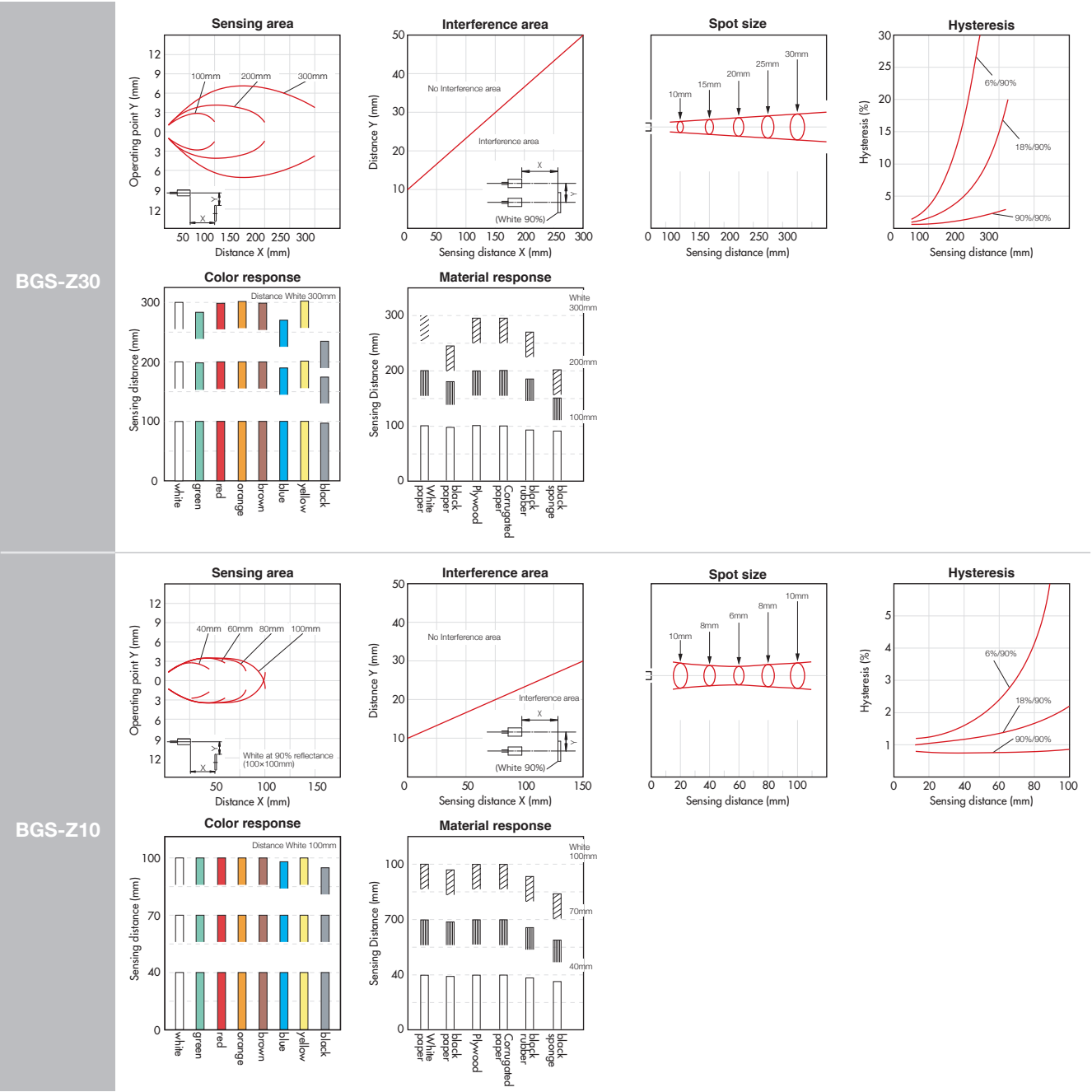
ZD-20W



Reference (typical)



Reference (typical)



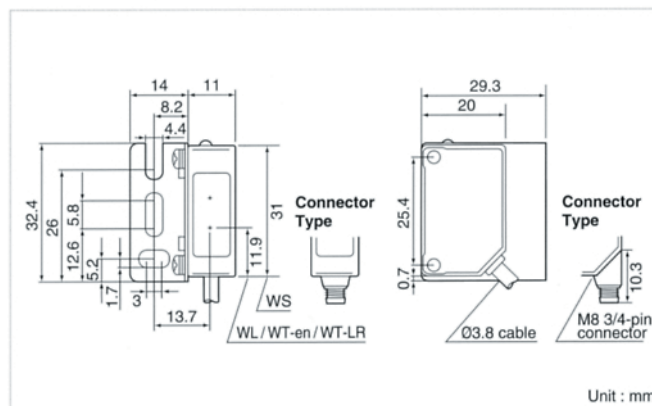
Z series

Standard sensor with up-to-date functions and 12 meter scanning distance. 100G mechanical resistance generally applicable to tough uses.



■ Cable type
■ Connector type

Dimensions



Specifications

Type			Z Series				
			Thru-beam	Retro-reflective	Diffuse reflective	Convergent beam	Transparent Detection
Model Number	Cable Type	NPN	ZT-1200N	ZR-350N	ZD-70N	ZD-L09N	ZR-Q200N
		PNP	ZT-1200P	ZR-350P	ZD-70P	ZD-L09P	ZR-Q200P
	M8 QD Type	NPN	ZT-1200CN	ZR-350CN	ZD-70CN	ZD-L09CN	ZR-Q200CN
		PNP	ZT-1200CP	ZR-350CP	ZD-70CP	ZD-L09CP	ZR-Q200CP
Sensing Range			12 meter	3.5 meter	700 mm	10 - 90 mm	2 meter
Hysteresis			-----	-----	20% max.	10% max.	-----
Supply Voltage			10 ~ 30 VDC incl. 10% ripple				
Current Consumption			20 mA max.				
Response Time			0.5 msec.				
Control Output			NPN or PNP Open Collector Transistor, 100 mA / 30 VDC Max.				
Operation Mode			Selectable Light-On or Dark-On operation				
Light Source			Red LED				
Sensitivity Adjustment			Single turn potentiometer				
Regulation			JIS/C4525, CE, CUL, VDE				
Indicators			Single Output Indicator				
IP Protection			IEC 144 IP67, VDE level 3				
Shock Resistance			100 G (1,000 m/s), X-Y-Z 3 ways				
Environment Illuminance			Sunlight: 10,000 lux, Incandescent Lamp: 3,000 lux				
Material			ABS case, PMMA lens				
Accessories			Mounting brackets	Mounting bracket Reflector # V-61	Mounting bracket		Mounting bracket Reflector # V-61

Note: Cables are not included with the QD sensor, please order separately.