




Standard M18 Threaded Type Sensor

- Selectable metal or plastic enclosure
- Rich lineup of over 100 variations

Related products

Long-range detection
C-R
 ● P.224



Industry standard size
Z3
 ● P.148



Selection table

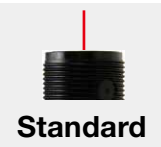
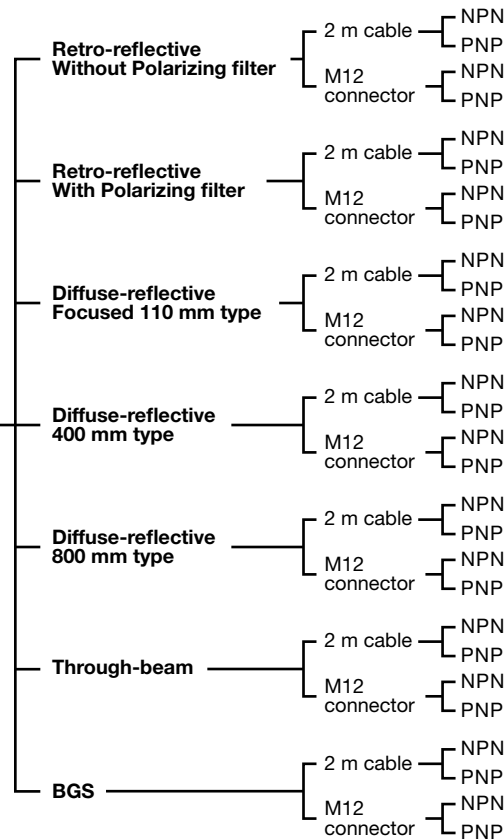


Plastic housing

				Standard	Angle 90°
Plastic housing	Retro-reflective Without Polarizing filter	2 m cable	NPN	C2RP-350N	C2RP-S350N
			PNP	C2RP-350P	C2RP-S350P
		M12 connector	NPN	C2RP-350CN	C2RP-S350CN
			PNP	C2RP-350CP	C2RP-S350CP
	Retro-reflective With Polarizing filter	2 m cable	NPN	C2RP-F400N	C2RP-SF400N
			PNP	C2RP-F400P	C2RP-SF400P
		M12 connector	NPN	C2RP-F400CN	C2RP-SF400CN
			PNP	C2RP-F400CP	C2RP-SF400CP
	Diffuse-reflective Focused 110 mm type	2 m cable	NPN	C2DP-11N	C2DP-S11N
			PNP	C2DP-11P	C2DP-S11P
		M12 connector	NPN	C2DP-11CN	C2DP-S11CN
			PNP	C2DP-11CP	C2DP-S11CP
Diffuse-reflective 400 mm type	2 m cable	NPN	C2DP-40N	C2DP-S40N	
		PNP	C2DP-40P	C2DP-S40P	
	M12 connector	NPN	C2DP-40CN	C2DP-S40CN	
		PNP	C2DP-40CP	C2DP-S40CP	
Diffuse-reflective 800 mm type	2 m cable	NPN	C2DP-80N	C2DP-S80N	
		PNP	C2DP-80P	C2DP-S80P	
	M12 connector	NPN	C2DP-80CN	C2DP-S80CN	
		PNP	C2DP-80CP	C2DP-S80CP	
Through-beam	2 m cable	NPN	C2TP-2000N	C2TP-S2000N	
		PNP	C2TP-2000P	C2TP-S2000P	
	M12 connector	NPN	C2TP-2000CN	C2TP-S2000CN	
		PNP	C2TP-2000CP	C2TP-S2000CP	
BGS	2 m cable	NPN	BGS-CP30N	-	
		PNP	BGS-CP30P	-	
	M12 connector	NPN	BGS-CP30CN	-	
		PNP	BGS-CP30CP	-	



Metal housing



Standard

C2RM-350N	C2RM-350P	C2RM-350CN	C2RM-350CP
C2RM-F400N	C2RM-F400P	C2RM-F400CN	C2RM-F400CP
C2DM-11N	C2DM-11P	C2DM-11CN	C2DM-11CP
C2DM-40N	C2DM-40P	C2DM-40CN	C2DM-40CP
C2DM-80N	C2DM-80P	C2DM-80CN	C2DM-80CP
C2TM-2000N	C2TM-2000P	C2TM-2000CN	C2TM-2000CP
BGS-CM30N	BGS-CM30P	BGS-CM30CN	BGS-CM30CP



Angle 90°

C2RM-S350N	C2RM-S350P	C2RM-S350CN	C2RM-S350CP
C2RM-SF400N	C2RM-SF400P	C2RM-SF400CN	C2RM-SF400CP
C2DM-S11N	C2DM-S11P	C2DM-S11CN	C2DM-S11CP
C2DM-S40N	C2DM-S40P	C2DM-S40CN	C2DM-S40CP
C2DM-S80N	C2DM-S80P	C2DM-S80CN	C2DM-S80CP
C2TM-S2000N	C2TM-S2000P	C2TM-S2000CN	C2TM-S2000CP
-	-	-	-

Options/Accessories

Reflector

Standard
V-61
 60.9 x 50.9 mm
 Sensing distance:
 C2R□-350□
 Red LED: 0.01 to 4 m
 Infrared LED: 0.01 to 3.5 m

Small type
V-42
 42 x 35 mm
 Sensing distance:
 C2R□-350□
 Red LED: 0.01 to 3 m
 Infrared LED: 0.01 to 2.5 m

Vertical type
P45A
 54 x 12.4 mm
 Sensing distance:
 C2R□-350□
 Red LED: 0.01 to 1.2 m
 Infrared LED: 0.01 to 1 m

QD connector

L-shaped
DOS-1204-W
 *Cable not included.

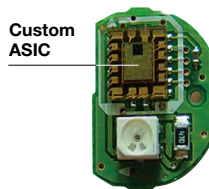
Straight
DOS-1204-G
 *Cable not included.

Features

Custom ASIC with Power Circuit

The electronic circuit consists mainly of Optex FA's custom ASIC with only 27 electronic components.

The ASIC contains power circuit and this helps to avoid defects by electric damage from the power line.



Potentiometer of Silicon plastic for high durability against chemical impact.

The potentiometer is tightly sealed against water with IP67 rating.

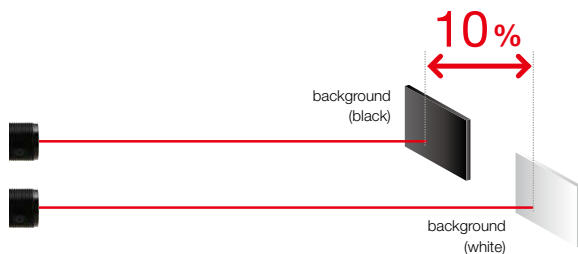
Silicon plastic potentiometer is the best solution against water, oil, chemical and environmental heat.



Silicon plastic

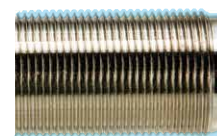
Hysteresis of Max 10%. Between black/white colors.

Between black/white colors, hysteresis is Max at 10% (Diffuse type). C2DM-11 gives a sensing distance of 110 mm for white object and 90 mm for black object.



Nickel coating of 20 μ thickness for anti-rust solution.

Metal type consists of brass-nickel housing with extra nickel coating of 20 μ thickness. This coating is done for the external and internal of the housing. It helps protect the metal housing against rust.



Nickel coating

Durable to 70 N (7 kg) of tension

The cable is firmly fixed to the internal circuit board so that it can withstand pulling tension of up to 70 N (7 kg).



Easy Alignment and installation

Ample sensing area provides easy alignment when installing the through-beam sensor. For instance, there is an allowance of 700 mm to align optical axis at 10 m distance. The highly bright LED is visible at long distance as well.



BGS type sensors

BGS type sensors are designed to detect any target regardless of the color and/or background.



Photoelectric Sensors

Specialized Photoelectric Sensors

Laser Displacement Sensors

Sensors with Built-in Amplifier

Z3

Z-M

Z2

E

J

K

S

S2

C-R

C2

PLN

Specifications

Type			Through-beam type	Retro-reflective type	
				With polarizing filter	Without polarizing filter
Standard	Plastic housing	2 m Cable	C2TP-2000(N,P)	C2RP-F400(N,P)	C2RP-350(N,P)
		M12 Connector	C2TP-2000C(N,P)	C2RP-F400C(N,P)	C2RP-350C(N,P)
Standard	Metal housing	2 m Cable	C2TM-2000(N,P)	C2RM-F400(N,P)	C2RM-350(N,P)
		M12 Connector	C2TM-2000C(N,P)	C2RM-F400C(N,P)	C2RM-350C(N,P)
Angle (90 degree)	Plastic housing	2 m Cable	C2TP-S2000(N,P)	C2RP-SF400(N,P)	C2RP-S350(N,P)
		M12 Connector	C2TP-S2000C(N,P)	C2RP-SF400C(N,P)	C2RP-S350C(N,P)
	Metal housing	2 m Cable	C2TM-S2000(N,P)	C2RM-SF400(N,P)	C2RM-S350(N,P)
		M12 Connector	C2TM-S2000C(N,P)	C2RM-SF400C(N,P)	C2RM-S350C(N,P)
Sensing distance*			20 m	0.01 to 4 m	0.01 to 3.5 m
Spot size			ø1100 mm / 20 m	ø270 mm / 4 m	ø240 mm / 3.5 m
Light source			Red LED		infrared LED
Supply voltage			10 to 30 VDC including ripple (P-P) 10%		
Current consumption			Emitter: 20 mA max. Receiver: 15 mA max.	20 mA max.	
Hysteresis			—		
Response time			0.5 ms max.		
Control output			NPN/PNP Open Collector 100 mA max. / 30 VDC max. (Residual voltage max. 1.8 V / 100 mA max.)		
Output mode			Light ON / Dark ON selectable by control wire		
Distance adjustment			1 turn potentiometer		
Indicator			Output indicator (Orange LED) / Stability indicator (Green LED)		
Ambient illuminance			Sunlight: 10,000 lux, Incandescent lamp: 3,000 lux max.		
Vibration resistance			10 to 55 Hz double amplitude 1.5 mm 2 hours in each of the X, Y, and Z directions		
Shock resistance			500 m/s ² (50G) 3 times in each of X,Y, and Z directions		
Ambient temperature			Operating temperature: -25 to +55°C (no freezing)		
Storage temperature			Storage temperature: -30 to +70°C		
Ambient humidity / Storage humidity			Ambient humidity: 35 to 85%RH / Storage humidity: 35 to 95%RH		
Degree of protection / Materials			IEC directive IP67 Plastic housing: PBT (glass included) / Metal housing: BSBM, Front Cover, Lens: PMMA		

* · Retro-reflective type: Reflector V-61

· Diffuse-reflective type: White paper 90% 200 x 200 mm

· Limited diffuse reflective type: White paper 90% 100 x 100 mm

Type			Diffuse-reflective type			BGS
			Focused 110 mm type	400 mm type	800 mm type	
Standard	Plastic housing	2 m Cable	C2DP-11(N,P)	C2DP-40(N,P)	C2DP-80(N,P)	BGS-CP30(N,P)
		M12 Connector	C2DP-11C(N,P)	C2DP-40C(N,P)	C2DP-80C(N,P)	BGS-CP30C(N,P)
Standard	Metal housing	2 m Cable	C2DM-11(N,P)	C2DM-40(N,P)	C2DM-80(N,P)	BGS-CM30(N,P)
		M12 Connector	C2DM-11C(N,P)	C2DM-40C(N,P)	C2DM-80C(N,P)	BGS-CM30C(N,P)
Angle (90 degree)	Plastic housing	2 m Cable	C2DP-S11(N,P)	C2DP-S40(N,P)	C2DP-S80(N,P)	—
		M12 Connector	C2DP-S11C(N,P)	C2DP-S40C(N,P)	C2DP-S80C(N,P)	—
	Metal housing	2 m Cable	C2DM-S11(N,P)	C2DM-S40(N,P)	C2DM-S80(N,P)	—
		M12 Connector	C2DM-S11C(N,P)	C2DM-S40C(N,P)	C2DM-S80C(N,P)	—
Sensing distance			110 mm*	400 mm*	800 mm*	300 mm*
Spot size			ø8 mm / 110 mm	ø20 mm / 400 mm	ø30 mm / 800 mm	ø15 mm / 300 mm
Light source			Red LED			
Supply voltage			10 to 30 VDC including ripple (P-P) 10%			
Current consumption			20 mA max.			35 mA max.
Hysteresis			—		10% max.	
Response time			0.5 ms max.			1 ms max.
Control output			NPN/PNP Open Collector 100 mA max. / 30 VDC max. (Residual voltage max. 1.8 V / 100 mA max.)			
Output mode			Light ON / Dark ON selectable by control wire			
Distance adjustment			1 turn potentiometer			4 turn pot.
Indicator			Output indicator (Orange LED) / Stability indicator (Green LED)			
Ambient illuminance			Sunlight: 10,000 lux, Incandescent lamp: 3,000 lux max.			
Vibration resistance			10 to 55 Hz double amplitude 1.5 mm 2 hours in each of the X, Y, and Z directions			
Shock resistance			500 m/s ² (50G) 3 times in each of X,Y, and Z directions			
Ambient temperature			Operating temperature: -25 to +55°C (no freezing)			
Storage temperature			Storage temperature: -30 to +70°C			
Ambient humidity / Storage humidity			Ambient humidity: 35 to 85%RH / Storage humidity: 35 to 95%RH			
Degree of protection / Materials			IEC directive IP67 Plastic housing: PBT (glass included) / Metal housing: BSBM, Front Cover, Lens: PMMA			

* White Paper 90%

C2

PLN

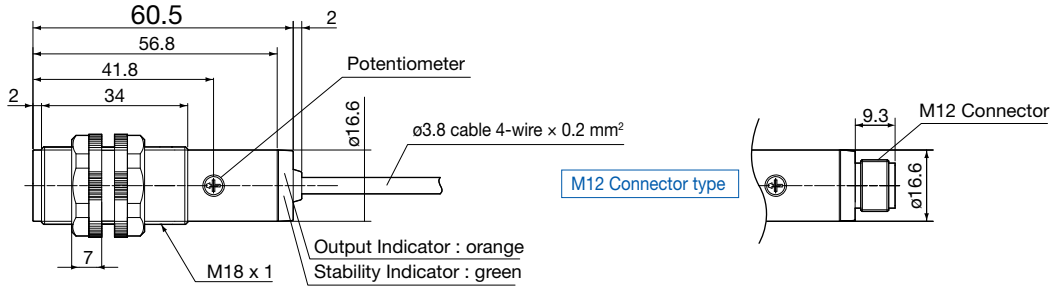
Dimensions

Plastic housing

(Unit: mm)

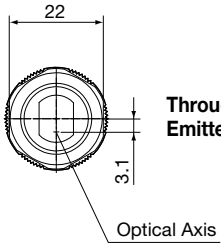
Standard

Cable type

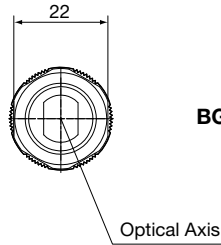


M12 Connector type

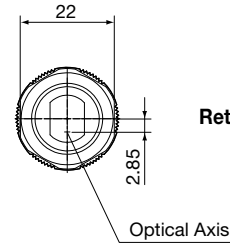
Diffuse-reflective
Through-beam receiver



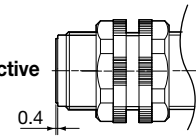
Through-beam Emitter



BGS

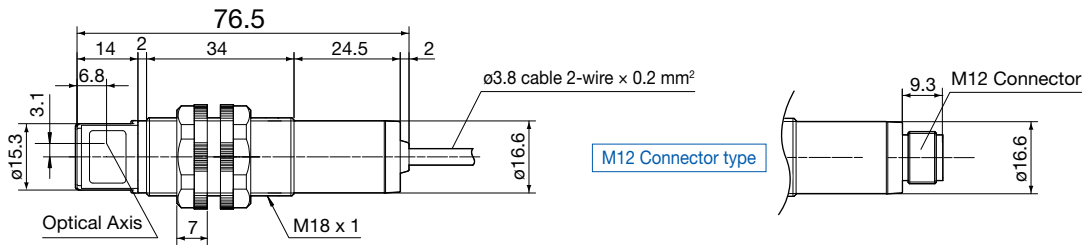


Retro-reflective



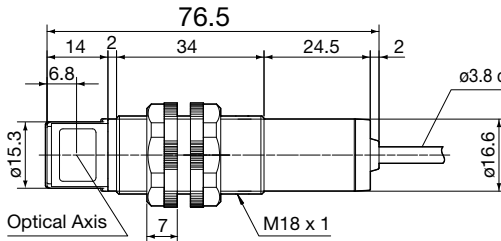
Angle (90 degree)

Cable type

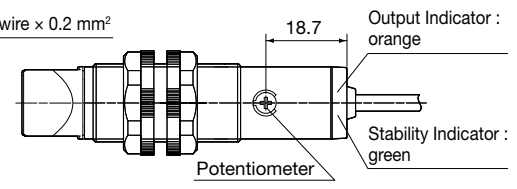
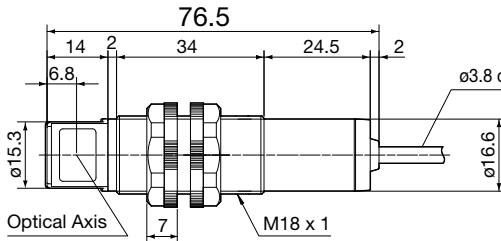


M12 Connector type

Diffuse-reflective
Through-beam receiver

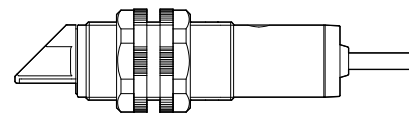
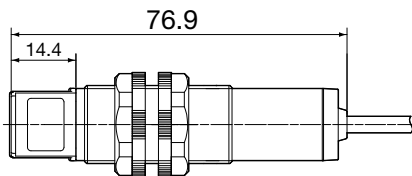


Through-beam Emitter



Top view

Retro-reflective



Side view

Photoelectric Sensors

Specialized Photoelectric Sensors

Laser Displacement Sensors

Sensors with Built-in Amplifier

Z3

Z-M

Z2

E

J

K

S

S2

C-R

C2

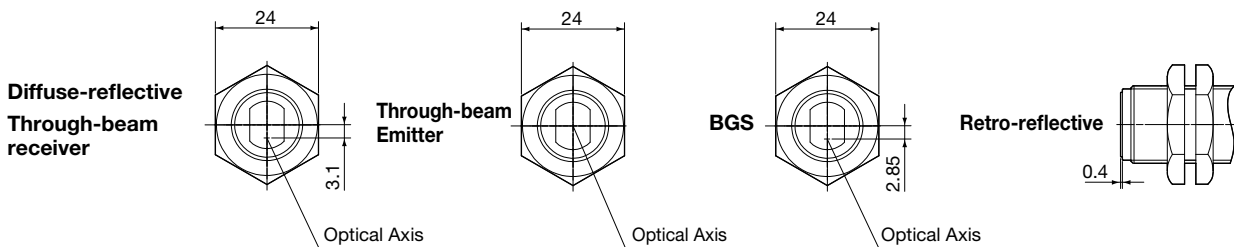
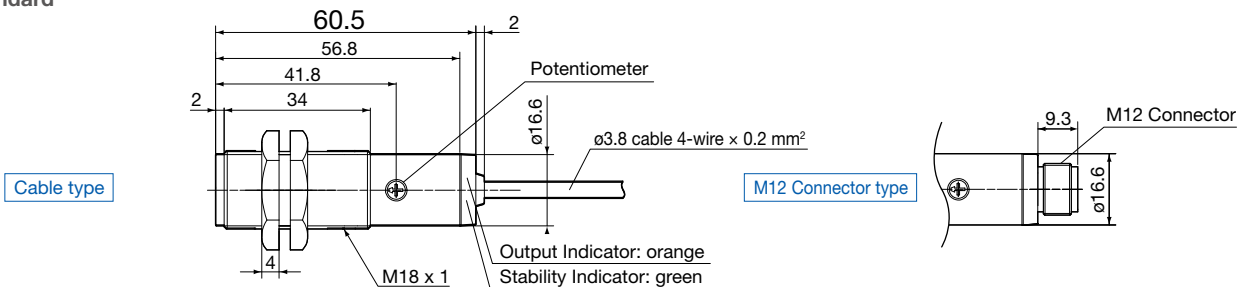
PLN

Dimensions

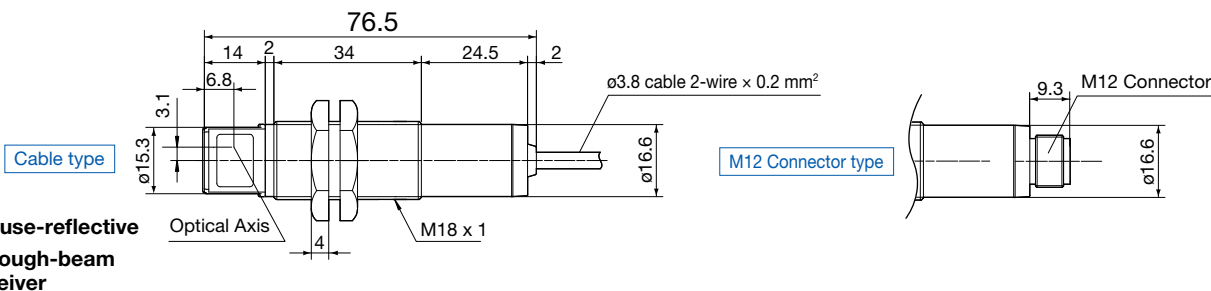
Metal housing

(Unit: mm)

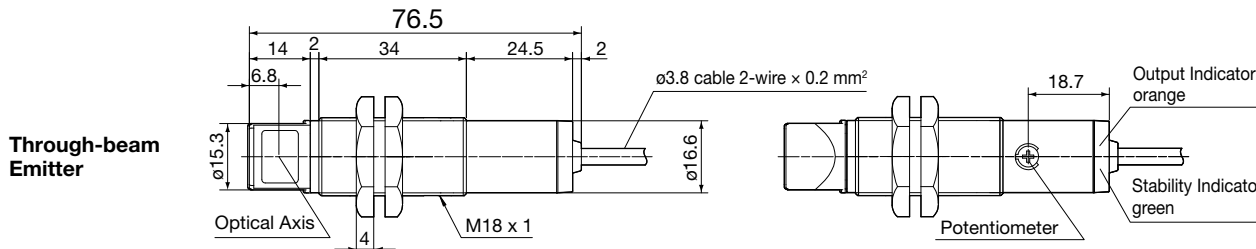
■ Standard



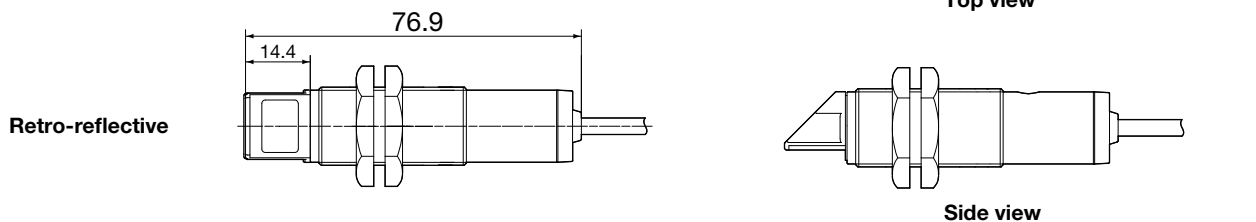
■ Angle (90 degree)



Diffuse-reflective Through-beam receiver



Through-beam Emitter



Retro-reflective

Top view

Side view

Photoelectric Sensors

Specialized Photoelectric Sensors

Laser Displacement Sensors

Sensors with Built-in Amplifier

Z3

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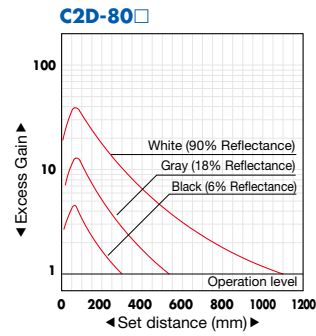
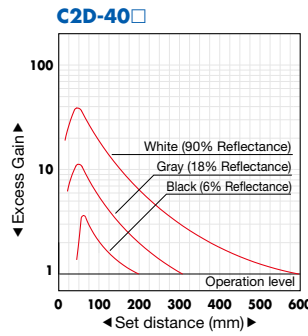
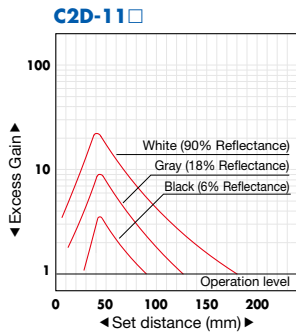
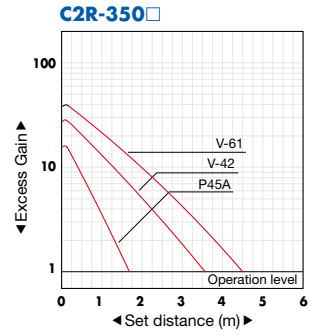
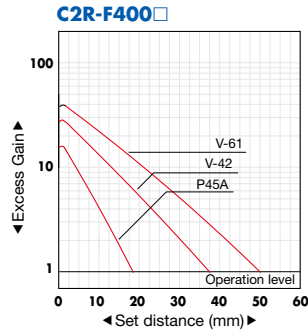
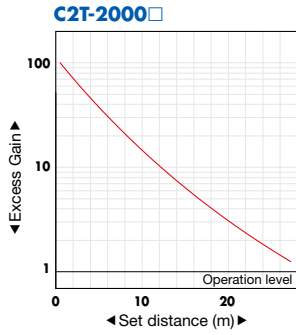
C2

PLN

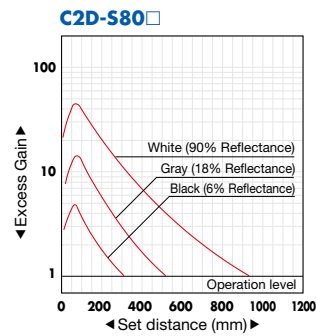
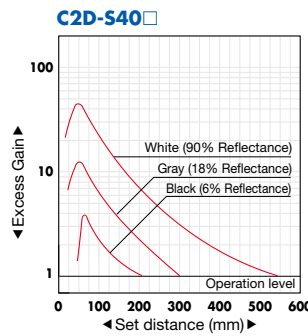
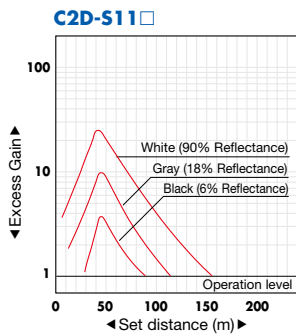
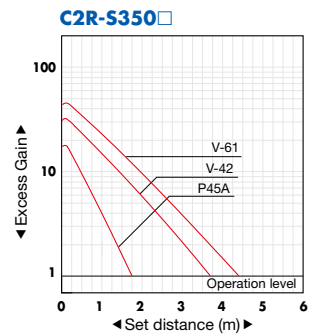
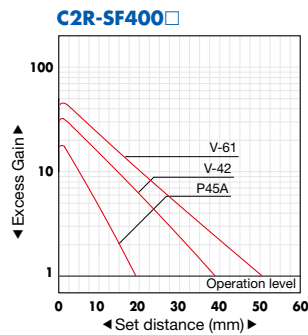
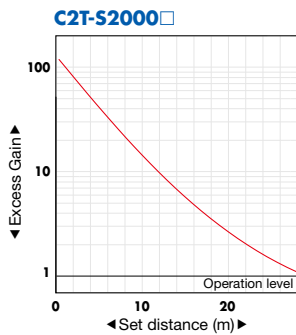
Typical characteristic data

Excess gain *common between plastic / metal housing

Standard



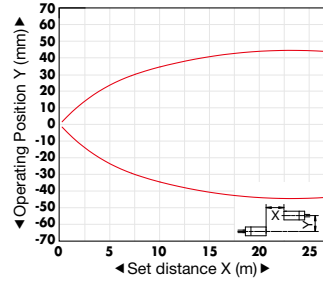
Angle (90 degree)



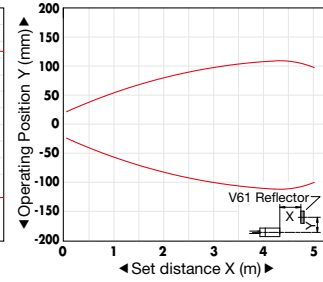
Sensing area *common between plastic / metal housing

Standard

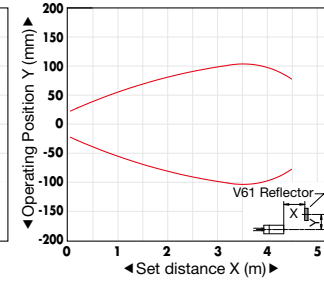
C2T-2000



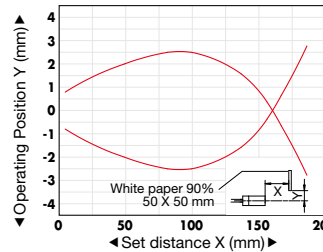
C2R-F400



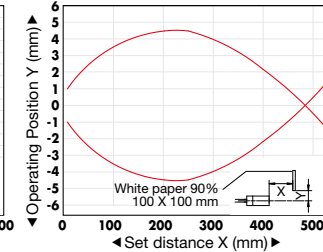
C2R-350



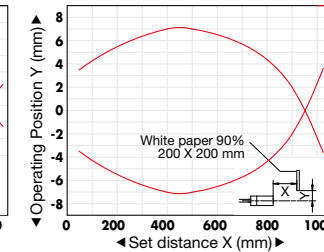
C2D-11



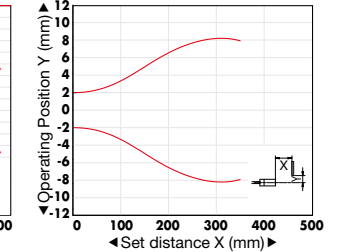
C2D-40



C2D-80

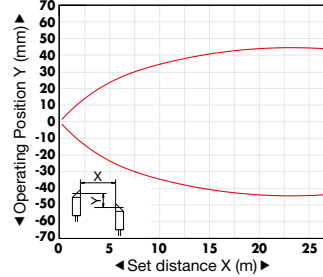


BGS-CM30 / BGS-CP30

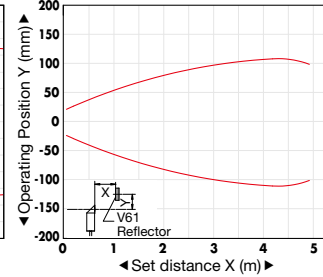


Angle (90 degree)

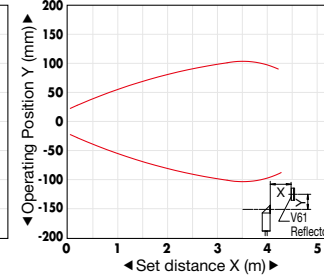
C2T-S2000



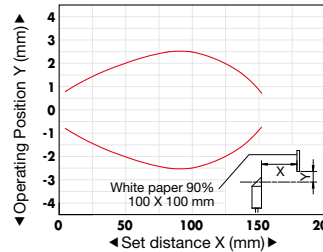
C2R-SF400



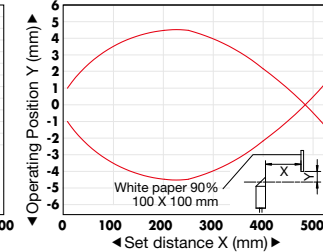
C2R-S350



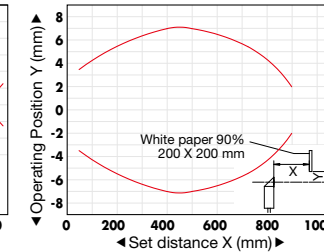
C2D-S11



C2D-S40



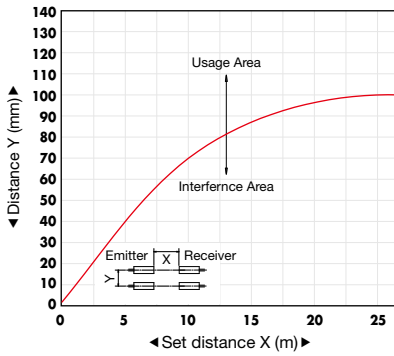
C2D-S80



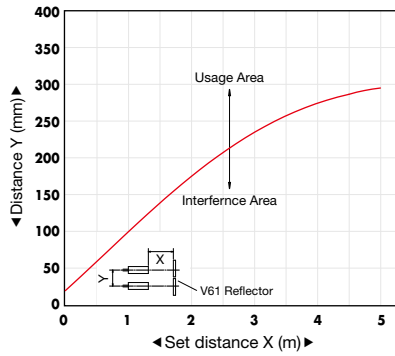
Interference area *common between plastic / metal housing

■ **Standard**

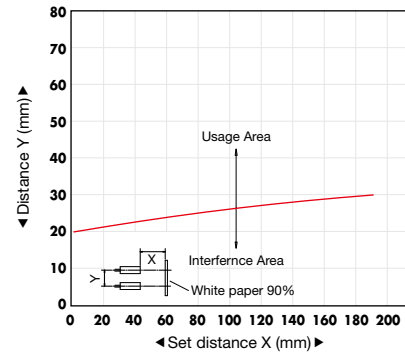
C2T-2000 □



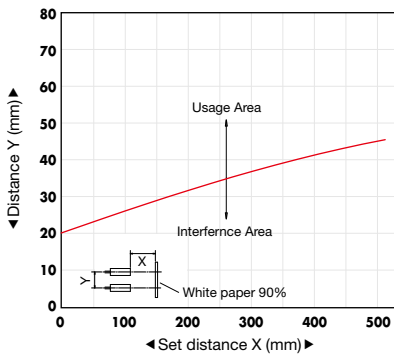
C2R-350 □ / **C2R-F400** □



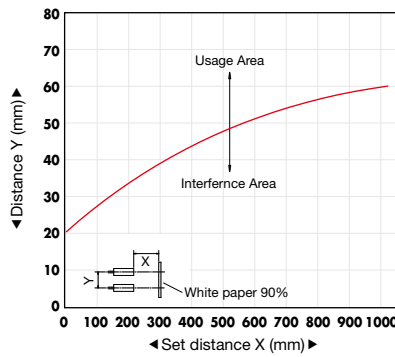
C2D-11 □



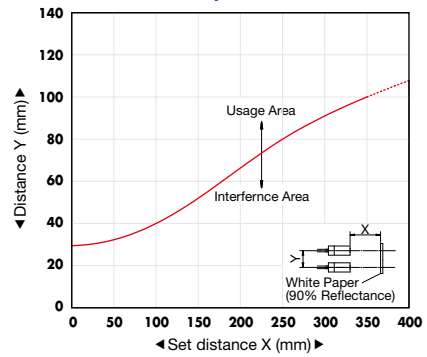
C2D-40 □



C2D-80 □

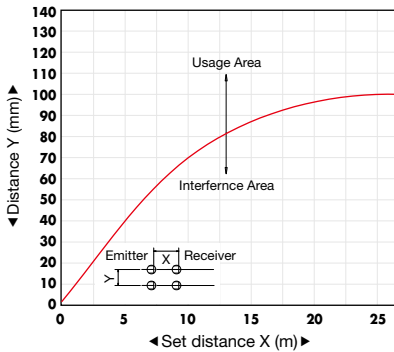


BGS-CM30 □ / **BGS-CP30** □

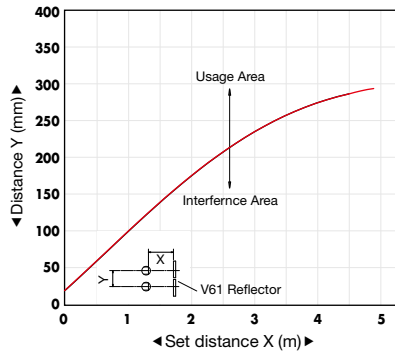


■ **Angle (90 degree)**

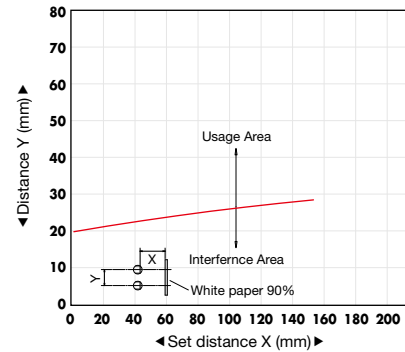
C2T-S2000 □



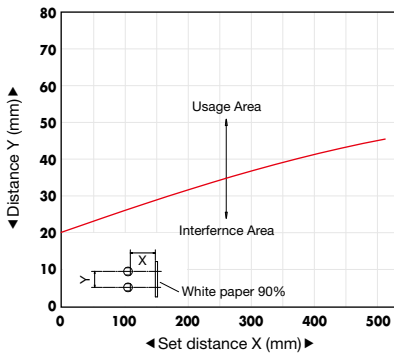
C2R-S350 □ / **C2R-SF400** □



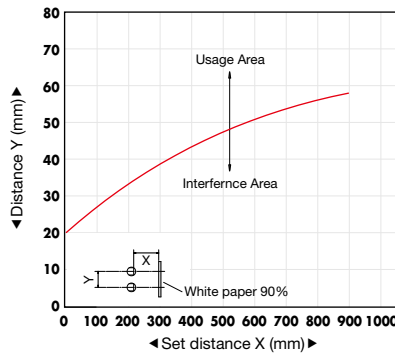
C2D-S11 □



C2D-S40 □



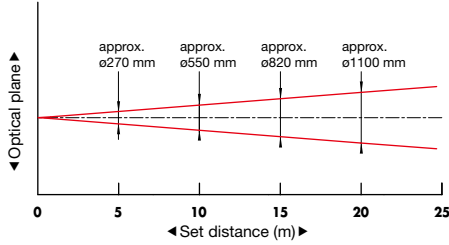
C2D-S80 □



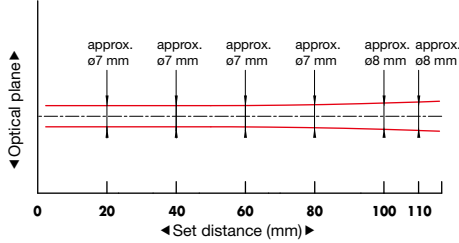
Spot size *common between plastic / metal housing

■ Standard

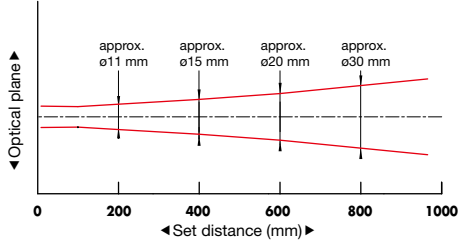
C2T-2000 □



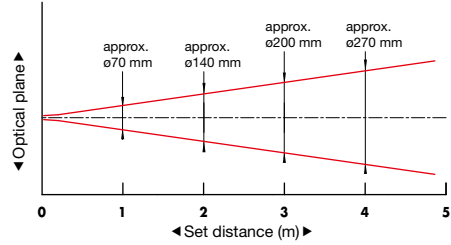
C2D-11 □



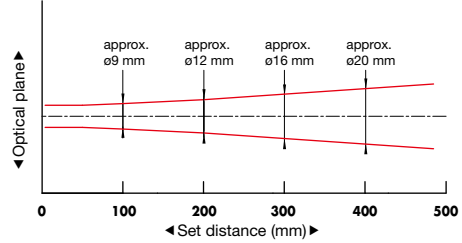
C2D-80 □



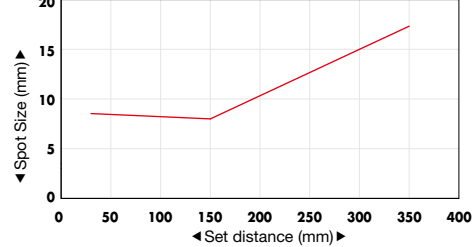
C2R-350 □



C2D-40 □

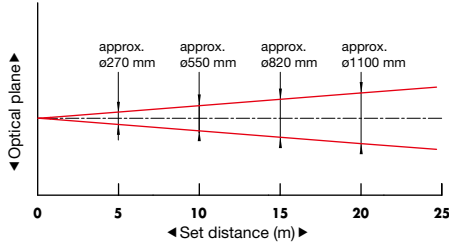


BGS-CM30 □ / **BGS-CP30** □

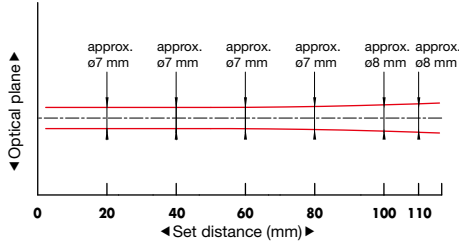


■ Angle (90 degree)

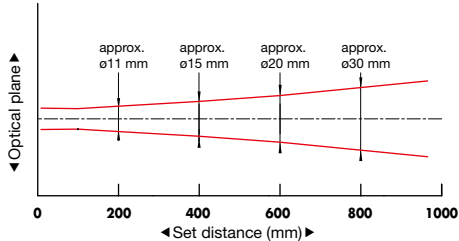
C2T-S2000 □



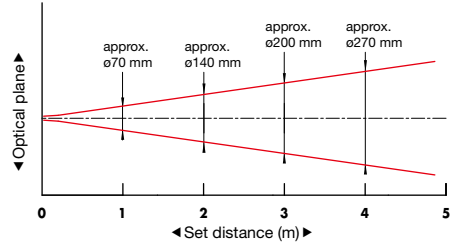
C2D-S11 □



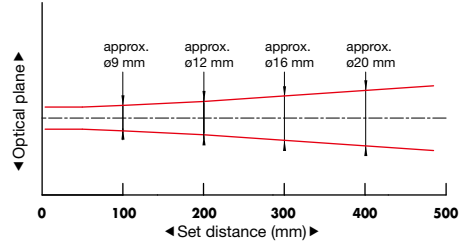
C2D-S80 □



C2R-S350 □ / **C2R-SF400** □



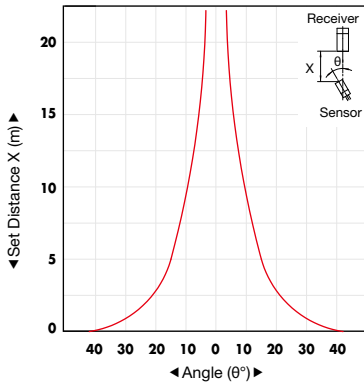
C2D-S40 □



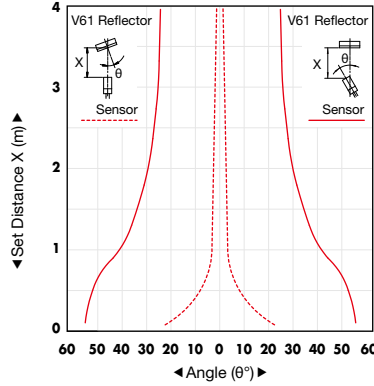
Angular deviation *common between plastic / metal housing

■ Standard

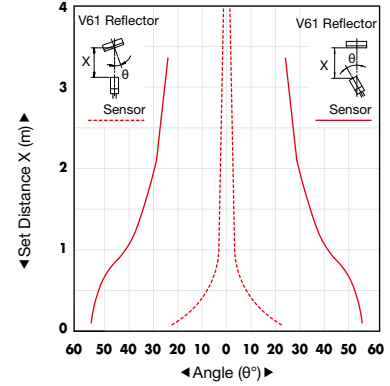
C2T-2000



C2R-F400

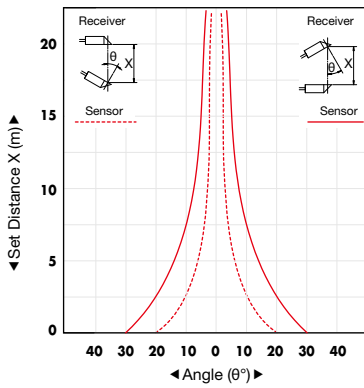


C2R-350

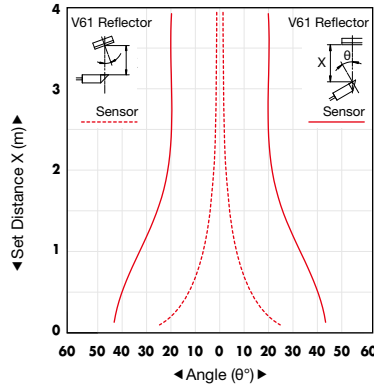


■ Angle (90 degree)

C2T-S2000



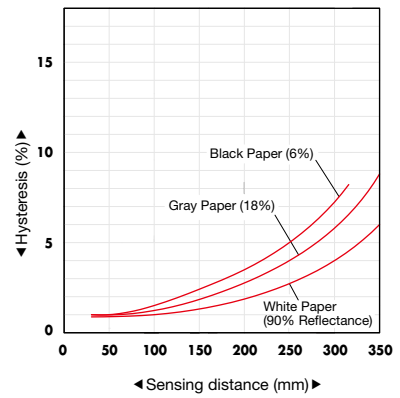
C2R-S350 / C2R-SF400



BGS Hysteresis

*common among all the BGS types

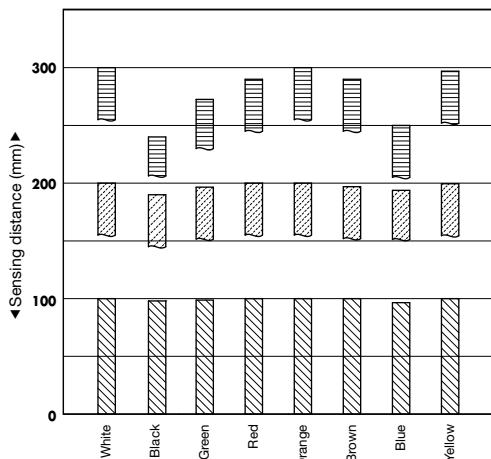
BGS-CM30 / BGS-CP30



BGS Response *common among all the BGS types

■ Color response

BGS-CM30 / BGS-CP30



■ Material response

BGS-CM30 / BGS-CP30

