

230

M18 cylindrical type

C2 series



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





Metal housing

			Standard	Angle 90°
Retro-reflective	Without Polarizing filter	2 m cable	C2RM-350N C2RM-350P	C2RM-S350N C2RM-S350P
		M12 connector	C2RM-350CN C2RM-350CP	C2RM-S350CN C2RM-S350CP
	With Polarizing filter	2 m cable	C2RM-F400N C2RM-F400P	C2RM-SF400N C2RM-SF400P
		M12 connector	C2RM-F400CN C2RM-F400CP	C2RM-SF400CN C2RM-SF400CP
	Diffuse-reflective Focused 110 mm type	2 m cable	C2DM-11N C2DM-11P	C2DM-S11N C2DM-S11P
		M12 connector	C2DM-11CN C2DM-11CP	C2DM-S11CN C2DM-S11CP
Diffuse-reflective 400 mm type	2 m cable	C2DM-40N C2DM-40P	C2DM-S40N C2DM-S40P	
	M12 connector	C2DM-40CN C2DM-40CP	C2DM-S40CN C2DM-S40CP	
Diffuse-reflective 800 mm type	2 m cable	C2DM-80N C2DM-80P	C2DM-S80N C2DM-S80P	
	M12 connector	C2DM-80CN C2DM-80CP	C2DM-S80CN C2DM-S80CP	
Through-beam	2 m cable	C2TM-2000N C2TM-2000P	C2TM-S2000N C2TM-S2000P	
	M12 connector	C2TM-2000CN C2TM-2000CP	C2TM-S2000CN C2TM-S2000CP	
BGS	2 m cable	BGS-CM30N BGS-CM30P	- -	
	M12 connector	BGS-CM30CN BGS-CM30CP	- -	

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.

M18 cylindrical type C2 series

Features

Custom ASIC with Power Circuit

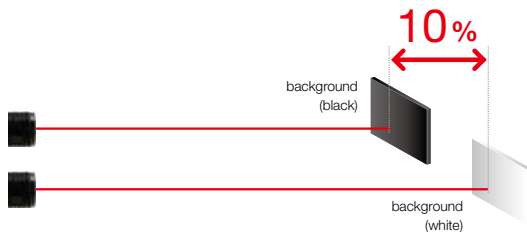
The electronic circuit consists mainly of Optex FA's custom ASIC with only 27 electronic components.

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



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.



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.



Potentiometer of Silicon plastic for high durability against chemical impact.

The potentiometer is tightly sealed against water with IP67 rating.

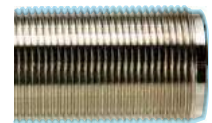
Silicon plastic potentiometer is the best solution against water, oil, chemical and environmental heat.



Silicon plastic

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).



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)
	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

M18 cylindrical type **C2** series

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%

Photoelectric
SensorsSpecialized
Photoelectric
SensorsLaser
Displacement
SensorsSensors with
Built-in
Amplifier

Z3

Z-M

Z2

E

J

K

S

S2

C-R

C2

PLN

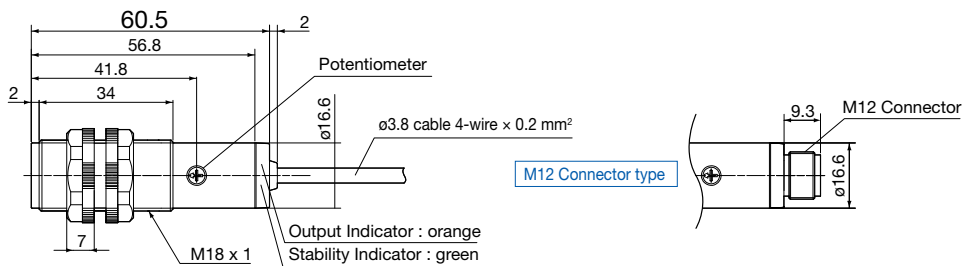
Dimensions

Plastic housing

(Unit: mm)

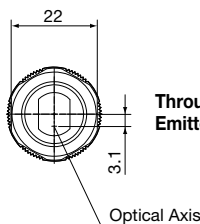
Standard

Cable type

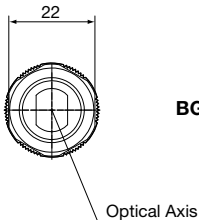


M12 Connector type

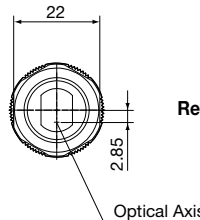
Diffuse-reflective Through-beam receiver



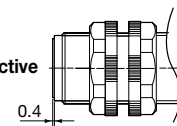
Through-beam Emitter



BGS

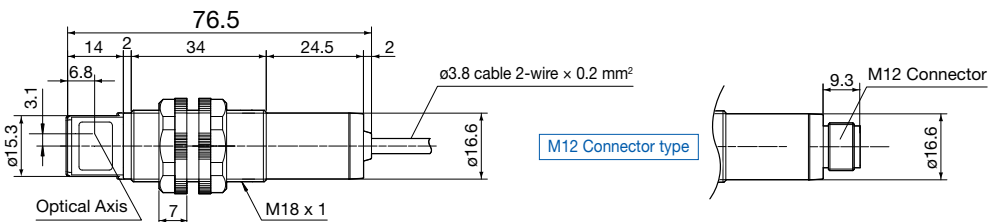


Retro-reflective



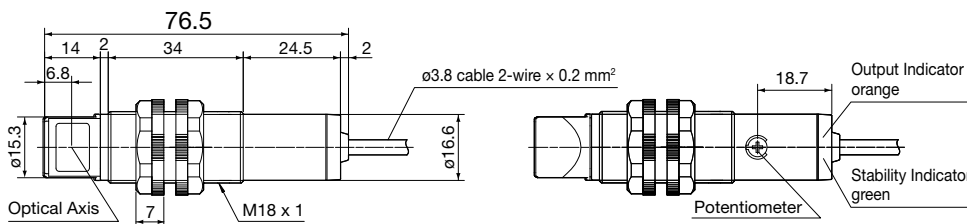
Angle (90 degree)

Cable type



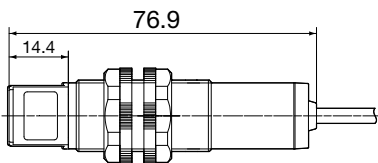
Diffuse-reflective Through-beam receiver

Through-beam Emitter

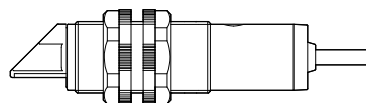


Top view

Retro-reflective



Side view



M18 cylindrical type C2 series

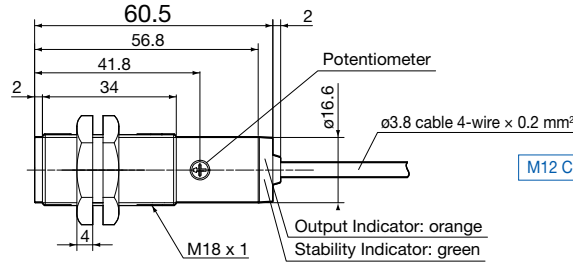
Dimensions

Metal housing

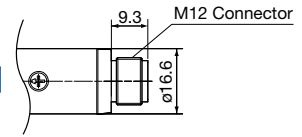
(Unit: mm)

Standard

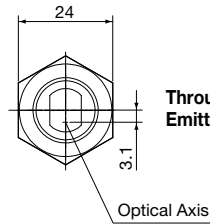
Cable type



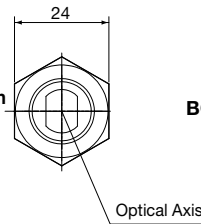
M12 Connector type



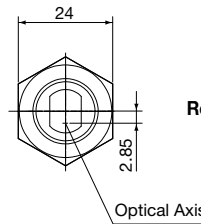
Diffuse-reflective Through-beam receiver



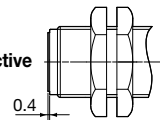
Through-beam Emitter



BGS

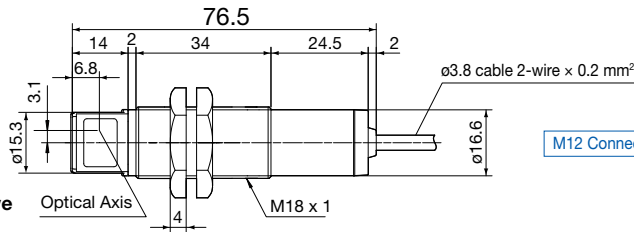


Retro-reflective

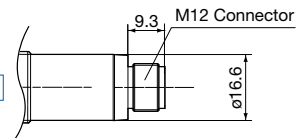


Angle (90 degree)

Cable type



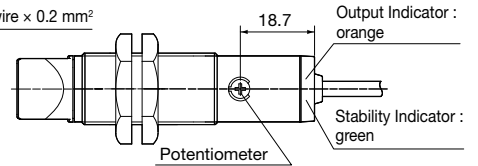
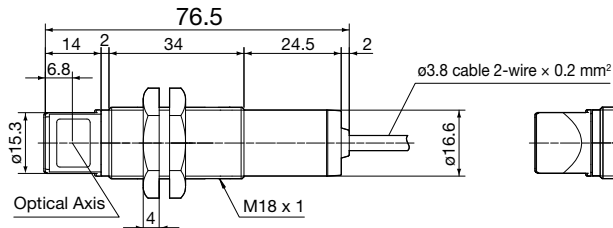
M12 Connector type



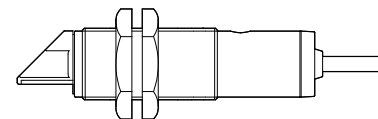
Diffuse-reflective Through-beam receiver

Through-beam Emitter

Retro-reflective



Top view

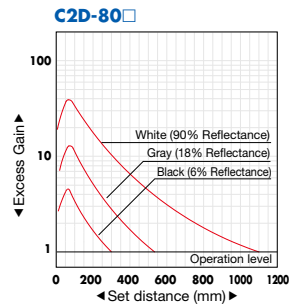
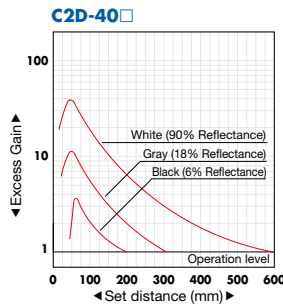
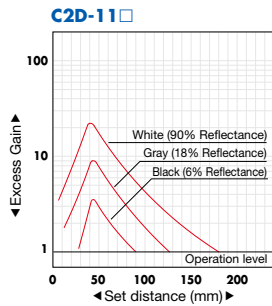
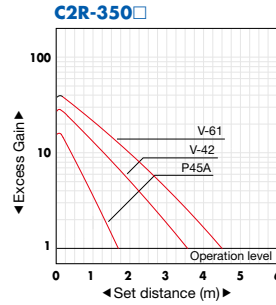
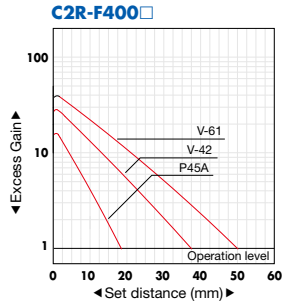
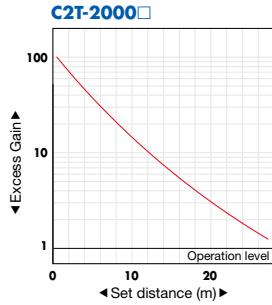


Side view

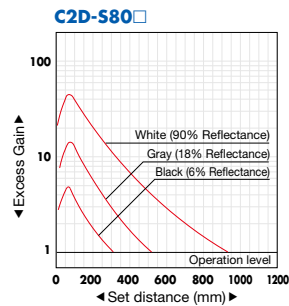
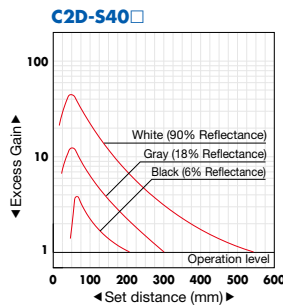
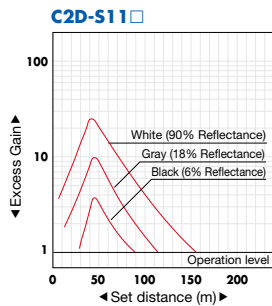
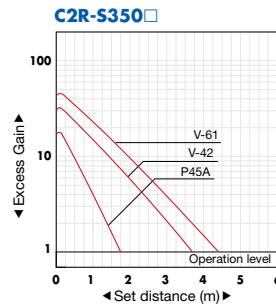
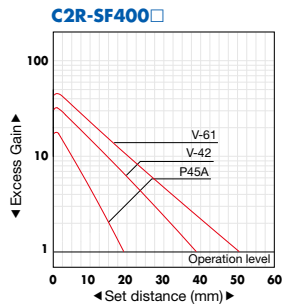
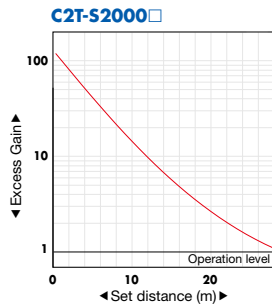
Typical characteristic data

Excess gain *common between plastic / metal housing

Standard



Angle (90 degree)



Z3

Z-M

Z2

E

J

K

S

S2

C-R

C2

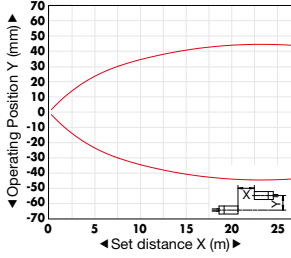
PLN

M18 cylindrical type C2 series

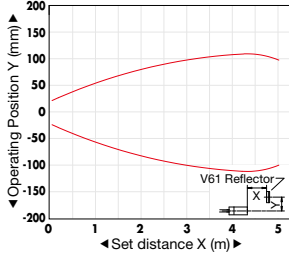
Sensing area *common between plastic / metal housing

Standard

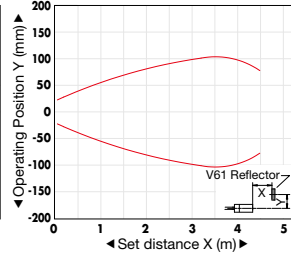
C2T-2000



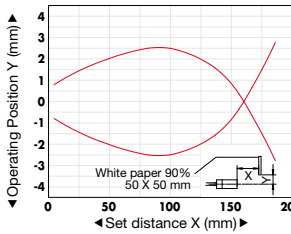
C2R-F400



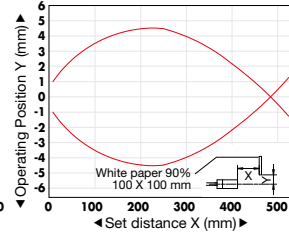
C2R-350



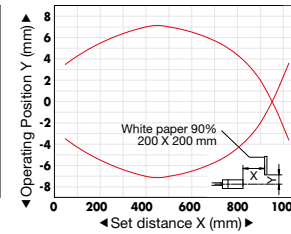
C2D-11



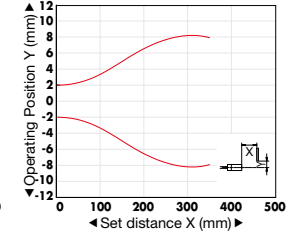
C2D-40



C2D-80

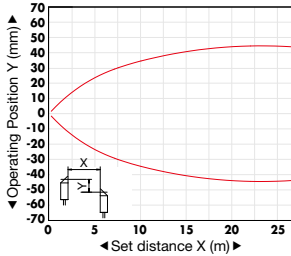


BGS-CM30 / BGS-CP30

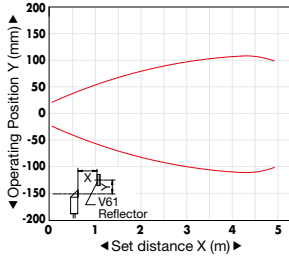


Angle (90 degree)

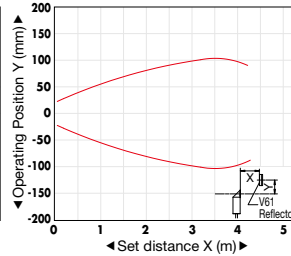
C2T-S2000



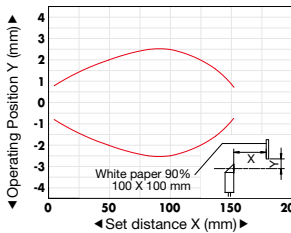
C2R-SF400



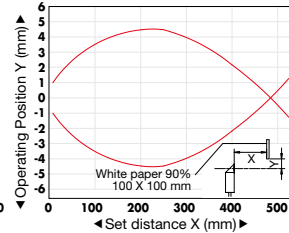
C2R-S350



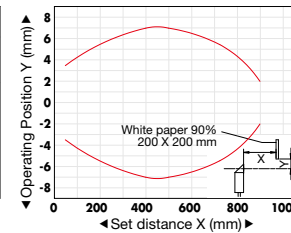
C2D-S11



C2D-S40



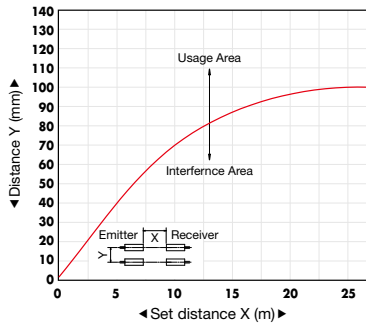
C2D-S80



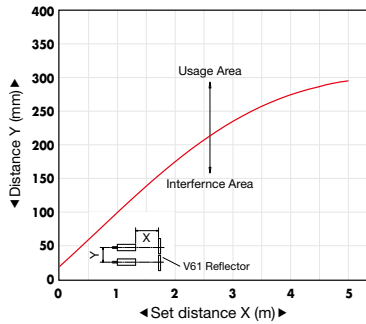
Interference area *common between plastic / metal housing

■ Standard

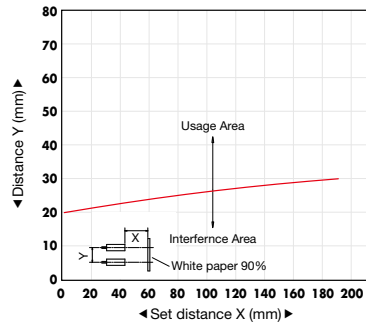
C2T-2000



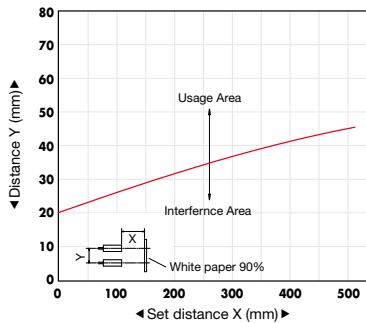
C2R-350 / C2R-F400



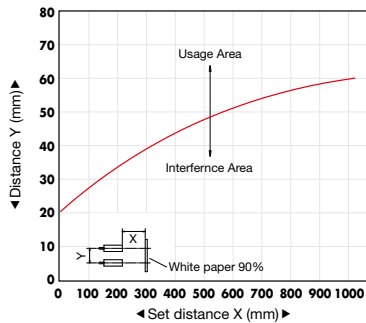
C2D-11



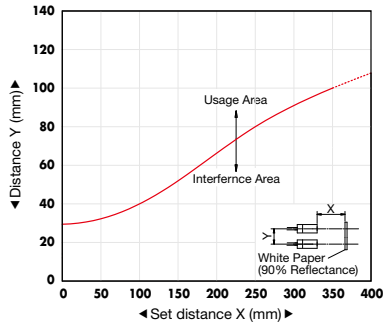
C2D-40



C2D-80

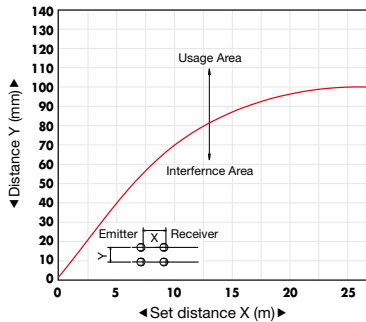


BGS-CM30 / BGS-CP30

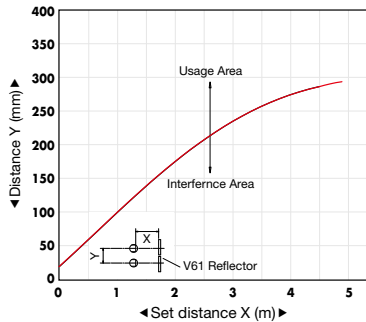


■ Angle (90 degree)

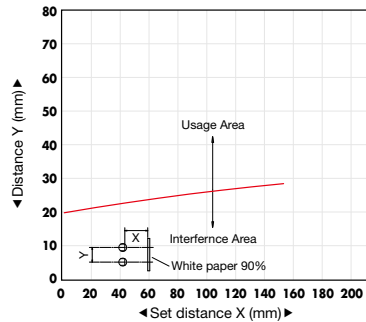
C2T-S2000



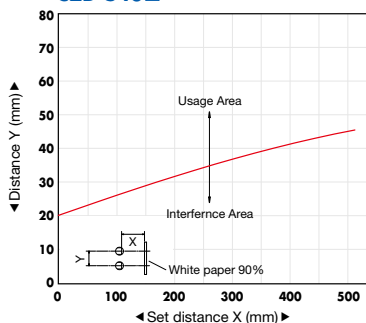
C2R-S350 / C2R-SF400



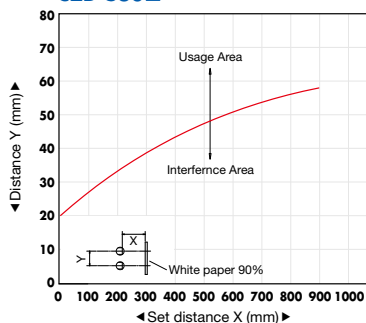
C2D-S11



C2D-S40



C2D-S80

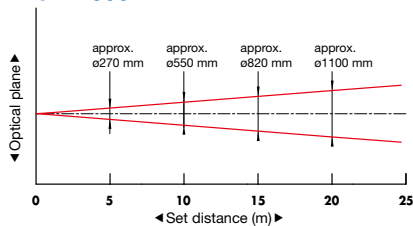


M18 cylindrical type C2 series

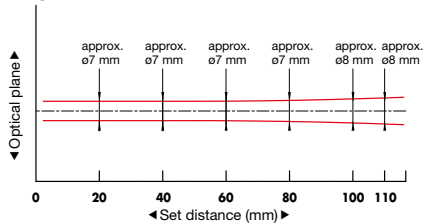
Spot size *common between plastic / metal housing

Standard

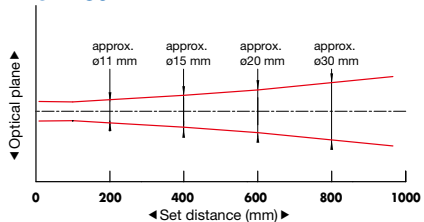
C2T-2000



C2D-11

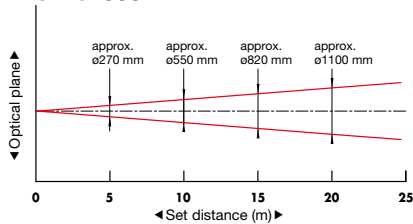


C2D-80

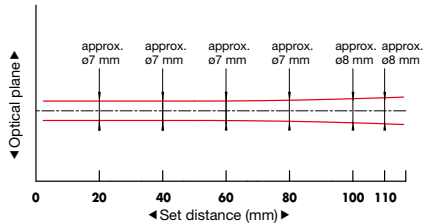


Angle (90 degree)

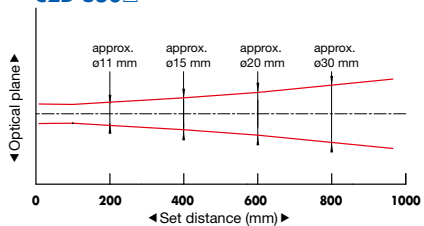
C2T-S2000



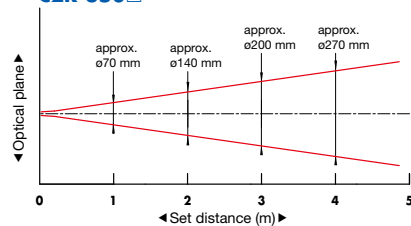
C2D-S11



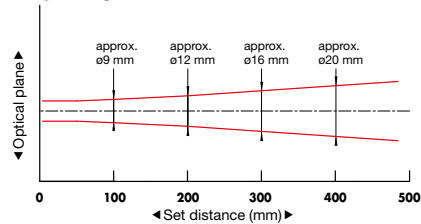
C2D-S80



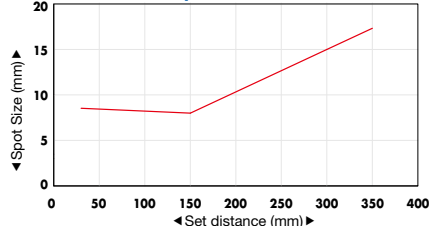
C2R-350



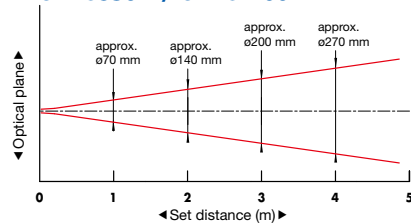
C2D-40



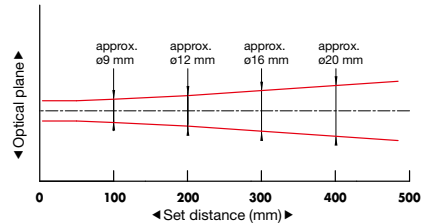
BGS-CM30 / BGS-CP30



C2R-S350 / C2R-SF400



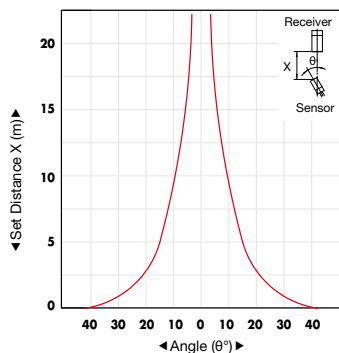
C2D-S40



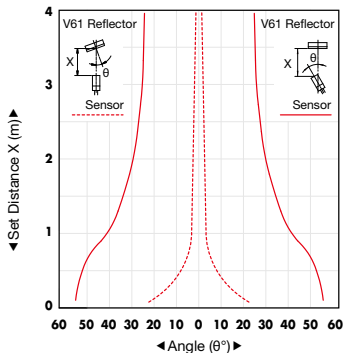
Angular deviation *common between plastic / metal housing

Standard

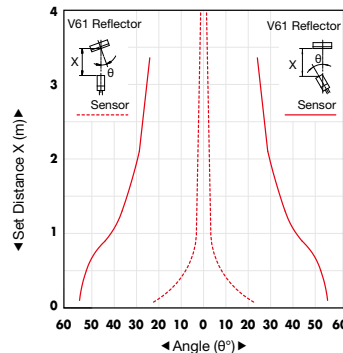
C2T-2000



C2R-F400

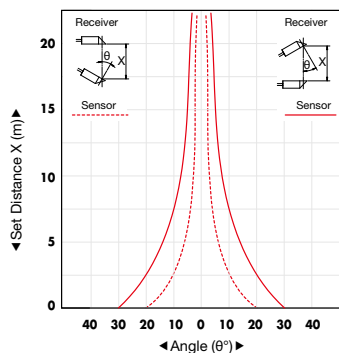


C2R-350

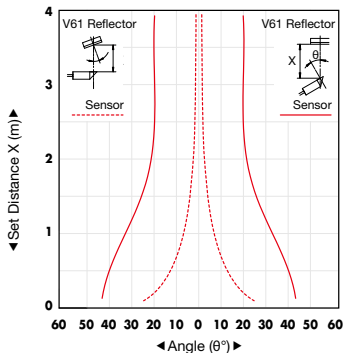


Angle (90 degree)

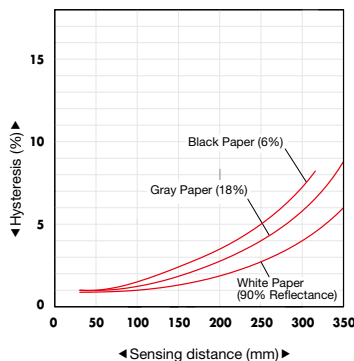
C2T-S2000



C2R-S350 / C2R-SF400



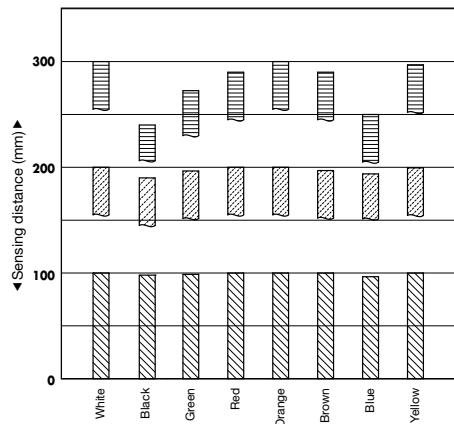
BGS-CM30 / BGS-CP30



BGS Response *common among all the BGS types

Color response

BGS-CM30 / BGS-CP30



Material response

BGS-CM30 / BGS-CP30

