

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°	
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

Metal housing	Retro-reflective Without Polarizing filter	2 m cable	NPN	C2RM-350N
			PNP	C2RM-350P
	M12 connector	NPN	C2RM-350CN	
		PNP	C2RM-350CP	
	Retro-reflective With Polarizing filter	2 m cable	NPN	C2RM-F400N
			PNP	C2RM-F400P
M12 connector	NPN	C2RM-F400CN		
	PNP	C2RM-F400CP		
Diffuse-reflective Focused 110 mm type	2 m cable	NPN	C2DM-11N	
		PNP	C2DM-11P	
M12 connector	NPN	C2DM-11CN		
	PNP	C2DM-11CP		
Diffuse-reflective 400 mm type	2 m cable	NPN	C2DM-40N	
		PNP	C2DM-40P	
M12 connector	NPN	C2DM-40CN		
	PNP	C2DM-40CP		
Diffuse-reflective 800 mm type	2 m cable	NPN	C2DM-80N	
		PNP	C2DM-80P	
M12 connector	NPN	C2DM-80CN		
	PNP	C2DM-80CP		
Through-beam	2 m cable	NPN	C2TM-2000N	
		PNP	C2TM-2000P	
M12 connector	NPN	C2TM-2000CN		
	PNP	C2TM-2000CP		
BGS	2 m cable	NPN	BGS-CM30N	
		PNP	BGS-CM30P	
M12 connector	NPN	BGS-CM30CN		
	PNP	BGS-CM30CP		

Standard

Angle 90°



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

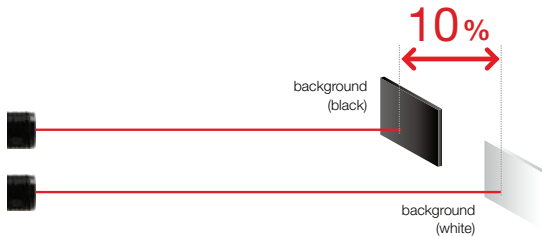
The electronic circuit consists mainly of Optex FA's custom ASIC with only 27 electronic components.

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.

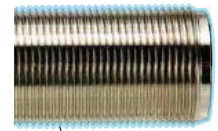
The potentiometer is tightly sealed against water with IP67 rating. Silicon plastic potentiometer is the best solution against water, oil, chemical and environmental heat.



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

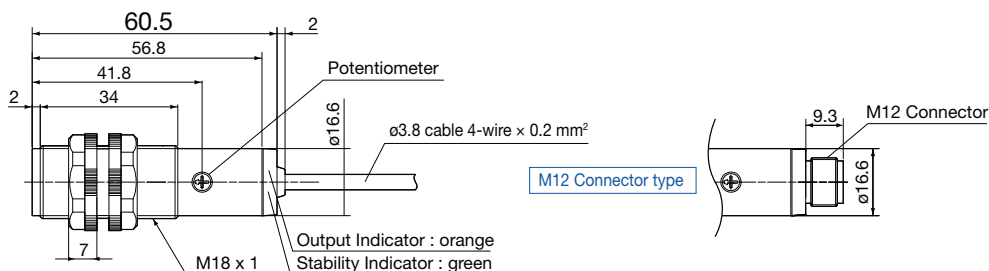
Dimensions

Plastic housing

(Unit: mm)

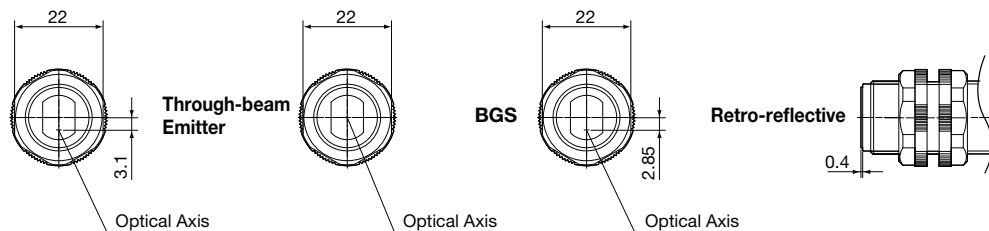
Standard

Cable type



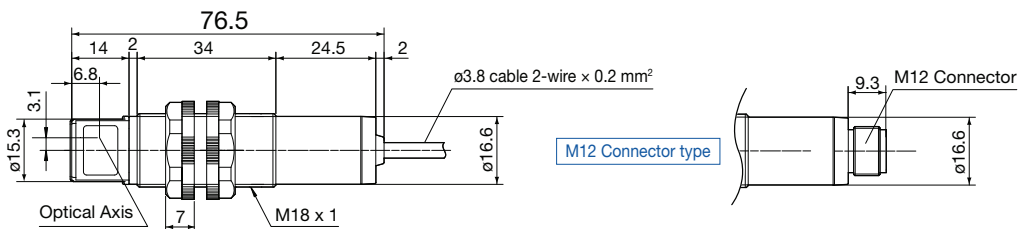
M12 Connector type

Diffuse-reflective Through-beam receiver



Angle (90 degree)

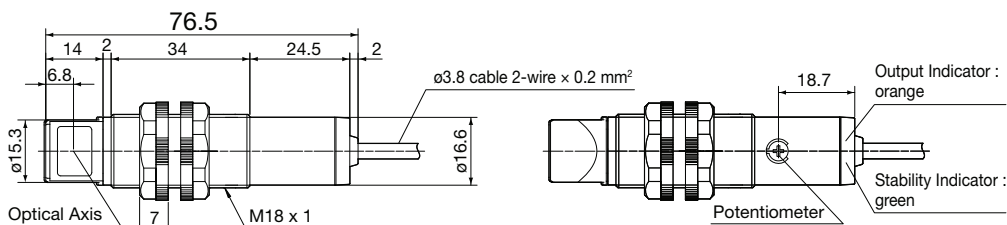
Cable type



M12 Connector type

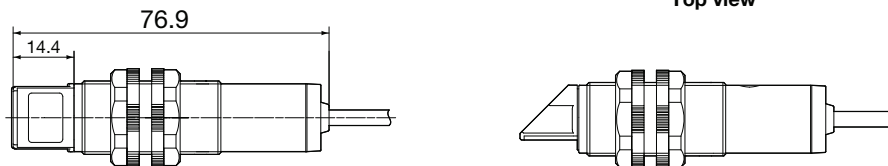
Diffuse-reflective Through-beam receiver

Through-beam Emitter



Top view

Retro-reflective



Side view

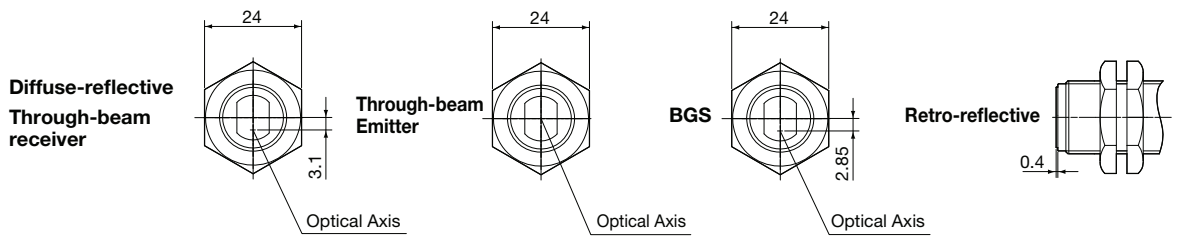
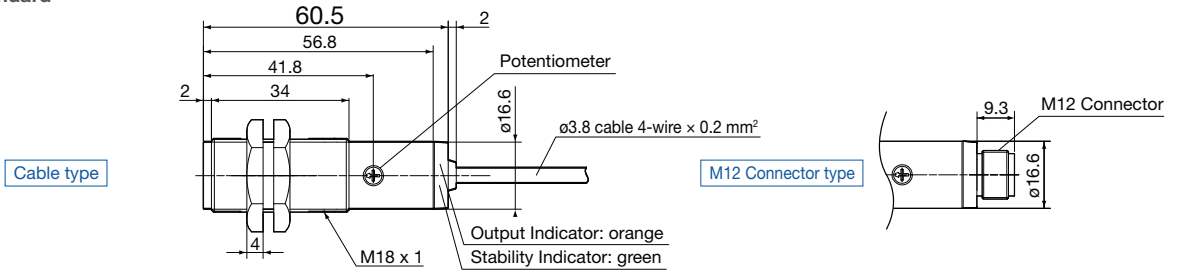
M18 cylindrical type C2 series

Dimensions

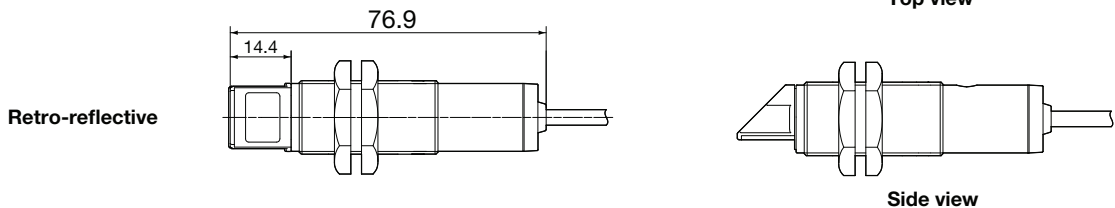
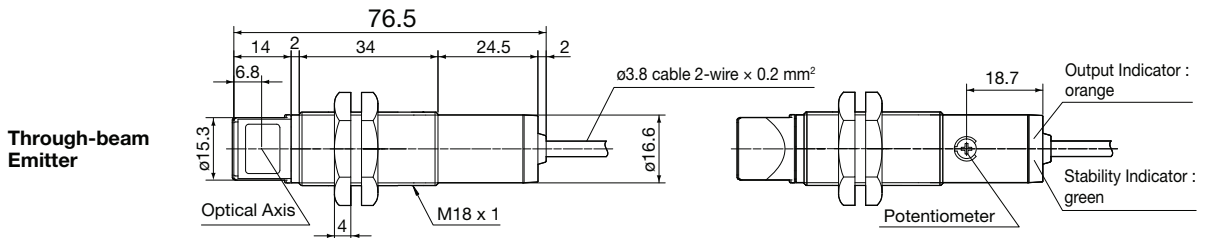
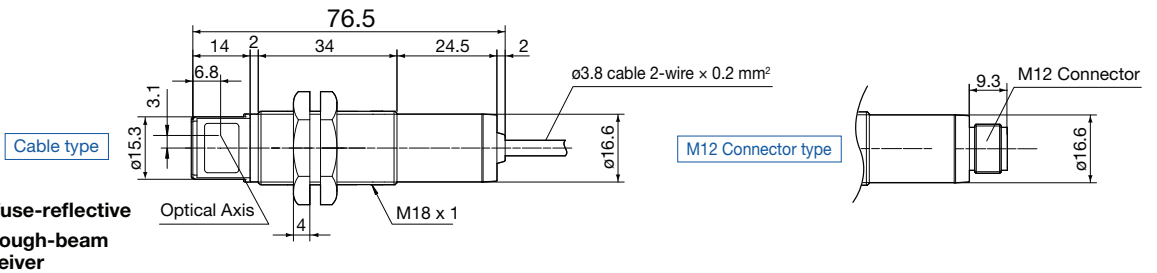
Metal housing

(Unit: mm)

Standard



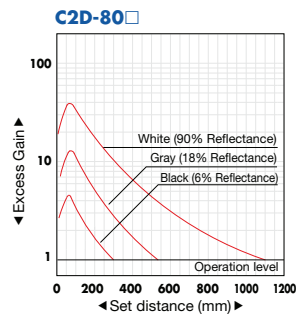
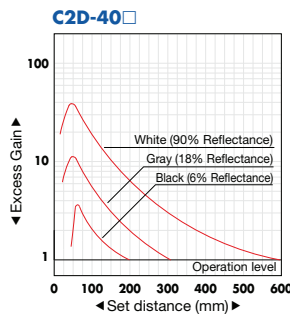
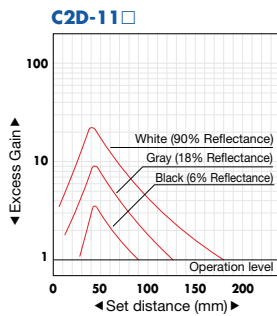
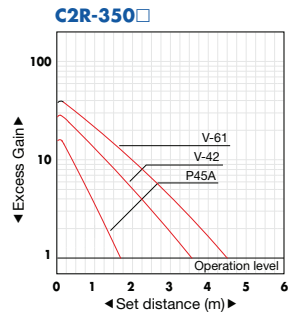
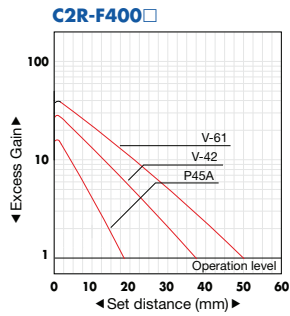
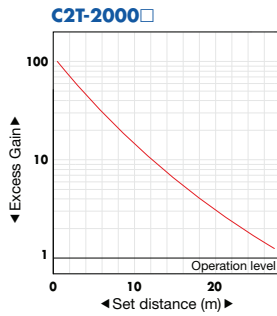
Angle (90 degree)



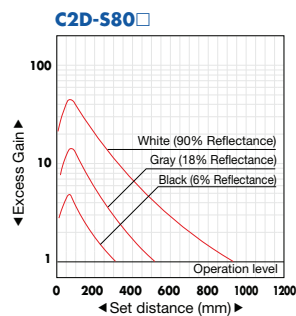
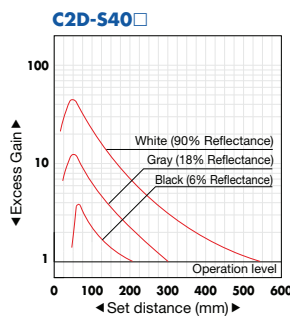
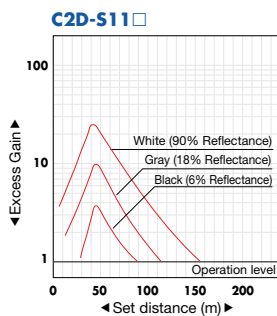
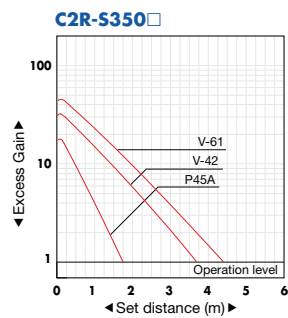
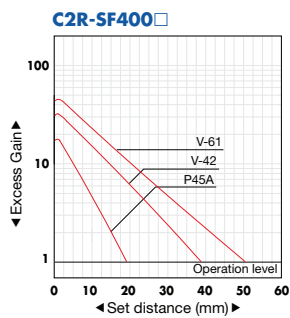
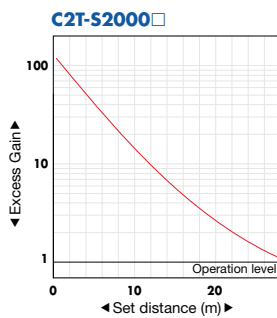
Typical characteristic data

Excess gain *common between plastic / metal housing

■ Standard



■ Angle (90 degree)

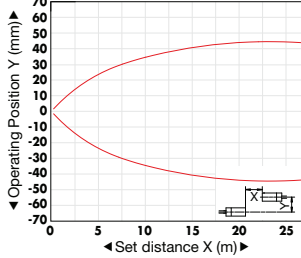


M18 cylindrical type C2 series

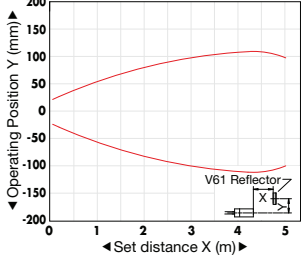
Sensing area *common between plastic / metal housing

■ Standard

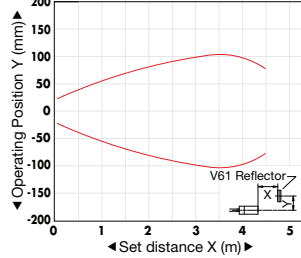
C2T-2000□



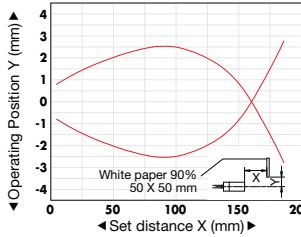
C2R-F400□



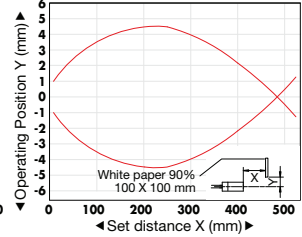
C2R-350□



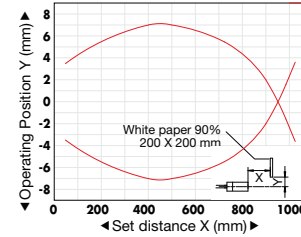
C2D-11□



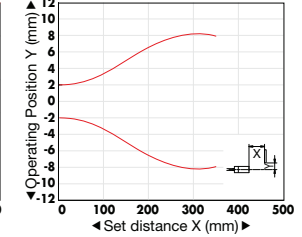
C2D-40□



C2D-80□

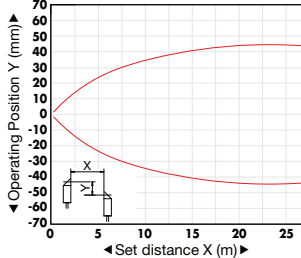


BGS-CM30□ / BGS-CP30□

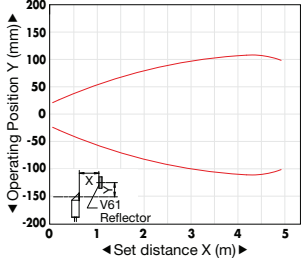


■ Angle (90 degree)

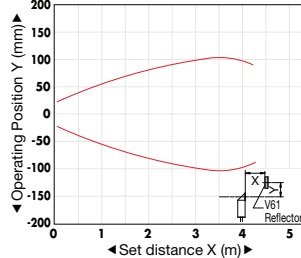
C2T-S2000□



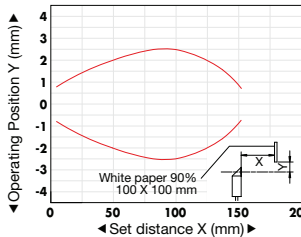
C2R-SF400□



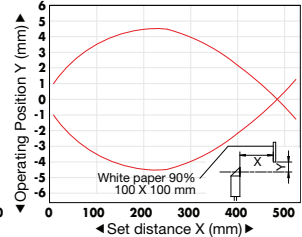
C2R-S350□



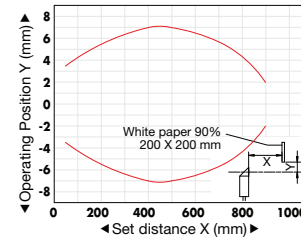
C2D-S11□



C2D-S40□



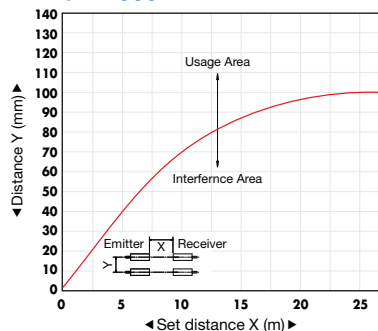
C2D-S80□



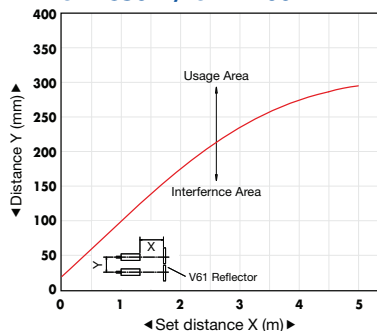
Interference area *common between plastic / metal housing

■ Standard

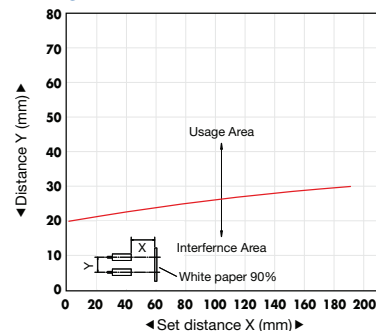
C2T-2000



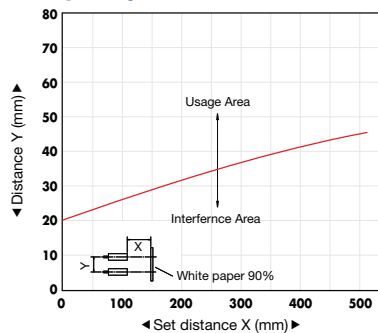
C2R-350 / C2R-F400



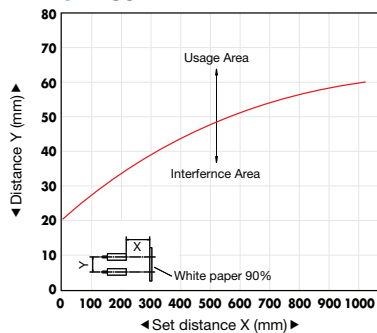
C2D-11



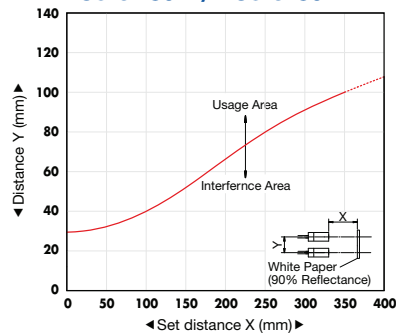
C2D-40



C2D-80

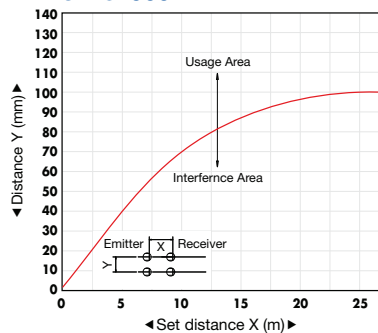


BGS-CM30 / BGS-CP30

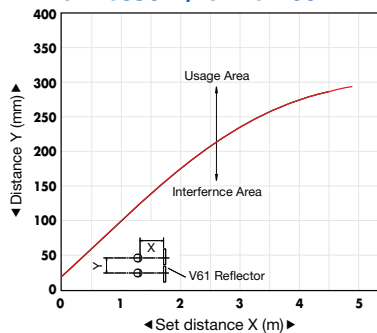


■ Angle (90 degree)

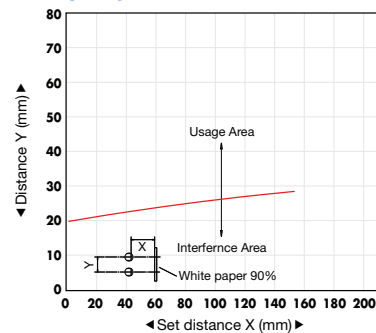
C2T-S2000



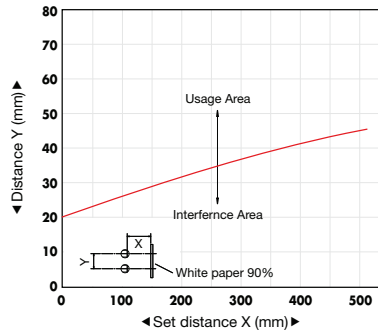
C2R-S350 / C2R-SF400



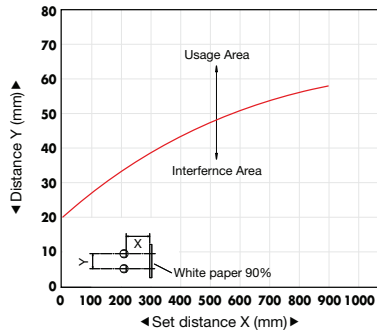
C2D-S11



C2D-S40



C2D-S80

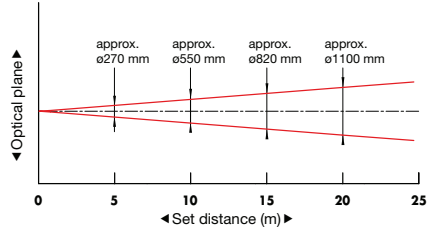


M18 cylindrical type **C2** series

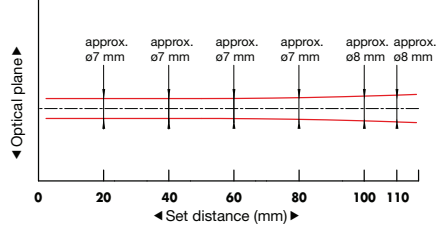
Spot size *common between plastic / metal housing

■ Standard

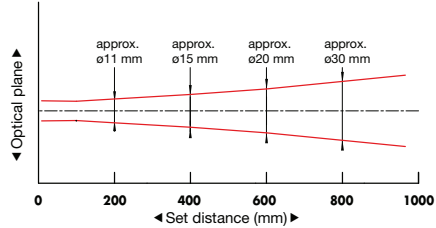
C2T-2000 □



C2D-11 □

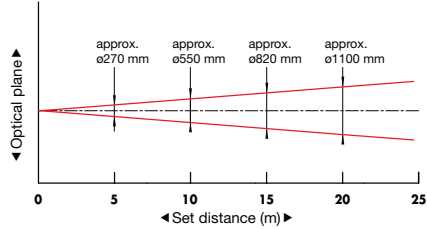


C2D-80 □

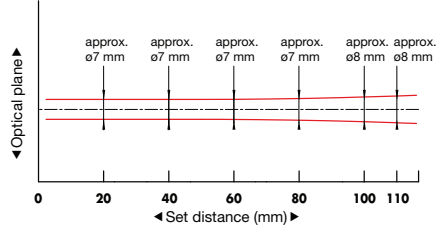


■ Angle (90 degree)

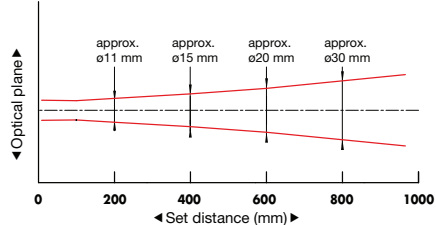
C2T-S2000 □



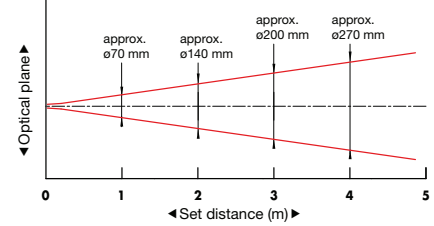
C2D-S11 □



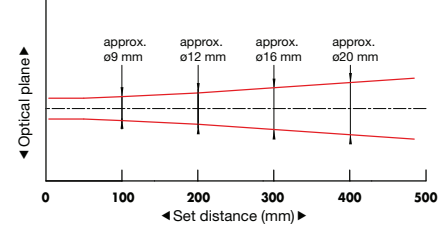
C2D-S80 □



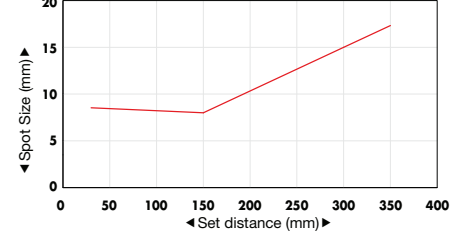
C2R-350 □



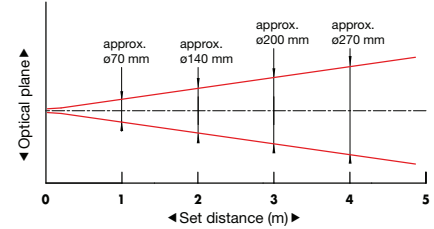
C2D-40 □



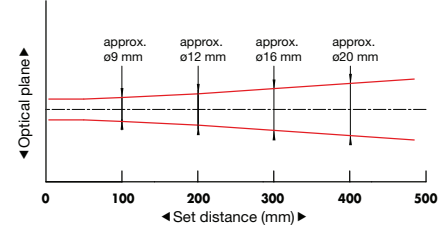
BGS-CM30 □ / **BGS-CP30** □



C2R-S350 □ / **C2R-SF400** □



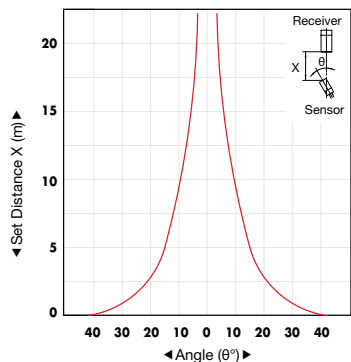
C2D-S40 □



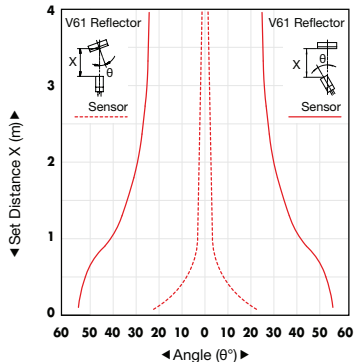
Angular deviation *common between plastic / metal housing

Standard

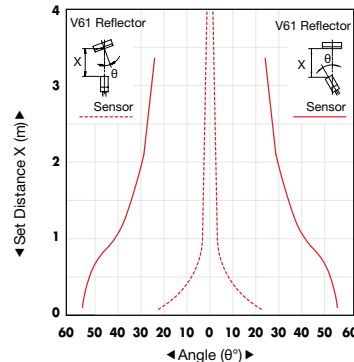
C2T-2000



C2R-F400

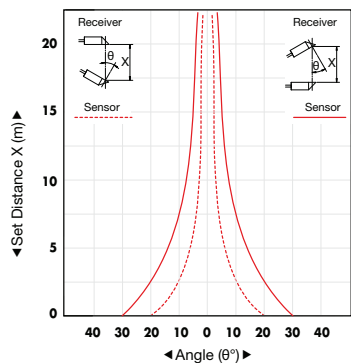


C2R-350

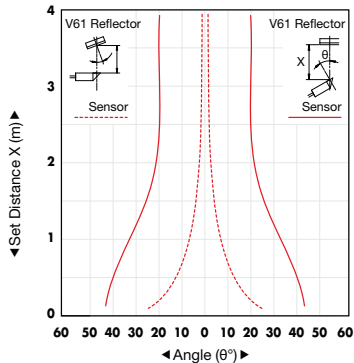


Angle (90 degree)

C2T-S2000



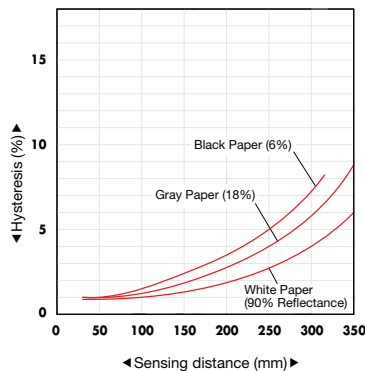
C2R-S350 / C2R-SF400



BGS Hysteresis

*common among all the BGS types

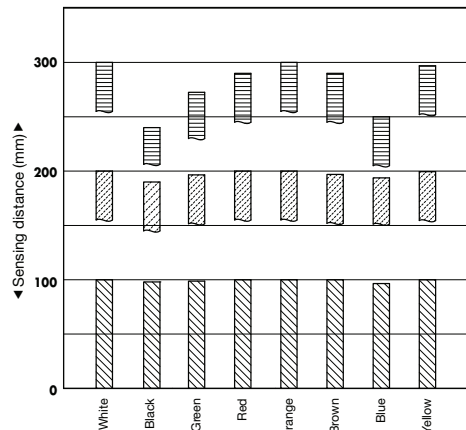
BGS-CM30 / BGS-CP30



BGS Response *common among all the BGS types

Color response

BGS-CM30 / BGS-CP30



Material response

BGS-CM30 / BGS-CP30

