

NEW

Amplifier Built-in

Laser sensor

CX-F100 SERIES



Stable detection unaffected by color change of sensing object



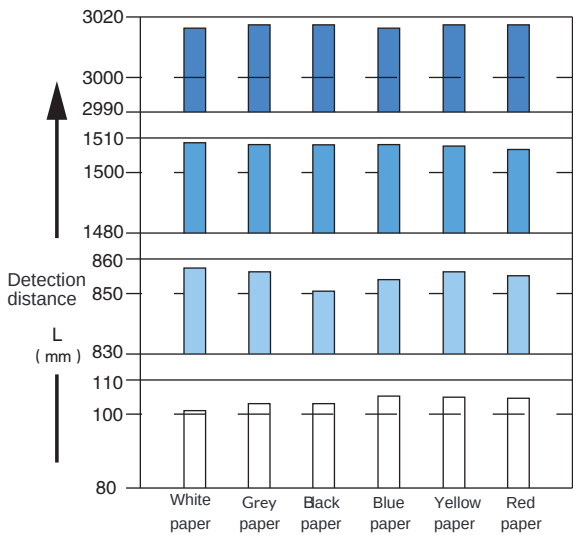
Not affected by the material  
or surface of sensing object

## Stable detection

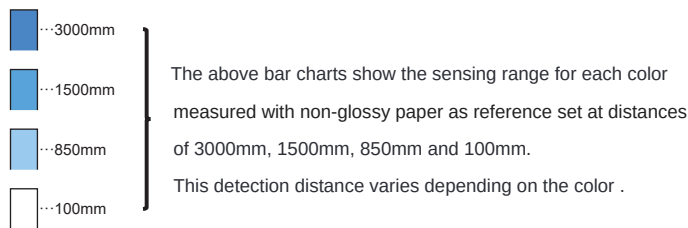
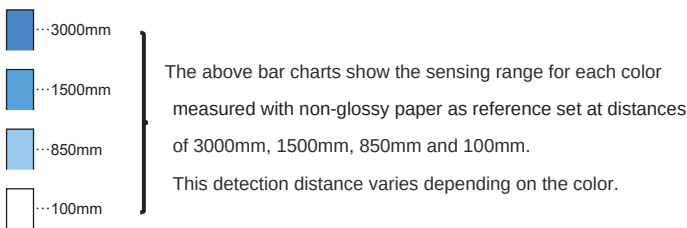
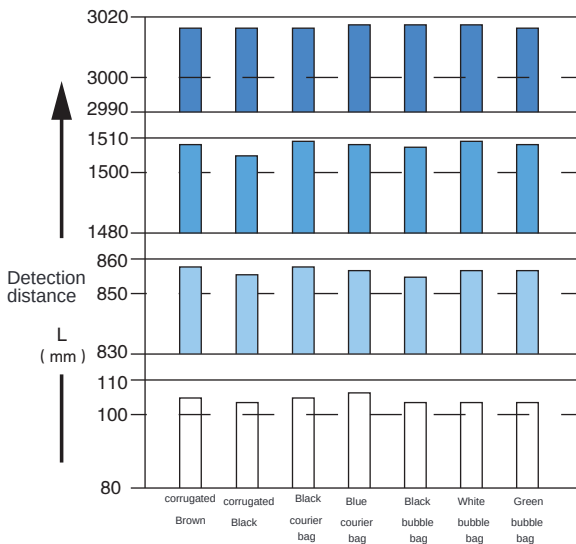
This sensor utilizes the Time-of-Flight (TOF) detection principle which ensures stable detection. Its characteristics allow it to remain unaffected by the color or surface conditions of the detected object, ensuring consistent and reliable detection.



Correlation between color (200mm x 200mm) and sensing range



Correlation between material (200mm x 200mm) and sensing range



### • Detection status mode, one-click setting



L-ON & BGS



L-ON & FGS



D-ON & BGS



D-ON & FGS



※The above is the indicator light status when the target object is detected

By pressing the teach button, user can select various mode combinations, including Light-ON, Dark-ON, Back-Ground Suppression and Fore-Ground Suppression. Lighting patterns of the indicator lights will show the current detection status.



# TOF LASER SENSOR

## • Teaching function

### BGS Mode

Teaching Point 2

Teaching Point 1

1 Point Teaching ON OFF

2 Point Teaching ON OFF

### FGS Mode

Teaching Point 2

Teaching Point 1

Background Object

1 Point Teaching ON OFF

2 Point Teaching ON OFF

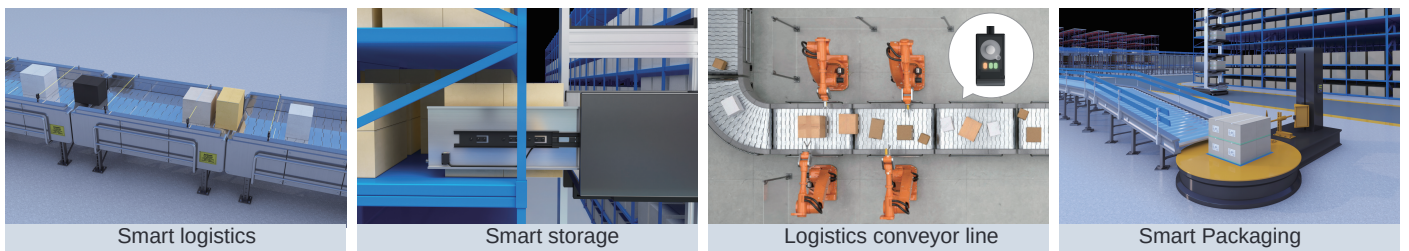
**1-point teaching method**  
Press twice, Light state: Two green lights flickered 2s alternately, teaching completed.

**2-point teaching method**  
Step 1: Press and hold for 2s~5s then release  
At this time, the green light will continue to flash.  
Step 2: Move the object to the teaching point 2 and press it once. The two green lights will flash alternately for 2 seconds and teaching is completed.

Note: During the teaching process, if the green and orange lights continue to flash alternately, it means that the teaching has failed. At this time, you need to short press once to exit the teaching state. After eliminating the cause of teaching failure, teach again.

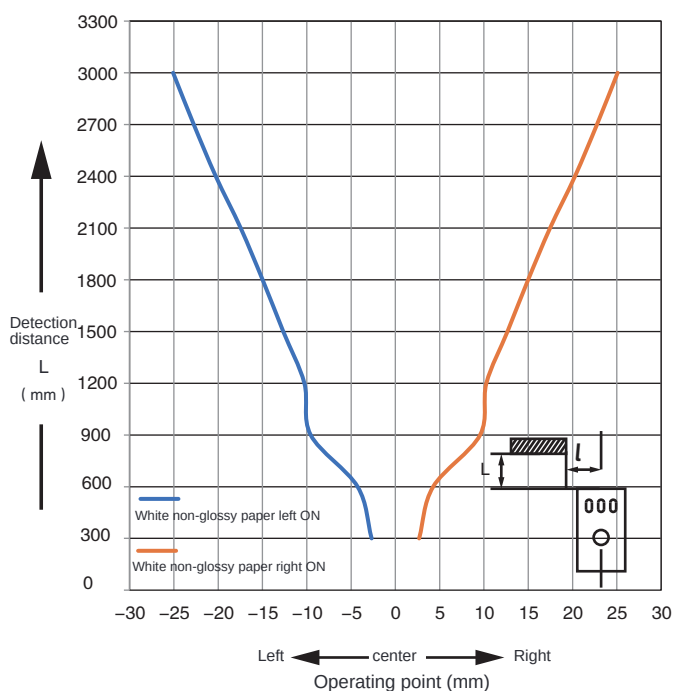
\*1-point of the teaching mode as the point of teaching 1  
2-point of the teaching mode for the teaching point 1 and the teaching point 2, the two points can be switched to each other.

## ■ Application

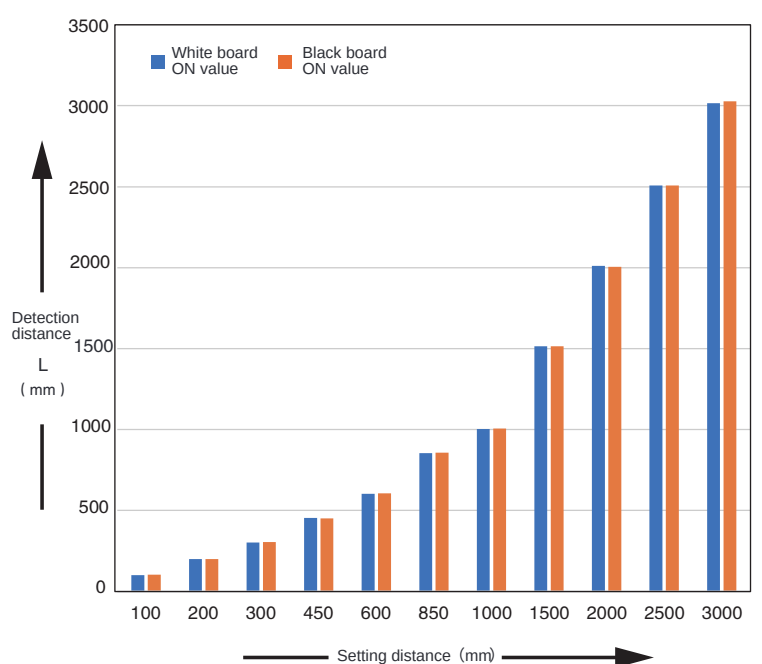


## ■ Characteristics

Parallel movement characteristics



Black and white distance characteristics

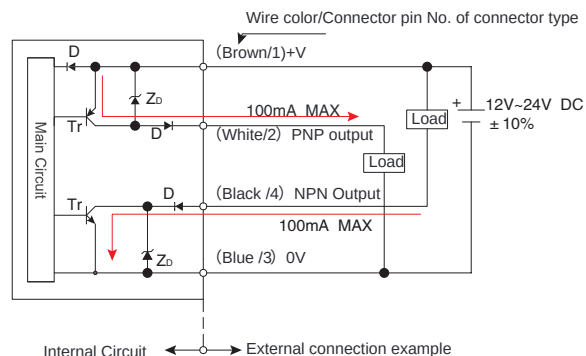


## Specification

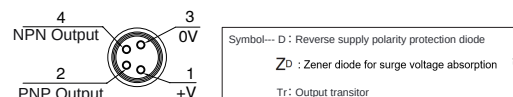
Type	CX-F121/CX-F121-Z	
Sensing range (Note 1)	50mm~3000mm	
Setting range (Note 1)	100mm~3000mm	
Spot Size	φ 32mm (at 1000mm) / φ 105mm (at 3000mm)	
Hysteresis (note 2)	Within 15% of detection distance (within 50mm~900mm range) Within 8% of detection distance (within 900mm~3000mm range)	
Power supply voltage	12V~24V DC ±10% / ripple P-P 10% or less	
Current consumption	40mA or less	
Output	<NPN Output>	<PNP Output>
	NPN open collector transistor ·Max sink current: 100mA ·Applied voltage: 30V DC or less (between -0V output) ·Residual voltage: 2V or less (at 100mA sink current) 1V or less (at 16mA sink current)	PNP open collector transistor ·Max sink current: 100mA ·Applied voltage: 30V DC or less (between -0V output) ·Residual voltage: 2V or less (at 100mA sink current) 1V or less (at 16mA sink current)
Emitting element	infrared invisible light, Light wavelength: 940nm, Class-1 Laser product	
Short circuit protection	Incorporated (auto reset)	
Response time (Note 3)	Within 50ms (set within 900mm) / within 100ms (set within 900mm~3000mm)	
Indicator Lamp	L-ON/D-ON indicator	Green LED (Bright: L-ON / Dark: D-ON)
	BGS/FGS indicator	Green LED (Bright: L-ON / Dark: D-ON)
	Output indicator	Orange LED (Bright: ON / Dark: OFF)
Environment Resistance	Protection structure	IP67(IEC)
	Ambient temperature	-25°C~+55°C (no dew condensation or icing allowed) Storage : -30°C~+70°C
	Ambient humidity	35%RH~85%RH; Storage : 35%RH~85%RH
	Ambient humidity	Incandescent light : 2,000lx or less at the light-receiving face Sunlight : 8,000lx or less at the light-receiving face
	Voltage resistance	AC1000V 1 minute Between all supply terminals connected together and enclosure
	Vibration resistance	frequency 10Hz~500Hz double amplitude 1.5mm (MAX.100m/s <sup>2</sup> ) in X, Y and Z directions for 2 hours each (deenergized)
	Shock resistance	Acceleration 500m/s <sup>2</sup> (50G approx) in X, Y and Z directions for 3 times each (deenergized)
Insulation resistance	20MΩ , or more, with 250V DC merger between all supply terminals connected together and enclosure Based on DC 250V high resistance meter	
Material	Enclosure: PBT Lens: PMMA Button: PC+TPU M8 terminal: PBT	
Cable	Type and length	0.2mm <sup>2</sup> 4-core cabtyre cable, length: 2m/M8 jack cable (Note 4)
	Cable extension	0.3mm <sup>2</sup> or more can be extended up to 100m
	Identification (color)	Brown/1: +V Blue/3: 0V Black/4: NPN White/2: PNP
Weight	CX-F121: Net weight: approx 50g Package weight: approx 55g CX-F121-Z : Net weight: approx 7g Package weight: approx 12g	

Note 1: Sensing range and setting range are based on the setting of white non-glossy paper (200mm×200mm)  
Note 2: The product is not in the BGS mode at 1-point (based on white light-free paper)  
Note 3: Response time changes under abnormal and noisy environments  
Note 4: Universal M8 jack cable

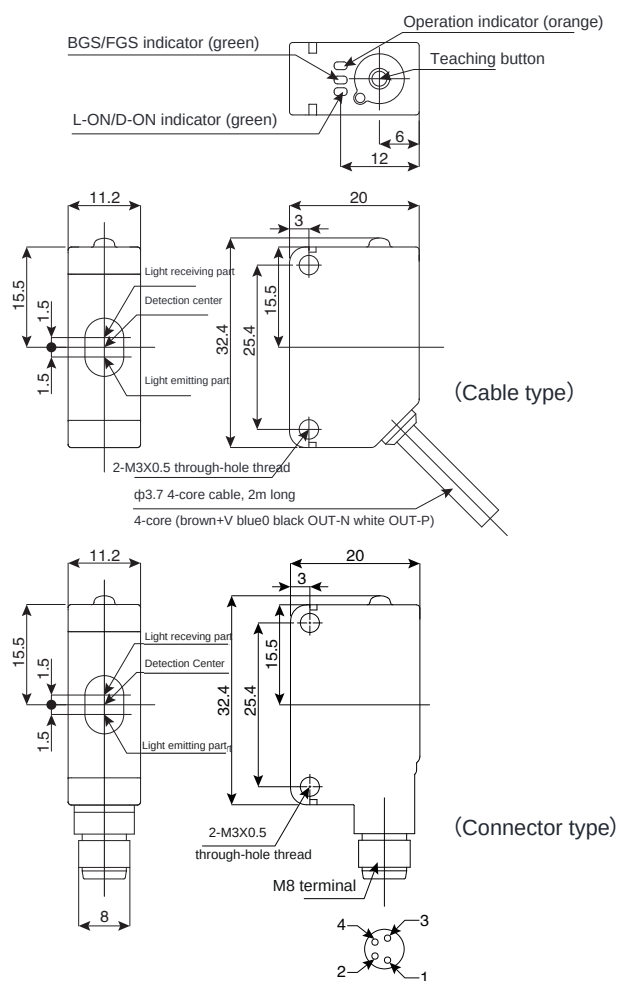
## Input & Output circuit



### ● CX-F121-Z Terminal layout



## Dimensions (unit: mm)



• Please contact us

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PIDSAP-CX-F100

Specifications are subject to change without notice.