

- Thank you for using **TAKEX** products.
- Please read this manual carefully prior to sensor use.

SPECIFICATIONS



Models	NPN Output	CX-T3D ※1	CX-M2RD	CX-R01	CX-R03V	CX-R05 ※
	PNP Output	CX-T3DPN ※2	CX-M2RDPN	CX-R01PN	CX-R03VPN	CX-R05PN ※
Detection	Throughbeam	Polarized Retro reflection		Diffuse reflection		
Range	3m	2m ※3	100mm ※4	300mm ※5	500mm ※6	
Detecting object	Opaque φ15 (Min)		Opaque objects			
Power supply	12-24VDC ±10%, Ripple 10% (Max)					
Current consumption (Max)	NPN	Trns : 17mA Rcvr : 17mA	20mA	17mA	20mA	23mA
	PNP	Trns : 17mA Rcvr : 23mA	24mA	23mA	26mA	30mA
Output mode	NPN	NPN open collector Rating : Sink current : 100mA, 30VDC (Max)				
	PNP	PNP open collector Rating : Source current : 100mA, 30VDC (Max)				
Operating mode	Dark-On			Light-On		
Response time	0.35 ms (Max)					
Hysteresis (Max)				5 % (Max)		10% (Max)
Beam deviation	7° (Receiver)	10° (Reflector)				
Light source	Infrared LED	Red LED	Infrared LED			
Wavelength	950nm	700nm	880nm			
LED Indicator	Trns : Power (Red LED) Rcvr : Operation (Red LED)	Operation (Red LED)				
Sensitivity adjustment				Built-in potentiometer		
Circuit protection	Built in Short circuit protection					
Material	Case & Lense : Polycarbonate	Lenses : Acrylic Case : Polycarbonate	Case & Lense : Polycarbonate			
Connection	Flying lead φ 4					
	Trns : 0.2mm ² ×2C 2m Gray Rcvr : 0.2mm ² ×3C 2m Black	0.2mm ² ×3C 2m Length				
Weight (Max)	Trns : 65g Rcvr : 65g	65 g				
Ambient light	Withstands 5,000 lx (Max)					
Operating temp.	-25 to +55°C					
Humidity	35 to 85%RH					
Case protection	I P 66					
Vibration	10 to 55Hz, 1.5mm Amplitude 2h., 3 Directions					
Shock resistance	100m/s ² 3 times in X, Y and Z directions					
Dielectric Withstanding	AC1000V, 1 min.					
Insulation resistance	DC500V, 20MΩ or more					

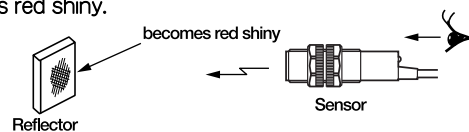
- ※ Discontinued as of Jan. 2013.
 ※1 Trns : CX-TL3 Rcvr : CX-TR3D
 ※2 Trns : CX-TL3 Rcvr : CX-TR3DPN
 ※3 Reflector : K-7 ※5 100×100mm white paper
 ※4 50×50mm white paper ※6 200×200mm white paper

NOTES

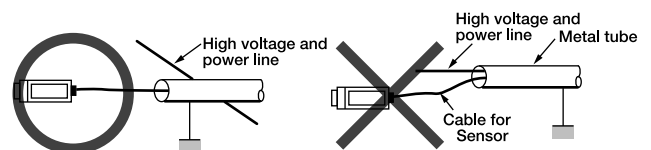
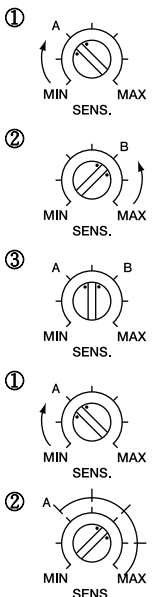
- Do not tighten up the nuts of main body with excessive force because such an action may collapse the screw threads, resulting in loose clamping. Tightening torque is 0.98N·m or less.
- With all the models of this product, the fitted angle, if once locked, can not be adjusted.
- Use a dry, soft cloth for cleaning the lens and case, and wipe it off. Never use solvents such as thinner or alcohol.
- Never cycle on/off continually.
- Though this sensor is of jetproof construction, you can not use the sensor at the place with water being sprayed at all times or under the water.
- Do not wire together with power line. Sole wiring through metal tube is required by high voltage or power line preventing from mistakes and damage.

ADJUSTMENT

- ◆ CX-T3D (Throughbeam type)
CX-T3DPN (Throughbeam type)
 - Swing the sensor up/down and right/left and set it at the center between the position where the light indicator (red LED) is off in each direction.
 - Confirm the operation by repeating the light shieldings/projections.
- ◆ CX-M2RD (Polarized Retro Reflection type)
CX-M2RDPN (Polarized Retro Reflection type)
 - Swing the sensor up/down and right/left opposite reflector and set it at the center between the position where the light indicator (red LED) is on in each direction.
 - Confirm the operation by repeating the light shieldings/projections. In this case, adjust the axis at the position where the mirror becomes red shiny.



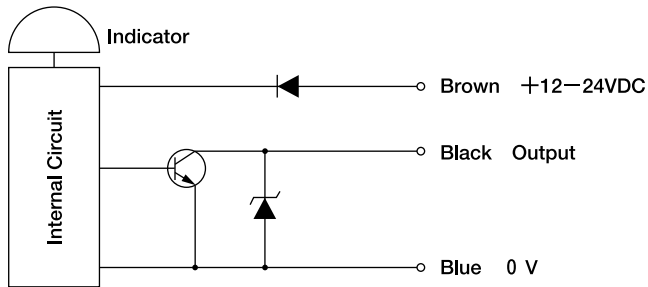
- ◆ CX-R01 (Diffuse Reflection type)
CX-R01PN (Diffuse Reflection type)
 - Set the light beam in a manner that the light indicator lamp (red LED) may come on when the target object is placed at the given position and that the said lamp goes out when the said target object is removed.
 - The background should be set as remote as possible, or a black surface least of reflection power should be selected.
 - In case of diffuse reflection type the setting distance may vary with the surface condition of target object. Since this product isn't equipped with a sensitivity adjusting volume, the light beam should be adjusted to a stable operation by changing the distance, the angle and the substance at background.
- ◆ CX-R03V (Diffuse Reflection type with potentiometer)
CX-R03VPN (Diffuse Reflection type with potentiometer)
 - In case of reflective background
 - ① Set a target object to the desired position and then increase the sensitivity adjustment gradually from the minimum position until the indicator LED is on. (Point A)
 - ② Remove the target object and gradually decrease the sensitivity adjustment from the maximum position until the LED is off (Point B). If the LED is still off even though the potentiometer is at the maximum position, this maximum position should be the point B.
 - ③ Set the potentiometer at the center between Point A and B.
 - In case of no-reflective background
 - ① Point A is the same point mentioned above.
 - ② Set the potentiometer at the center between Point A and Max.
 Confirm both of red LED and green LED light.



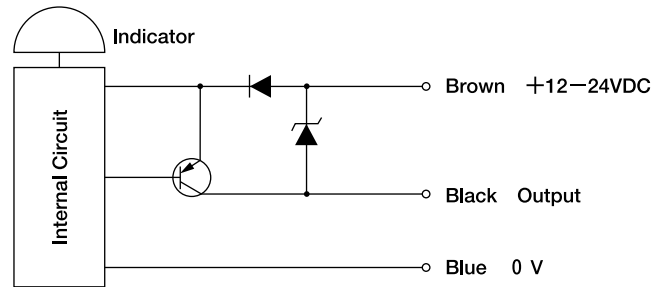
- Use power supply which is limited the current (2A) in accordance with the lead wire size of the sensor.
- When a commercial available switching regulator is used, ground the FG (frame ground) terminal.
- Avoid the installation of sensor near by high frequency equipment such as a fluorescent light or inverter.
- Use an insulated transformer.
- Don't use an auto-transformer.
- Available cable is φ 0.3mm² (Min) for extension.

OUTPUT CIRCUIT & WIRING

NPN OUTPUT TYPE
Sink current 30VDC, 100mA (Max)



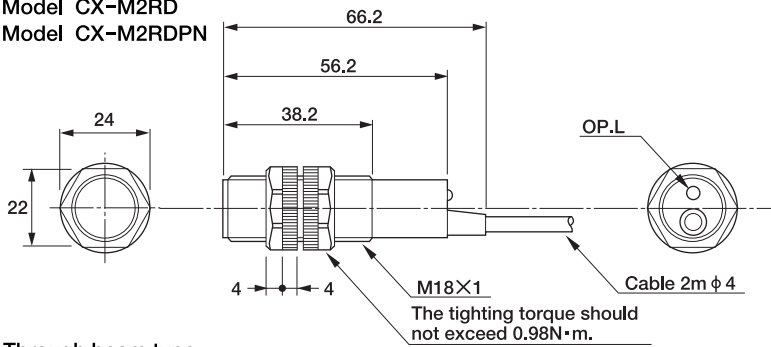
PNP OUTPUT TYPE
Source current 30VDC, 100mA (Max)



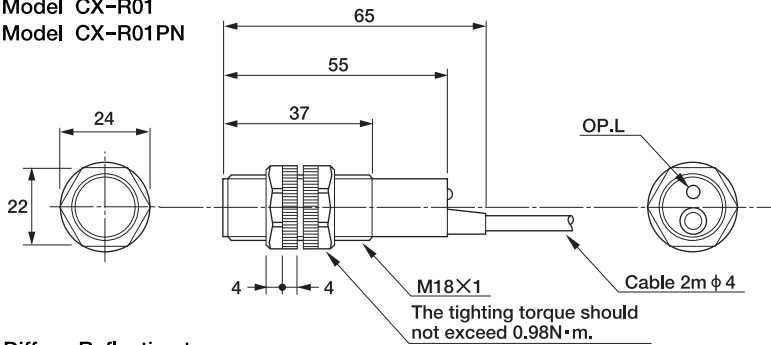
- The transmitter is provided with power supply lines (brown : 12-24VDC, blue : 0V) only.
- The output transistor turns off when load short circuit or overload occurs.
Check the load and turn the power back on.

DIMENSIONS (unit : mm)

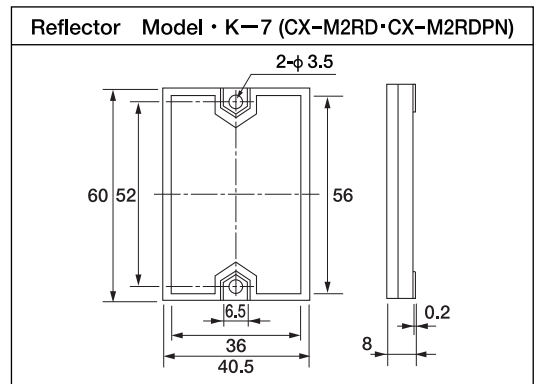
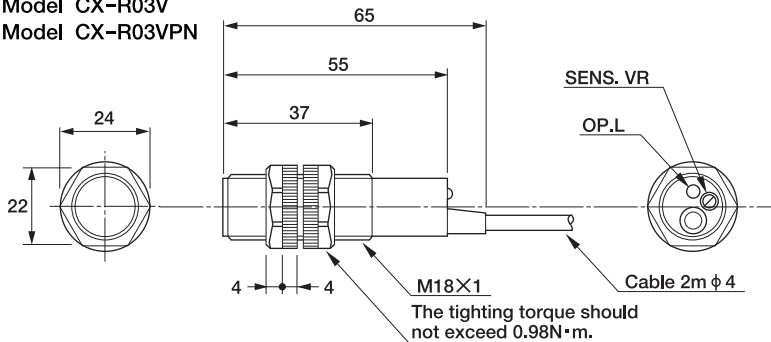
- Polarized Retro Reflection type
Model CX-M2RD
Model CX-M2RDPN



- Through beam type
Model CX-T3D
Model CX-T3DPN
- Diffuse Reflection type
Model CX-R01
Model CX-R01PN



- Diffuse Reflection type
Model CX-R03V
Model CX-R03VPN



- This sensor is designed to detect a specific object. It is not provided with control functions for prevention of injuries or accidents in itself.
- Takex will not held responsible for any damage or loss incurred due to accidents, faulty installation, abuse, misuse, improper maintenance or acts of God including lightning surge.
- Specifications and dimensions may be subject to change without notice.