

Universal AC/DC Photoelectric Sensors



BX Series CATALOG

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Features

- Built-in sensitivity adjuster
- Timer function (built-in timer model)
 - ON Delay, OFF Delay, One-shot Delay
- NPN/PNP open collector simultaneous output (DC power Type)
- Self-diagnosis function (green lights up in the stable level)
- Built-in reverse power protection circuit and output short overcurrent protection circuit
- Wide power supply range: Universal 24-240 VDC \equiv / 24-240 VAC \sim
- IP66 protection rating (IEC standard)

Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

BX ① - ② ③ - ④

① Sensing distance

Number: Sensing distance (unit: mm)
Number+M: Sensing distance (unit: m)

② Sensing type

T: Through-beam
M: Retroreflective
P: Polarized retroreflective
D: Diffuse reflective

③ Output method

FR: AC/DC power, relay contact output
DT: DC power, solid state (transistor) output

④ Function

No mark: No function
T: Built-in timer function

Product Components

Sensing type	Through-beam	Retroreflective	Polarized retroreflective	Diffuse reflective
Product components	Product, instruction manual			
Reflector	-	MS-2	MS-3	-
Adjustment screwdriver	× 1	× 1	× 1	× 1
Bracket / Z bolt	× 2	× 1	× 1	× 1
Washer	× 2	× 1	× 1	× 1
Bolt / nut	× 4	× 2	× 2	× 2
Ø 6 / Ø 10 waterproof rubber	× 2	× 1	× 1	× 1

Specifications

Model	BX15M-T□-□	BX5M-M□-□	BX3M-P□-□	BX700-D□-□
Sensing type	Through-beam	Retroreflective	Polarized retroreflective	Diffuse reflective
Sensing distance	15 m	0.1 to 5 m ⁽⁰¹⁾	0.1 to 3 m ⁽⁰²⁾	700 mm ⁽⁰³⁾
Sensing target	Opaque materials	Opaque materials	Opaque materials	Opaque, translucent materials
Min. sensing target	≥ Ø 15 mm	≥ Ø 60 mm	≥ Ø 60 mm	-
Hysteresis	-	-	-	≤ 20 % of sensing distance
Response time	AC/DC power, relay contact output model: ≤ 20 ms DC power, solid state (transistor) output model: ≤ 1 ms			
Light source	Infrared	Infrared	Red	Infrared
Peak emission wavelength	850 nm	850 nm	660 nm	940 nm
Sensitivity adjustment	YES (Adjuster)	YES (Adjuster)	YES (Adjuster)	YES (Adjuster)
Timer mode ⁽⁰⁴⁾	OFF, ON Delay, OFF Delay, One Shot Delay mode selectable (Switch): 0.1 to 5 sec (Adjuster)			
Operation mode	Light ON mode - Dark ON mode selectable (Switch)			
Indicator	Operation indicator (yellow), self-diagnosis indicator (green), power indicator (yellow) ⁽⁰⁵⁾			
Approval	CE ENEC	CE ENEC	CE ENEC	CE ENEC
Unit weight	Based on the standard model, timer model: weight + 1 g			
AC/DC power	≈ 225 g	≈ 130 g	≈ 148 g	≈ 115 g
DC power	≈ 211 g	≈ 123 g	≈ 141 g	≈ 116 g

01) Reflector (MS-2)

02) Reflector (MS-3)

03) Non-glossy white paper 200 × 200 mm

04) Only for the timer model

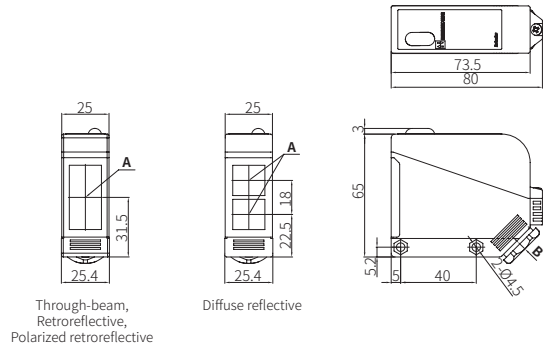
05) Only for the emitter

Output method	AC/DC power, relay contact output	DC power, Transistor solid state output
Power supply	24-240 VAC ~ ± 10 % 50/60 Hz 24-240 VDC ~ ± 10 % (ripple P-P: ≤ 10 %)	12-24 VDC ~ ± 10 % (ripple P-P: ≤ 10 %)
Power / current consumption	≤ 3 VA	It depends on the sensing type
Through-beam		Emitter: ≤ 50 mA, receiver: ≤ 50 mA
Reflective		≤ 50 mA
Control output	Relay contact output	NPN open collector - PNP open collector simultaneous output
Contact capacity	250 VAC ~ 3 A of resistance load, 30 VDC ~ 3 A of resistance load	
Contact composition	1c	-
Relay life cycle	Mechanical: ≥ 50,000,000 Electrical: ≥ 100,000	
Load voltage		≤ 30 VDC ~
Load current		≤ 200 mA
Residual voltage		NPN: ≤ 1 VDC ~, PNP: ≤ 2.5 VDC ~
Self-diagnosis output		NPN open collector output ⁽⁰¹⁾
Protection circuit	Reverse power protection circuit, output short overcurrent protection circuit	
Insulation resistance	≥ 20 M.Ω (500 VDC ~ megger)	
Insulation type	Double or strong insulation (dielectric voltage between the measured input and the power: 1.5 kV)	-
Noise immunity	± 1,000 VDC ~ the square wave noise (pulse width: 1 μs) by the noise simulator	± 240 VDC ~ the square wave noise (pulse width: 1 μs) by the noise simulator
Dielectric strength	1,500 VAC ~ 50/60 Hz for 1 min	
Vibration	1.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 2 hours	
Vibration (malfunction)	1.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 min) in each X, Y, Z direction for 10 min	
Shock	500 m/s ² (≈ 50 G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100 m/s ² (≈ 10 G) in each X, Y, Z direction for 3 times	
Ambient illuminance (receiver)	Sunlight: ≤ 11,000 lx, incandescent lamp: ≤ 3,000 lx	
Ambient temperature	-20 to 55 °C, storage: -25 to 70 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)	
Protection rating	IP66 (IEC standard)	
Connection	Terminal type	
Material	Case, lens cover: PC, sensing part: Acrylic, bracket: SPCC, bolt: SCM, nut: SCM	

01) Load voltage: ≤ 30 VDC ~, load current: ≤ 50 mA, residual voltage: ≤ 1 VDC ~ (50 mA), ≤ 0.4 VDC ~ (16 mA)

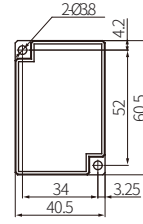
Dimensions

• Unit: mm, For the detailed drawings, follow the Autonics website.

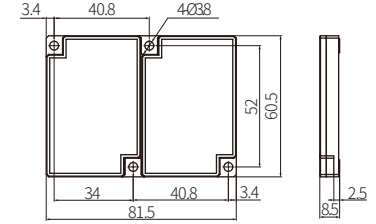


A Optical axis **B** 22 mm hexagonal nut

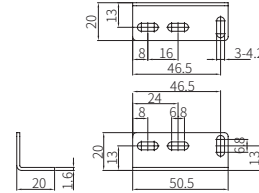
■ Reflector (MS-2)



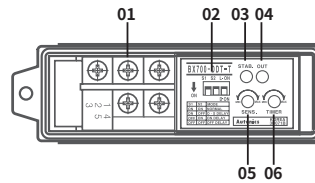
■ Reflector (MS-3)



■ Bracket



Unit Descriptions



- 01. Terminal (power, input/output)**
Refer to the 'Connections.'
- 02. Setting switch**
Select L.ON (Light ON) or D.ON (Dark ON) mode.
Built-in timer model: Configure SW1 and SW2 for setting the timer mode.
Refer to the product manual for 'Timer Setting.'
- 03. Self-diagnosis indicator (green)**
- 04. Operation indicator (yellow)**
- 05. Sensitivity adjuster**
- 06. Timer adjuster**
(built-in timer model)

Sold Separately

- Reflector: MS Series
- Retroreflective tape: MST Series