

BJ Series

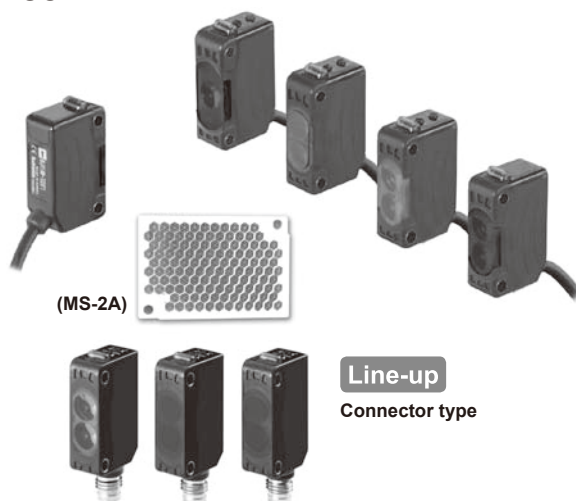
Compact and Long sensing distance

■ Features

■ Long distance sensing type

- Long sensing distance with high quality lens
- Long sensing distance
 - : Through-beam type 15m, Diffuse reflective type 1m, Polarized retroreflective type 3m(MS-2A)
- M.S.R.(Mirror Surface Rejection) function (Polarized retroreflective type)
- Compact size: W20×H32×L10.6mm
- Protection structure IP65/IP67(IEC standard)
- Light ON/Dark ON selectable by VR
- Sensitivity adjustment VR incorporated
- Built-in reverse power polarity, output short, overcurrent protection circuit
- Mutual interference prevention function (Except through-beam type)
- Improved noise resistance and minimize effect of disturbance light

⚠ Please read "Caution for your safety" in operation manual before using.



■ Specifications

※The model name with '-C' is connector type.

Type		Long distance sensing type						
Model	NPN open collector output	BJ15M-TDT BJ15M-TDT-C	BJ10M-TDT BJ10M-TDT-C	BJ7M-TDT	BJ3M-PDT BJ3M-PDT-C	BJ1M-DDT BJ1M-DDT-C	BJ300-DDT BJ300-DDT-C	BJ100-DDT BJ100-DDT-C
	PNP open collector output	BJ15M-TDT-P BJ15M-TDT-C-P	BJ10M-TDT-P BJ10M-TDT-C-P	BJ7M-TDT-P	BJ3M-PDT-P BJ3M-PDT-C-P	BJ1M-DDT-P BJ1M-DDT-C-P	BJ300-DDT-P BJ300-DDT-C-P	BJ100-DDT-P BJ100-DDT-C-P
Sensing type		Through-beam			Polarized retroreflective	Diffuse reflective		
Sensing distance		15m	10m	7m	0.1 to 3m ^{※1} (MS-2A)	1m (Non-glossy white paper 300×300mm)	300mm (Non-glossy white paper 100×100mm)	100mm (Non-glossy white paper 100×100mm)
Sensing target		Opaque material over ø12mm		Opaque material over ø8mm	Opaque material over ø75mm	Translucent, opaque materials		
Hysteresis		—					Max. 20% at sensing distance	
Response time		Max. 1ms						
Power supply		12-24VDC±10%(Ripple P-P: Max.10%)						
Current consumption		Emitter/Receiver: Max. 20mA			Max. 30mA			
Light source		Infrared LED (850nm)	Red LED (660nm)	Red LED (650nm)	Red LED (660nm)	Infrared LED (850nm)	Red LED (660nm)	Infrared LED (850nm)
Sensitivity adjustment		Built-in the adjustment VR						
Operation mode		Light on/Dark on selectable by VR						
Control output		NPN or PNP open collector output ●Load voltage: Max. 26.4VDC ●Load current: Max. 100mA ●Residual voltage - NPN: Max. 1V, PNP: Max. 2.5V						
Protection circuit		Reverse polarity protection, output short-circuit protection, interference prevention function(Except through-beam type)						
Indicator		Operation: Red, Stable: Green(Emitter's power indicator: Green)						
Insulation resistance		Max.20MQ(at 500VDC megger)						
Noise resistance		±240V the square wave noise(pulse width:1μs) by the noise simulator						
Dielectric strength		1000VAC 50/60Hz for 1minute						
Vibration		1.5mm amplitude or 300m/s ² at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours						
Shock		500m/s ² (approx. 50G) in each of X, Y, Z directions for 3 times						
Environment	Ambient illumination	Sunlight: Max. 11,000lx, Incandescent lamp: Max. 3,000lx(Receiver illumination)						
	Ambient temperature	-25 to 55°C, storage: -40 to 70°C						
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH						
Protection		BJ - IP65(IEC standard), BJ-C - IP67(at non-dew status)						
Material		Case: PC+ABS, LED Cap: PC, Sensing part: PMMA						
Cable ^{※2}		BJ: ø3.5, 3-wire, Length: 2m(Emitter of through-beam type: ø3.5, 2-wire, Length: 2m) (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator out diameter: ø1)						
Accessory	Common	Mounting bracket, Bolt, Nut, VR adjustment driver						
	Individual	—			Reflector(MS-2A)		—	
Approval		CE						
Unit weight		BJ: Approx. 90g, BJ-C: Approx. 20g			BJ: Approx 60g BJ-C: Approx 30g	BJ: Approx. 45g, BJ-C: Approx. 10g		

※1: The sensing distance is extended to 0.1 to 4m or 0.1 to 5m when using optional reflector MS-2S or MS-3S.

※2: M8 connector cable is sold separately. (Cable - AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator out diameter: ø1.25)

※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

Long sensing distance/BGS reflective/Micro spot type

Transparent glass sensing/BGS reflective/Micro spot type

■ Features

■ BGS reflective type

- Adopts BGS method superior than convergent reflective to minimize error by background, or color, material of sensing object for stable sensing by adjusting the volume
- Visible light source to check the position of sensing spot and small spot minimizing effect of the ambient objects with narrow sensing width

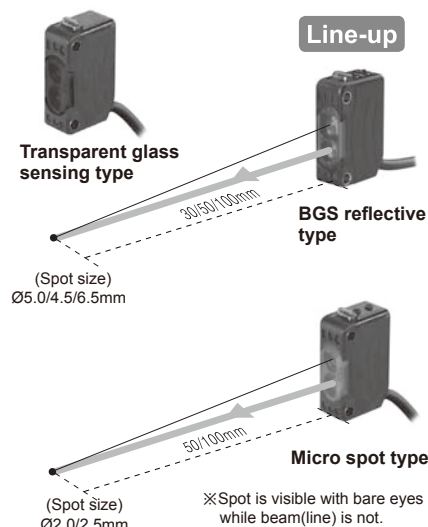
■ Transparent glass sensing type / Micro spot type

- Stable sensing for transparent object(LCD, PDP, glass etc) by BJG30-DDT
- Easy to check sensing location with visible micro spot(BJN Series)
- Detects tiny objects (min. sensing target Ø0.2mm copper wire)

■ Commonness

- Compact size: W20×H32×L10.6mm
- Protection structure IP65(IEC standard)
- Light ON/Dark ON selectable by VR(Except BJG30-DDT)
- Sensitivity adjustment VR incorporated(Except BJG3 DDT)
- Built-in reverse power polarity, output short, overcurrent protection circuit
- Mutual interference prevention function(Except BGS reflective type)
- Improved noise resistance and minimized effect of disturbance light

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■ Specifications

Type		Transparent glass sensing type		BGS reflective type			Micro spot type	
Model	NPN open collector output	BJG30-DDT		BJ30-BDT	BJ50-BDT	BJ100-BDT	BJN50-NDT	BJN100-NDT
	PNP open collector output	—		BJ30-BDT-P	BJ50-BDT-P	BJ100-BDT-P	BJN50-NDT-P	BJN100-NDT-P
Sensing type		Diffuse reflective		BGS reflective			Narrow beam reflective	
Sensing distance		30mm (Non-glossy white paper 100×100mm)	15mm (Transparent glass 50×50mm, t=3.0mm)	10 to 30mm (Non-glossy white paper 50×50mm)	10 to 50mm (Non-glossy white paper 50×50mm)	10 to 100mm (Non-glossy white paper 100×100mm)	30 to 70mm	70 to 130mm
Sensing target		Transparent glass, opaque materials, translucent		Translucent, opaque materials			Translucent, opaque materials	
Min. diameter of transmitting SPOT		—		Approx. ø5.0mm	Approx. ø4.5mm	Approx. ø6.5mm	Approx. ø2.0mm	Approx. ø2.5mm
Min.sensing target		—					Approx. min. ø0.2mm(Copper wire)	
Hysteresis		Max. 20% at sensing distance		Max. 10% at sensing distance			Max. 25% at sensing distance	Max. 20% at sensing distance
Response time		Max. 1ms		Max. 1.5ms			Max. 1ms	
Power supply		12-24VDC ±10%(Ripple P-P: Max.10%)						
Current consumption		Max. 30mA						
Light source/Wavelength		Infrared LED(850nm)		Red LED(660nm)			Red LED(650nm)	
Sensitivity adjustment		—		Built-in the adjustment VR				
Operation mode		Light ON fixed		Light ON / Dark ON selectable by VR				
Control output		NPN open collector output ●Load voltage: Max. 26.4VDC ●Load current: Max.100mA ●Residual voltage: Max. 1V		NPN or PNP open collector output ●Load voltage: Max. 26.4VDC ●Load current: Max. 100mA ●Residual voltage - NPN: Max. 1V, PNP: Min. 2.5V				
Protection circuit		Reverse polarity protection, output short-circuit protection, interference prevention function(Exept BGS reflective type)						
Indicator		Operation indicator: red, Stability indicator: green						
Insulation resistance		Min. 20MΩ(at 500VDC megger)						
Noise resistance		±240V the square wave noise(pulse width:1μs) by the noise simulator						
Dielectric strength		1,000VAC 50/60Hz for 1minute						
Vibration		1.5mm amplitude or 300m/s ² at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 2 hours						
Shock		500m/s ² (approx. 50G) in each of X, Y, Z directions for 3 times						
Environment	Ambient illumination	Sunlight: Max. 11,000lx, Incandescent lamp: Max. 3,000lx(Receiver illumination)						
	Ambient temperature	-25 to 55°C, storage: -40 to 70°C						
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH						
Protection		IP65(IEC standard)						
Material		Case: PC+ABS, LED Cap: PC, Sensing part: PMMA						
Cable		ø3.5, 3-wire, Length: 2m(AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator out diameter: ø1)						
Accessory		Mounting bracket, Bolt		Mounting bracket, Bolt, Adjustment driver				
Approval		CE						
Unit weight		Approx. 45g		Approx. 50g			Approx. 45g	

※The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment.

(A) Photo electric sensor

(B) Fiber optic sensor

(C) Door/Area sensor

(D) Proximity sensor

(E) Pressure sensor

(F) Rotary encoder

(G) Connector/Socket

(H) Temp. controller

(I) SSR/Power controller

(J) Counter

(K) Timer

(L) Panel meter

(M) Tacho/Speed/Pulse meter

(N) Display unit

(O) Sensor controller

(P) Switching mode power supply

(Q) Stepper motor& Driver&Controller

(R) Graphic/Logic panel

(S) Field network device

(T) Software

(U) Other