Autonics

Compact Oil Proof Type Photoelectric Sensor

BJR-F SERIES



Please read the following safety considerations before use.

Safety Considerations

- ×Please observe all safety considerations for safe and proper product operation to avoid
- ★ Symbol represents caution due to special circumstances in which hazards may occur.

▲ Warning Failure to follow these instructions may result in serious injury or death. ▲ Caution Failure to follow these instructions may result in personal injury or product damage.

- I. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety
- equipment, crime/disaster prevention devices, etc.)
 Failure to follow this instruction may result in fire, personal injury, or economic loss.

- Failure to follow this instruction may result in fire, personal injury, or economic loss.

 2. Do not disassemble or modify the unit.
 Failure to follow this instruction may result in fire.

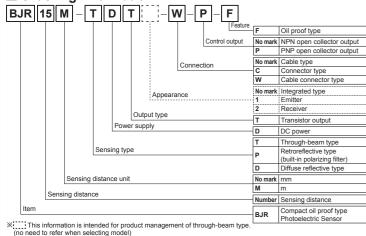
 3. Do not connect, repair, or inspect the unit while connected to a power source.
 Failure to follow this instruction may result in fire.

 4. Check 'Connections' before wiring.
 Failure to follow this instruction may result in fire.

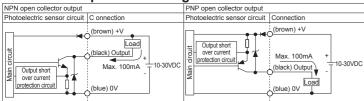
⚠ Caution

- Use the unit within the rated specifications.
 Failure to follow this instruction may result in fire or product damage.
 Use dry cloth to clean the unit, and do not use water or organic solvent.
- Failure to follow this instruction may result in fire.
- 3. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present. Failure to follow this instruction may result in fire or explosion.

Ordering Information



■ Control Output Circuit Diagram



※If short-circuit the control output terminal or supply current over the rated specification, normal control signal is not output due to the output short over current protection circuit

Operation Mode

Operation mode	Light ON	Dark ON					
Receiver operation	Received light Interrupted light	Received light Interrupted light					
Operation indicator (yellow LED)	ON OFF	ON OFF					
Transistor output	ON OFF	ON OFF					

*The above specifications are subject to change and some models may be discontinued without notice. *Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

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Collector output C-P-F C-P-F C-P-F Collector output C-P-F C-P-F Collector output C-P-F		IPN open ollector output	BJR15M-TDT -□-F	BJR10M-TDT -□-F	BJR3M-PDT-□-F	BJR1M-DDT-□-F	BJR100-DDT-□-F	
Sensing distance Sensing target Opaque material over Ø12mm Opaque material over Ø15mm Translucent, opaque materials Hysteresis —					BJR3M-PDT-□-P-F	BJR1M-DDT-□-P-F	BJR100-DDT-□-P-F	
Sensing target Opaque material over Ø12mm Opaque material over Ø15mm Translucent, opaque materials — Max. 20% at sensing distance Response time Max. 1ms Power supply 10-30VDC=±10% (ripple P-P: max. 10%) Current consumption Infrared LED Red LED (Red LED (660nm) Red LED (660nm) Red LED (660nm) Red LED (660nm) Infrared LED (850nm) Sensitivity adjustment Sensitivity adjustment Sensitivity adjustment Operation mode Light ON / Dark ON selectable by switch NPN or PNP open collector output Load voltage: max. 30VDC=±10ad current: max. 100mA * Residual voltage - NPN: max. 1VDC=; PNP: max. 2 Power reverse polarity protection circuit, output short over current protection circuit, output short over current protection circuit connection Cable type, connector type, cable connector type, cable connection 1.5mm amplitude at frequency of 10 to 55Hz (for 1 minute Cable type. 25 to 60°C, storage: 40 to 70°C Ambient timu, 35 to 85%RH, storage: 35 to 85%RH Protection structure Cable Commotor Cable C	Sensing type		Through-beam type		(built-in polarizing filter)	Diffuse reflective type		
Hysteresis — Max. 1ms	Sens	ing distance	15m 10m		3m ^{×1}	1m ^{×2} 100mm ^{×3}		
Response time Max. 1ms	Sensing target					materials		
Description	Hysteresis		Max. 20% at sensing distance					
Current consumption Emitter / Receiver : max. 20mA Max. 30mA Infrared LED Red LED (860mm) (86	Resp	onse time	Max. 1ms					
Infrared LED (850nm) Red LED (660nm) Red LED (660nm) Infrared LED (850nm) Red LED (850nm) Red LED (660nm) Infrared LED (850nm) Red LED (850nm) R	Pow	er supply	10-30VDC== ±10% (ripple P-P: max. 10%)					
## G850mm (6850mm) (6850mm) Red LED (680nm) Red LED (680nm) Infrared LeD (680nm	Curre	ent consumption						
Operation mode Light ON / Dark ON selectable by switch NPN or PNP or PNP open collector output Load voltage: max. 30VDC::: 1.cad current: max. 100mA * Residual voltage - NPN: max. 1VDC::; PNP: max. 2 Protection circuit Protection circuit ndicator Operation indicator: yellow LED, stability indicator: green LED (emitter's power indicator: red LED connection Cable type, connector type, cable connector type Noise immunity Dielectric strength 1,000/AC 50/60Hz for 1 minute 1,5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours Shock Ambient humi, 35 to 85%RH, storage: 35 to 85%RH Protection structure Material Cable type Cable type Cable type Cable type Cable connector yellow LED, stability indicator: green LED (emitter's power indicator: red LED (for 1 minute to 1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours 500m/s² (approx. 50G) in each X, Y, Z direction for 3 times Shock Ambient humi, 35 to 85%RH, storage: 35 to 85%RH Protection structure Material Cable type Cable type Cable type Cable type Cable type Cable onnector yellow Legonova (almost or through-beam type: Ø4mm, 2-wire, 2m) (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Mounting bracket ³⁶ , M3 bolt: 4, adjustment screwdriver Individual Mounting bracket ³⁶ , M3 bolt: 4, adjustment screwdriver Individual Cable type Approx. 145g (approx. 95g) Approx. 15g (approx. 50g) (approx. 60g (approx. 60g) Approx. 75g (approx. 60g) (approx. 60g) Approx. 75g (approx. 60g) (approx. 60g)	Light	source			Red LED (660nm)	Red LED (660nm)	Infrared LED (850nm	
New PNP open collector output	Sens	itivity adjustment	Sensitivity adjuster					
Load voltage = Nax. 30/DC= - Load current: max. 100mA + Residual voltage - NFN: max. 1/DC=, PNP: max. 2					by switch			
Protection circuit protection cable connector prote	Cont	rol output	NPN or PNP open collector output					
Connection Cable type, connector type, cable connector type Insulation resistance Cable type, connector type, cable connector type Insulation resistance Cable type, connector type, cable connector type 1,000VAC 50/660Hz for 1 minute 1,000VAC 50/660Hz for 1 minute 1,5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours 5,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 6,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 6,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 6,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 6,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 6,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 8,00m/s' (approx. 50G) in each X, Y, Z direction for 3 times 1,000VAC 50/660Hz for 1 minute 1,000VAC 50/6	Protection circuit		protection circuit, output short over current protection circuit, output short over current protection circuit, interference prevention function					
Insulation resistance Noise immunity 2420V the square wave noise (pulse width: 1μs) by the noise simulator 2420V the square wave noise (pulse width: 1μs) by the noise simulator 1,000VAC 50/60NLF for 1 minute 1,000VAC 50/60NLF for 1 minute 1,000VAC 50/60NLF for 1 minute 500m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 50G) in each X, Y, Z direction for 3 times 60m/s² (approx. 1400ML) in each X, Y, Z direction for 2 hours 60m/s² (approx. 1400ML) in each X, Y, Z direction for 2 hours 60m/s² (approx. 1400ML) in each X, Y, Z direction for 2 hours 60m/s² (approx. 1400ML) in each X, Y, Z direction for 2 hours 60m/s² (approx. 1400ML) in each X, Y, Z direction for 3 times 60m/s² (approx. 1400ML) in each X, Y, Z direction for 2 hours 60m/s² (approx. 1400ML) in each X, Y, Z direction for 3 times 60m/s² (approx. 150 (approx. 150 (approx. 150 (approx. 150 (approx. 150 (approx. 150 (approx. 60) (approx. 60) (approx. 60) 60m/s² (approx. 1400ML) in each X, Y, Z direction for 2 hours 60m/s² (approx. 1400ML) in each X, Y, Z direction for 3 times 60m/s² (approx. 150 (approx. 60) (approx. 60) (approx. 60) 60m/s² (approx. 60) (approx. 60) (approx. 60)	Indic	ndicator Operation indicator: yellow LED, stability indicator: gr			D, stability indicator: gre	en LED (emitter's pow	er indicator: red LED)	
Noise immunity ±240V the square wave noise (pulse width: 1µs) by the noise simulator 1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours 5hock 500m/s² (approx. 50G) in each X, Y, Z direction for 3 times 5mbient time. Ambient tillu. 5mbient thum. 5mbient thu	Connection							
Dielectric strength 1,000VAC 50/60Hz for 1 minute 1,5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours 550m/s* (approx. 505) in each X, Y, Z direction for 3 times Ambient time, Ambient time, Ambient tumi, 35 to 85%RH, storage: 36 to 85%RH Protection structure Material Cable type Cable type Cable type Cable connector (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Accessory Accessory Common Individual Mounting bracket**, M3 bolt: 4, adjustment screwdriver approx. 55g (approx. 59g) Approx. 145g (approx. 59g) Approx. 15g (approx. 50g) Approx. 60g (approx. 50g)	Insul	ation resistance	Over 20MΩ (at 500VDC megger)					
Vibration 1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 2 hours 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G) in each X, Y, Z direction for 3 times 50m/s² (approx. 50G)	Nois	e immunity	±240V the square wave noise (pulse width: 1μs) by the noise simulator					
Ambient illu. Sunlight: max. 11,000lx, incandescent lamp: max. 3,000lx (receiver illumination)	Diele	ctric strength	1,000VAC 50/60Hz for 1 minute					
Ambient illu. Sunlight: max. 11,000lx, incandescent lamp: max. 3,000lx (receiver illumination) Ambient lemp. 1-25 to 60°C, storage: -40 to 70°C Ambient humi. 35 to 85%RH, storage: -35 to 85%RH Protection structure IP67 (IEC standard), IP67F (IEM standard) Adetrial Cable type Cable type Cable Connector type: 1 Mg (aWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Cable connector Gabre connector Cable connector (WG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common Individual Multip bracket*, M3 bolt: 4, adjustment screwdriver Individual Approx. 145g (approx. 95g) Approx. 115g (approx. 50g) Approx. 100g (approx. 50g) Weight Connector type Approx. 65g (approx. 129) Approx. 115g (approx. 50g) Approx. 60g (approx. 60g)	Vibration		1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours					
Ambient temp 25 to 60°C, storage: -40 to 70°C	Shock							
Ambient temp, 1-25 to 6 U/C storage: -40 to 7/UC		Ambient illu.	Sunlight: max. 11,000lx, incandescent lamp: max. 3,000lx (receiver illumination)					
Ambient humi, 35 to 85%RH, storage: 35 to		Ambient temp.						
Material Case: acrylonitrile-butadiene-styrene, LED Cap: polyamide 12, sensing part: polymethyl methacryla d/amm, 3-wire, 2m (emitter of through-beam type: Ø4mm, 2-wire, 2m) (AWC626, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Cable connector type ¹⁴ M8 connector (AWC626, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Accessory Individual Approval Cable type Approx. 145g (approx. 95g) Approx. 115g (approx. 50g) Approx. 100g (approx. 50g) Meight (Connector type Approx. 65g (approx. 12g) Approx. 15g (approx. 60g (approx. 6g)	HOHE	Ambient humi.	. 35 to 85%RH, storage: 35 to 85%RH					
Cable type Cable type Camedor type AlwG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Cable Connector type M8 connector Cable connector Cable connector Cable connector Access Common Mounting bracketxis, M3 bolt: 4, adjustment screwdriver Individual Approval Cable type Approx. 145g (approx. 95g) Approx. 115g (approx. 50g) Approx. 100g (approx. 50g) Approx. 15g (approx. 50g) Approx. 15g (approx. 60g (approx. 50g)	Protection structure							
Cable (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Cable (Connector type of type of type) Cable onnector (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Access Common (AWG26, core diameter: 0.52mm, number of cores: 20, insulat	Material							
Cable connector GAmm, 3-wire, 300mm (emitter of through-beam type: Ø4mm, 2-wire, 300mm), M12 connector KWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm) Accessory Mounting bracket**, M3 bolt: 4, adjustment screwdriver adjustment screwdriver Reflector (MS-2S) — Reflector (MS-2S) — Approval Cable type Approx. 145g (approx. 95g) Approx. 115g (approx. 50g) Approx. 100g (approx. 50g) Weight (Connector type Approx. 65g (approx. 12g) Approx. 75g (approx. 60g (approx. 6g)		Cable type						
type*5 (AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm)	Cabl	e Connector type *4	⁴ M8 connector					
Individual		Cable connector type ** 5	(AWG26, core diameter: 0.52mm, number of cores: 20, insulator out diameter: Ø1mm)					
Individual		s- Common	Mounting brack adjustment scre	et ^{×6} , M3 bolt: 4, ewdriver	Mounting bracket ^{x6} , M3 bolt: 2, adjustment screwdriver			
Cable type Approx. 145g (approx. 95g) Approx. 115g (approx. 50g) Approx. 100g (approx. 50g) Weight Connector type Approx. 65g (approx. 12g) Approx. 75g (approx. 6g) Approx. 60g (approx. 6g)	sory	Individual	—		Reflector (MS-2S)	—		
Cable type Approx. 145g (approx. 95g) Approx. 115g (approx. 50g) Approx. 100g (approx. 50g) Weight Connector type Approx. 65g (approx. 12g) Approx. 75g (approx. 6g) Approx. 60g (approx. 6g)	Appr	oval	CE					
Weight Connector type Approx. 65g (approx. 12g) Approx. 75g (approx. 6g) Approx. 60g (approx. 6g)			Approx. 145a (approx. 95g)	Approx. 115g (approx. 50g)	Approx. 100g (approx	(, 50a)	
							-	

X: The sensing distance is specified with using the MS-25 reflector. The distance between the sensor and the reflector should be set over 0.1m. When using reflective tapes, the reflectivity will vary by size of the tape. Please refer to the catalog or web site.

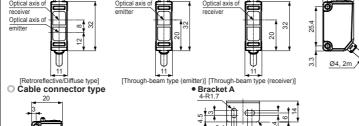
X2: Non-glossy white paper 300-300mm.

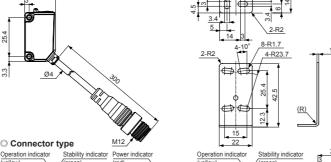
X3: Non-glossy white paper 300-300mm.

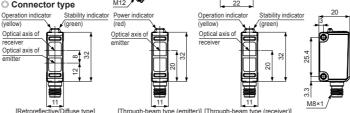
X4: M8 connector cable is sold separately. (AWG26, core diameter. 0.52mm, number of cores: 20, insulator out diameter. 201.55mm, number of cores: 60, insulator out diameter. 201.55mm, number of cores: 60, insulator out diameter. 201.55mm, number of cores: 60, insulator out diameter. 201.55mm,

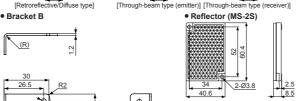
- 6: Cable type and cable connector type includes bracket A and connector type includes bracket B.

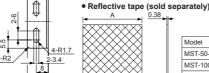






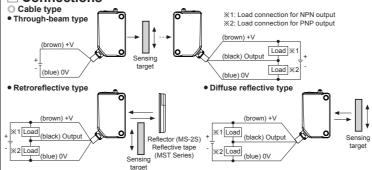






200 MST-200-2

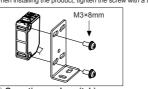
Connections

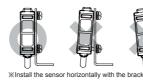


■ Installation and Sensitivity Adjustment

O For mounting

When using the reflective type photoelectric sensors closely over three units, it may result in malfunction due to mutual interference. When using the through-beam type photoelectric sensors closely over two units, it may result in malfunction due





Light ON Furn the switch all the way to the right (towards L) to select Light ON operation Dark ON Furn the switch all the way to the left (towards D) to select Dark ON operation

For through-beam type, the switch is built-in the receiver. Optical axis adjustment

Through-beam type

- . Place the emitter and the receiver facing each other and supply
- the power.

 2. After adjusting the position of the emitter and the receiver and checking their stable indicating range, mount them in the middle
- of the range. After mounting this unit, check the operation of the sensor and
- lighting of the stability indicator in both status. (none or sensing target status)

 If the sensing target is translucent body or smaller than Ø15mm, i may not sense the target because light is passed.

Retroreflective type

- . Place the sensor and the reflector (or reflective tape) facing each
- 1. Place the sensor and the reflector (or reflective tape) facing each other and supply the power.

 2. After adjusting the position of the sensor and reflector (or reflective tape) and checking their stable indicating range, mount them in the middle of the range, (none or sensing target status)

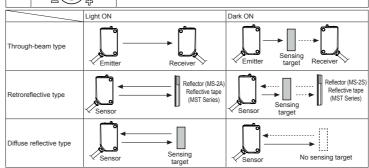
 3. After mounting this unit, check the operation of the sensor and in both status. (none or sensing target status)

 XPlease use reflective tape (MST Series) for where a reflector can not be installed.

Diffuse reflective type

- . Place the emitter and the receiver facing each other and supply
- 2. After adjusting the position of the emitter and the receiver and checking their stable indicating range, mount them in the middle of the range. B. After mounting this unit, check the operation of the sensor and
- lighting of the stability indicator in both status, (none or sensing

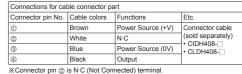
O Sei	nsitivity setting		Adjust Up/Down
Order	Sensitivity setting	Descriptions	
1	(A)		sensitivity setting adjuster slowly to the right from sition where operation indicator turns on (A).
2	(A) (C) (B)	From Dark ON status, turn the sensitivity setting adjuster further right and check the position where the operation indicator turns on (B). Turn the adjuster left and check the position where the operation indicator turns off (C). XIf the operation indicator does not turn on at MAX sensitivity, the maximum sensitivity setting is set at position (C).	
3	Optimum sensitivity (A) (C)	Also, check if the stability indica	sition between (A) and (C) for optimal sensitivity tor turns off with or without the sensing target. If the operation mode again, as sensitivity may be



| Selection | Sel

Connections for connector part





/₂₀ 0

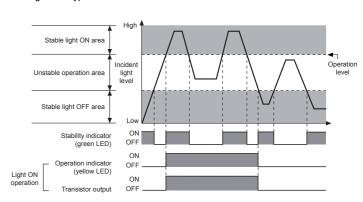
30 0



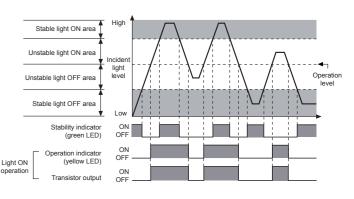
[M12 connector pin] ※Connector pin ② is N·C (Not Connected) terminal

Operating Timing Diagram

○ Through-beam type



Retroreflective/Diffuse reflective type



*The waveforms of 'Operation indicator' and 'Transistor output' are for Light ON operation The waveforms are reversed for Dark ON operation.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
 When connecting a DC relay or other inductive load to the output, remove surge by using diodes or varistors. 3. Use the product, 0.5 sec after supplying power. When using separate power supply for the sensor and load, supply power to sensor first

- When using separate power supply for the sensor and load, supply power to sensor firsts. 4. 10-30VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device. 5. Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive noise. 6. When using switching mode power supply to supply the power, ground F.G. terminal and connect a condenser between 0V and F.G. terminal to remove noise. 7. When using sensor with the equipment which generates noise (switching regulator, inverter, servo motor, etc.), ground F.G.
- terminal of the equipment.
- This unit may be used in the following environments. ①Indoors (in the environment condition rated in 'Specifications') Altitude max 2 000m

■ Major Products

ective tape

Adjust Up/Down

- | Photoelectric Sensors | Temperature Controllers |
 | Fiber Optic Sensors | Temperature/Humidity Transducers |
 | Door Sensors | SSRS/Power Controllers |
 | Door Side Sensors | Counters |
 | Area Sensors | Timers |
 | Proximity Sensors | Panel Meters |
 | Rotary Encoders | Display Units |
 | Connectors/Sockets | Sensor Controllers |
 | Switching Mode Power Supplies |
- O Terminal Blocks & Cables
 - Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels

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