

# BY Series

## Small emitter/receiver synchronizing type

### ■ Features

- Small size : W12×H16×D30mm
- Minimizing malfunction by extraneous light by synchronizing emitter and receiver.
- Reverse power polarity and overcurrent protection circuit
- Fast response speed : Max. 1ms



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

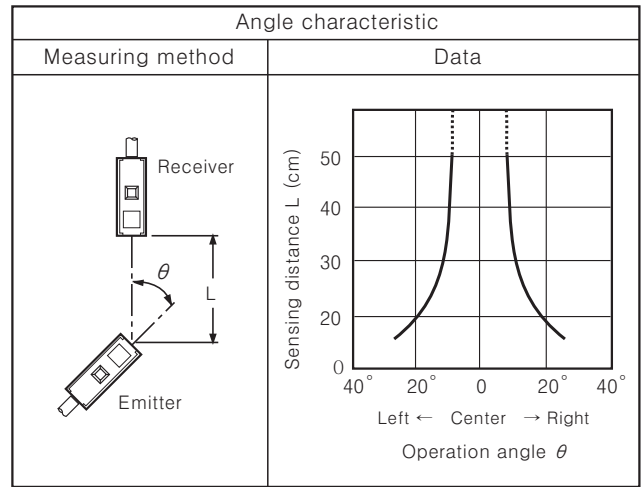
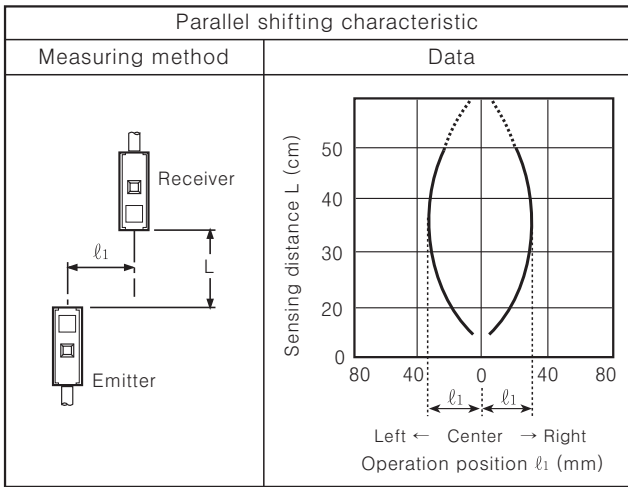
### ■ Specifications

Model	Standard type	Side sensing type
	<b>BY500-TDT</b>	<b>BYS500-TDT</b>
Sensing type	Through-beam	
Sensing distance	500mm	
Sensing target	Opaque materials of Min. $\phi$ 5mm	
Response time	Max. 1ms	
Power supply	12-24VDC $\pm$ 10% (Ripple P-P : Max. 10%)	
Current consumption	Max. 30mA	
Light source	Infrared LED(940nm)	
Operation mode	Dark ON	
Control output	NPN open collector output • Load voltage : 30VDC • Load current : Max. 100mA • Residual voltage : Max. 1V	
Protection circuit	Reverse polarity protection, Output short-circuit protection	
Indicator	Operation indicator : Red LED	
Connection	Outgoing cable (2m)	
Insulation resistance	Min. 20M $\Omega$ (at 500VDC megger)	
Noise strength	$\pm$ 240V the square wave noise (pulse width : 1 $\mu$ s) by the noise simulator	
Dielectric strength	1,000VAC 50/60Hz for 1minute	
Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours	
Shock	500m/s <sup>2</sup> (50G) in X, Y, Z directions for 3 times	
Ambient illumination	Sunlight : Max. 11,000 lx, Incandescent lamp : Max. 3,000 lx	
Ambient temperature	-10 to 60 $^{\circ}$ C (at non-freezing status), Storage : -25 to 70 $^{\circ}$ C	
Ambient humidity	35 to 85%RH, Storage : 35 to 85%RH	
Protection	IP50 (IEC standard)	
Material	Case : ABS, Lens : Acrylic	
Cable	4P, $\phi$ 4mm, Length : 2m	
Accessory	Mounting bracket, Bolts/Nuts	
Unit weight	Approx. 150g	

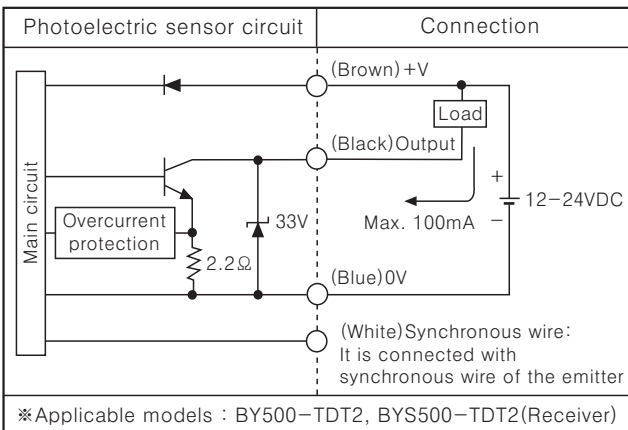
# Small and Amplifier Built-in Type

## Feature data

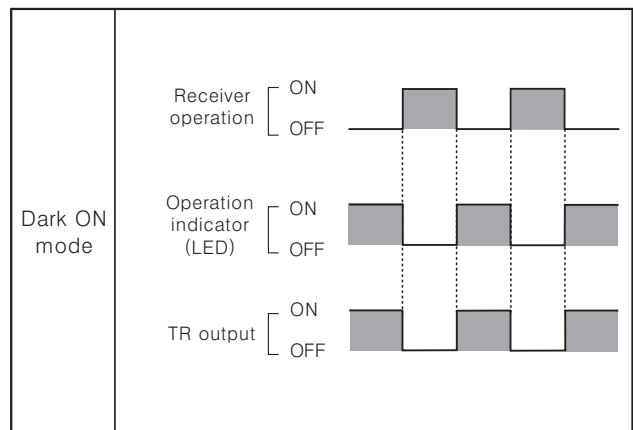
●BY500-TDT ●BYS500-TDT



## Control output diagram

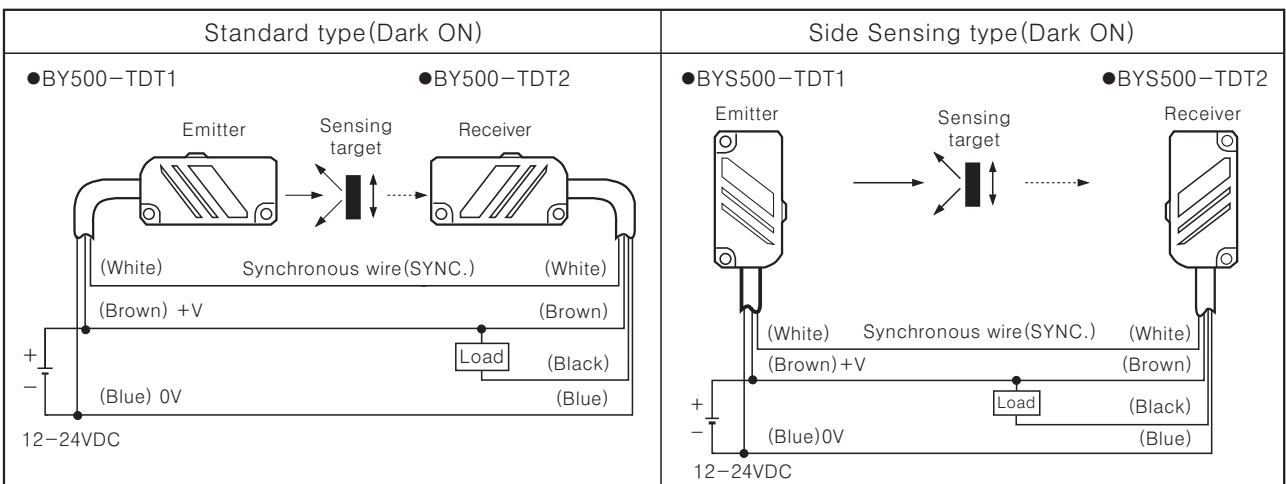


## Operation mode



※If the control output terminal is short-circuited or overcurrent condition exists, the control output will turn off due to protection circuit.  
 ※Please supply the power to Brown and Blue wire of emitter and Synchronous wire(White) of the receiver must be connected with that of the emitter.

## Connections



※The power of the emitter and the receiver must be supplied from same power line.  
 ※Synchronous wire(White) of the receiver must be connected with that of the emitter.

(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 power supply

(Q) Stepping motor & Driver & Controller

(R) Graphic/Logic panel

(S) Field network device

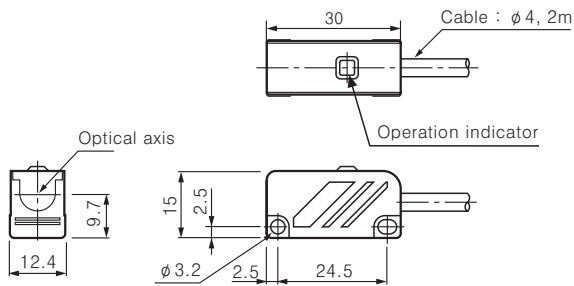
(T) Production stoppage models & replacement

# BY Series

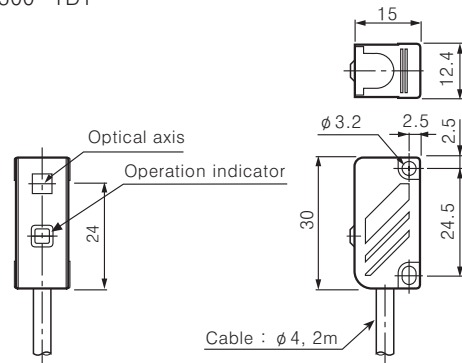
## Dimensions

(Unit:mm)

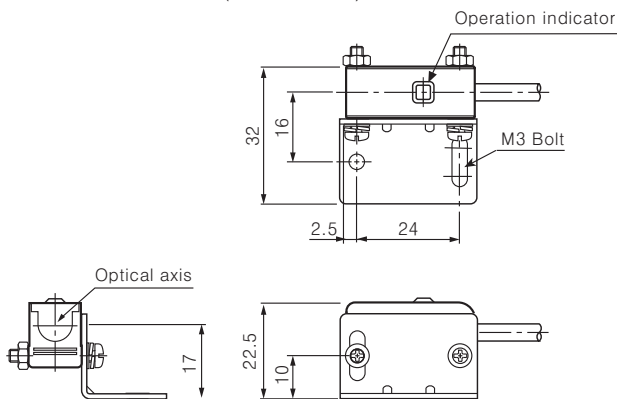
### ●BY500-TDT



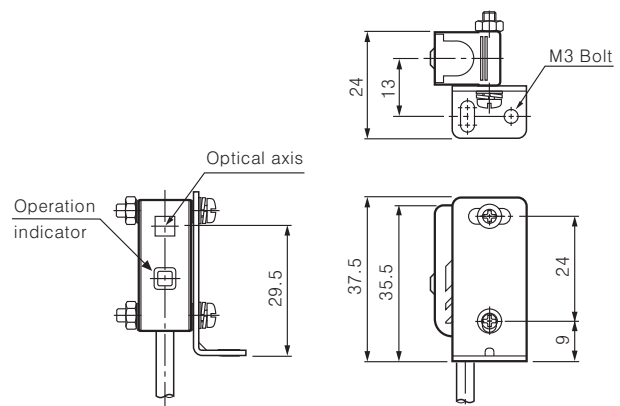
### ●BYS500-TDT



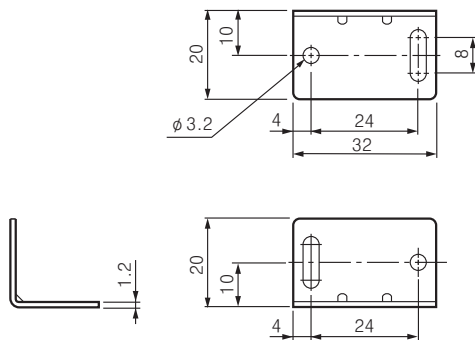
### ●Connect the bracket(BY500-TDT)



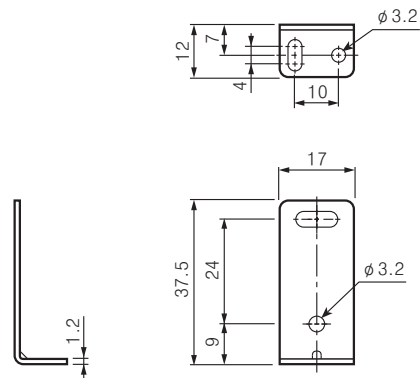
### ●Connect the bracket(BYS500-TDT)



### ●Bracket(BY500-TDT)



### ●Bracket(BYS500-TDT)



## Mounting and sensitivity adjustment

1. Supply the power to the sensor, after install the emitter and the receiver facing each other.
2. Set the receiver in the middle of position where indicator turns on adjusting the receiver to the right and the left or up and down.
3. Fix both units tightly after checking that the unit sense the target.

※If the sensing target is translucent body or smaller than  $\phi 5\text{mm}$ , it might not be detected because the target allows too much light to pass.

