Cylindrical(φ18mm) type

▣Features

- ●Easy to install cylindrical (φ18mm) type
- ●Reverse power polarity protection built in
- ●Over current protection circuit
- ●External sensitivity adjustment(Diffuse reflective type)
- ●Able to select the operation mode by control wire(Diffuse reflective type)
- ●Protection structure by IP66(IEC specification)

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

CE

▣Specifications

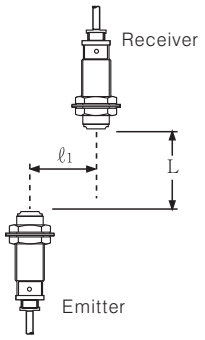
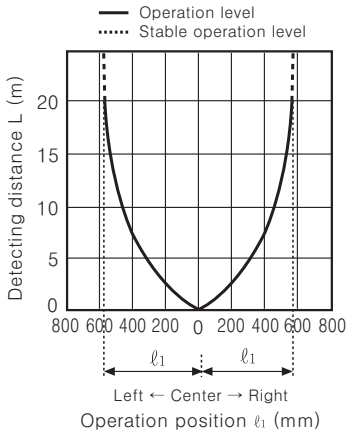
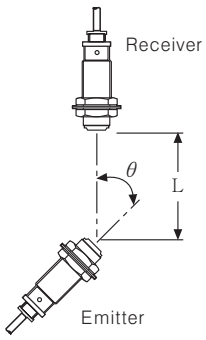
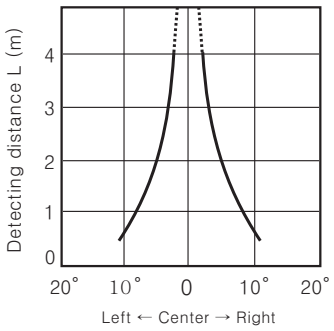
Model	BRP100-DDT	BR100-DDT	BRP400-DDT	BR400-DDT	BR20M-TDTD	BR20M-TDTL
	BRP100-DDT-P	BR100-DDT-P	BRP400-DDT-P	BR400-DDT-P	BR20M-TDTD-P	BR20M-TDTL-P
Type	Diffuse reflective				Through-beam	
Detecting distance	(※1)100mm		(※1)400mm		20m	
Detecting target	Transparent, Translucent, Opaque materials				Opaque materials of Min. φ15mm	
Response time	Max. 1ms				Max. 3ms	
Power supply	12-24VDC ±10%(RippleP-P:Max. 10%)					
Current consumption	Max. 40mA					
Light source	Infrared LED(modulated)					
Sensitivity adjustment	Adjustable VR				Fixed	
Operation mode	Selectable Light ON or Dark ON by control wire				Dark ON	Light ON
Control output	NPN open collector output ☞ Load voltage : Max. 30VDC, Load current : Max. 200mA, Residual voltage : Max. 1VDC					
	PNP open collector output ☞ Output voltage:Min. power voltage-2.5V, Load current:Max. 200mA					
Protection circuit	Short-circuit protection, Reverse polarity protection					
Indication	Operation indicator : Red LED				Power indicator(Emitter):Red LED, Operation indicator(Receiver):Red LED	
Connection	Outgoing cable					
Insulation resistance	Min. 20MΩ (at 500VDC)					
Noise strength	±240V the square wave noise (pulse width:1μs) by the noise simulator□					
Dielectric strength	500VAC 50/60Hz for 1 minute					
Vibration	1.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500m/s² (50G) in X, Y, Z directions for 3 times					
Ambient illumination	Sunlight : Max. 11,000ℓx, Incandescent lamp : Max. 3,000ℓx					
Storage temperature	-10 ~ +60℃(at non-freezing status) Storage : -25 ~ +70℃					
Ambient humidity	35 ~ 85%RH, Storage : 35 ~ 85%RH					
Protection	IP66(IEC specification)					
Material	Case:Plastic (Black), Lens:PC	Case:C3604BD (Cr-plate), Lens:PC	Case:Plastic (Black), Lens:PC	Case:C3604BD (Cr-plate), Lens:PC	Case:C3604BD(Cr-plate), Lens:PC	
Cable	4P, φ5mm, Length : 2m				Emitter:2P, φ5mm, Length:2m Receiver:3P, φ5mm, Length:2m	
Accessory	Mounting Nuts	Mounting Nuts, Washer				
Approval	CE					
Weight□	Approx. 100g	Approx. 120g	Approx. 100g	Approx. 120g	Approx. 300g	

(※1) It for Non-glossy whire paper(100×100mm).

▣Characteristic

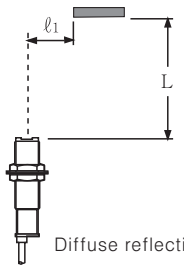
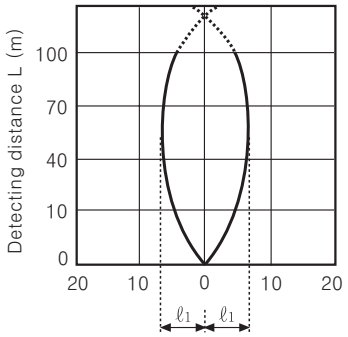
◎Through-beam

●BR20M-TDT, BR20M-TDT-P

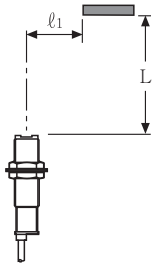
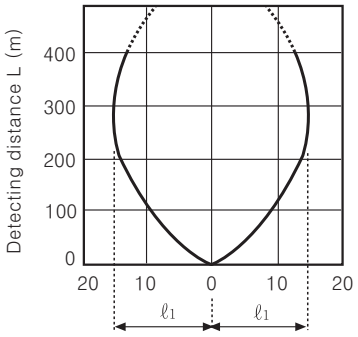
Parallel shifting characteristic		Angle Characteristic	
Measuring method	Data	Measuring method	Data
			

◎Diffuse reflective

●BR100-DDT(-P), BRP100-DDT(-P)

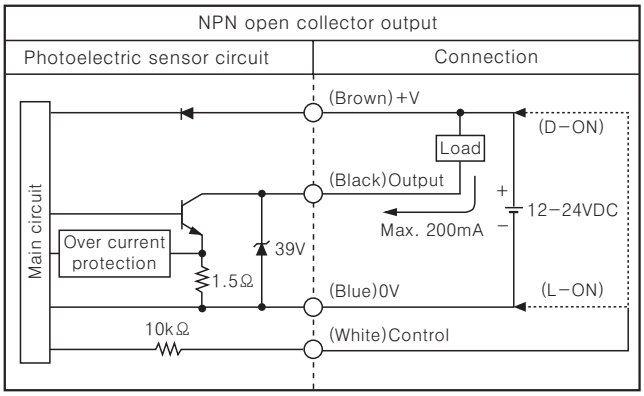
Detecting area	
Measuring method	Data
Standard detecting target : Non-glossy white paper 100×100mm 	

●BR400-DDT(-P), BRP400-DDT(-P)

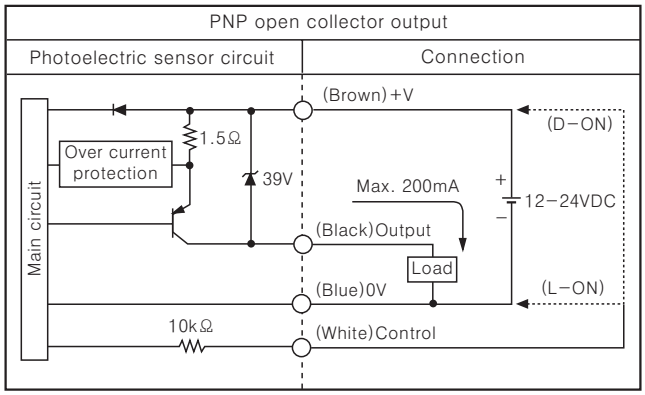
Detecting area	
Measuring method	Data
Standard detecting target : Non-glossy white paper 100×100mm 	

▣Control output circuit diagram

●BR100-DDT, BRP100-DDT,
BR400-DDT, BRP400-DDT



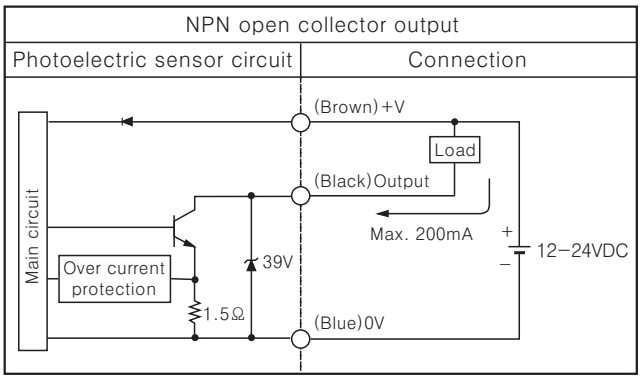
●BR100-DDT-P, BRP100-DDT-P,
BR400-DDT-P, BRP400-DDT-P



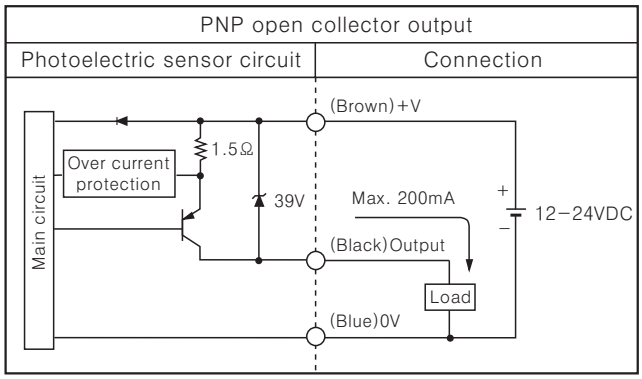
※Selectable Light ON / Dark ON mode by control wire [Light ON : Connect control wire to 0V
Dark ON : Connect control wire to +V

▣Control output diagram

●BR20M-TDTD2/BR20M-TDTL2(Receiver)

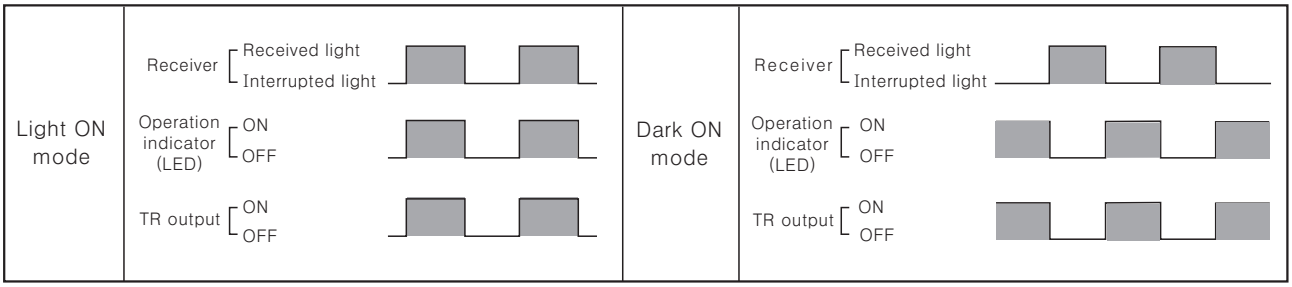


●BR20M-TDTD2-P/BR20M-TDTL2-P(Receiver)



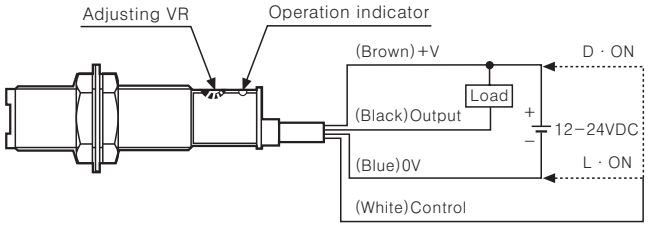
※Dark ON mode is standard mode for BR4M.(Light ON mode : Option)

▣Operation mode

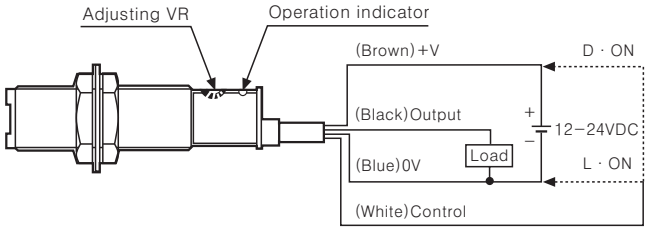


▣Connections

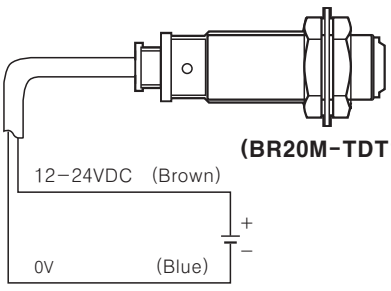
●BR100-DDT, BRP100-DDT, BR400-DDT, BRP400-DDT



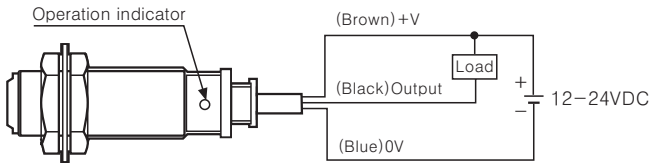
●BR100-DDT-P, BRP100-DDT-P, BR400-DDT-P, BRP400-DDT-P



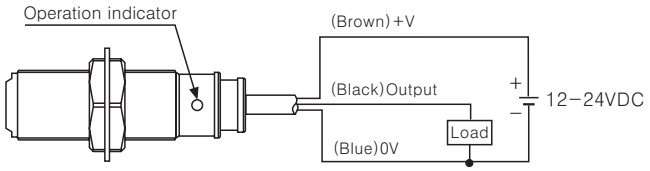
●BR20M-TDT(L) / BR20M-TDTD(L)-P



(BR20M-TDT1)



(BR20M-TDTD2 / BR20M-TDTL2)



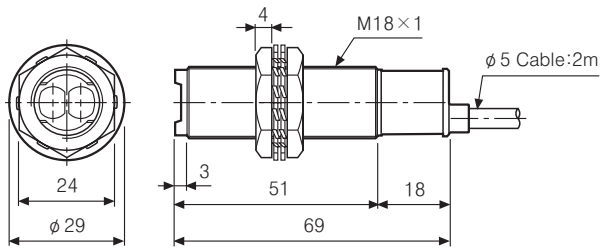
(BR20M-TDTD2-P / BR20M-TDTL2-P)

※Since 2001/Oct., inner circuit has been changed therefore do not use previous products(Before 2001/Oct.) together. When need to replace this, it must be one set.

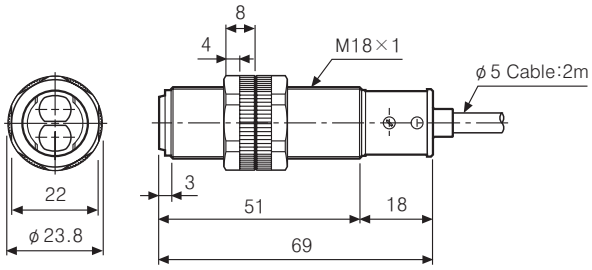
Before Oct./2001 After	After Oct./2001	Condition
Emitter	Receiver	Disable compatible
Receiver	Emitter	Enable compatible

▣Dimensions

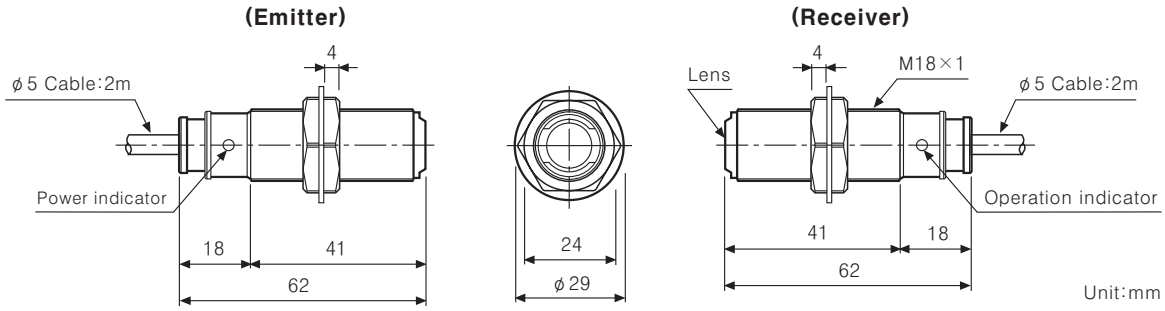
●BR100-DDT(-P) / BR400-DDT(-P)



●BRP100-DDT(-P) / BRP400-DDT(-P)



●BR20M-TDTD(L) / BR20M-TDTD(L)-P

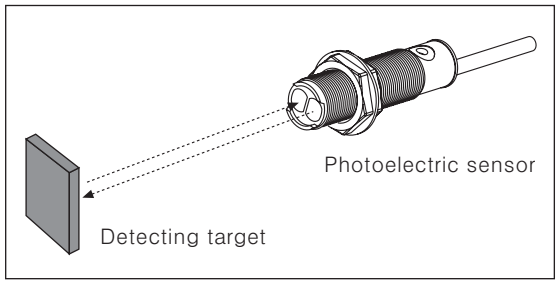


▣Installation and sensitivity adjustment

Please supply the power to the sensor after installing the emitter and the receiver in face to face, and then adjust an optical axis and the sensitivity as follow;

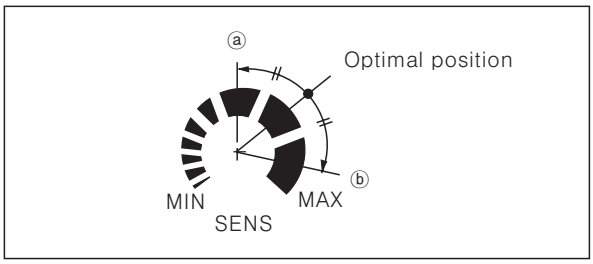
◎Diffuse Reflective type

1. Even though the diffuse reflective type is set at max. sensitive position, the sensitivity of the sensor must be adjusted in accordance with the existence of the reflective material in background.



2. Set the target at a position to be detected by the beam, then turn the adjuster down to point ⓐ where the indicator just turns on from Min. position of the adjuster.
3. Take the target out of the sensing area, then turn the adjuster until point ⓑ where the indicator turns on. If the indicator does not turn on, max. position is point ⓑ.
4. Set the adjuster at the center of two switching point ⓐ, ⓑ.

※The detecting distance indicated in the specification chart is that of non-glossy white paper in the target size 50×50mm.



◎Through-Beam type

1. Supply the power to the photoelectric sensor, after installing the emitter and the receiver in face to face.
2. Set the receiver in center of position where indicator turns on, as adjusting the receiver and the emitter right and left, up and down.
3. Fix both units tightly after checking that the units detect the target.