Compact size fast response type

▣Features

- ●Able to install in narrow place because of compact size.
- ●Convenient to adjust the sensitivity by external sensitivity adjustment contol. (Applied Diffuse reflective type only)
- ●Easy to mount by screw type in mounting hole.
- ●Reverse power polarity protection built in.

(MS-2) (MS-5)

※MS-5 is Optional

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

CE

▣Specifications

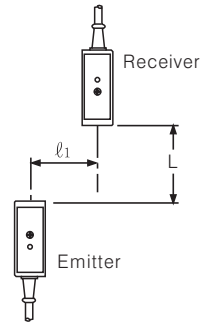
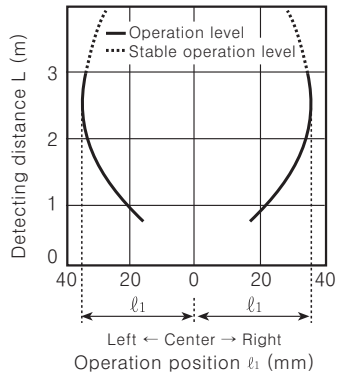
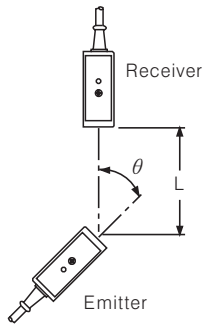
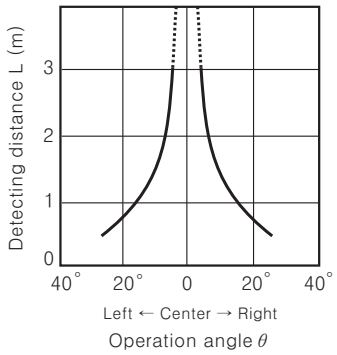
Model		BM3M-TDT	BM1M-MDT	BM200-DDT
Type		Through-beam	Retroreflective	Diffuse reflective
Detecting distance		3m	(*1) 0.1 ~ 1m	(*2) 200mm
Detecting target		Opaque materials of min. ϕ8mm	Opaque materials of min. ϕ60mm	Transparent, Translucent, Opaque materials
Hysteresis		————		Max. 10% at detecting distance
Response time		Max. 3ms		
Power supply		12-24VDC ±10%(Ripple P-P : Max. 10%)		
Current consumption		Max. 45mA	Max. 40mA	
Light source		Infrared LED(modulated)		
Sensitivity adjustment		Fixed		Adjustable VR
Operation mode		Dark ON		Light ON
Control output		NPN open collector output ☞ Load voltage : Max. 30VDC, Load current : Max. 100mA, Residual voltage : Max. 1V		
Protection circuit		Reverse polarity protection		
Indication		Operation indicator : Red LED		
Connection		Outgoing cable		
Insulation resistance		Min. 20MΩ(at 500VDC)		
Noise strength		±240V the square wave noise(pulse width:1㎲) by the noise simulator		
Dielectric strength		1,000VAC 50/60Hz for 1minute		
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		
Ambient temperature		-10 ~ +60℃(at non-freezing status), Storage : -25 ~ +70℃		
Ambient humidity		35 ~ 85%RH, Storage : 35 ~ 85%RH		
Material		Case : ABS, Lens : PMMA		
Cable		3P, ϕ4mm, Length : 2m		
Accessories	Individual	————	Mirror(MS-2)	————
	Common	Mounting bracket, Bolts/nuts		
Approval		CE		
Weight		Approx. 170g	Approx. 105g	Approx. 88g

※**(*1)**Detecting distance between sensor and MS-2, It is the same when using MS-5 it is detectable under 0.1m
※**(*2)**It is for Non-grossy white paper(100×100mm)

▣Characteristic

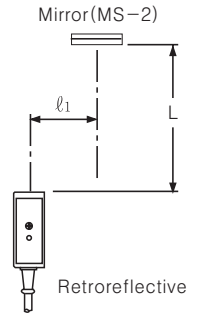
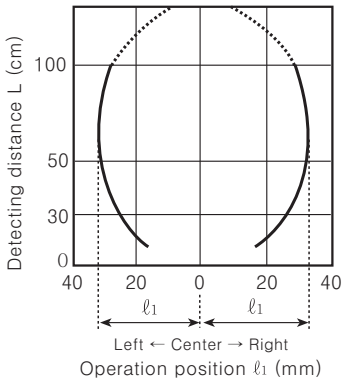
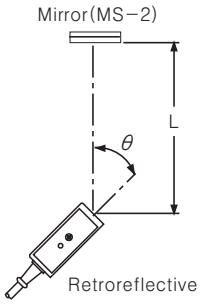
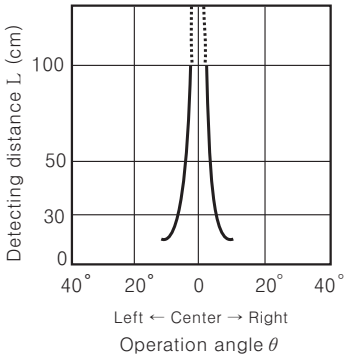
◎Through-beam

●BM3M-TDT

Parallel shifting characteristic		Sensor angle characteristic	
Measuring method	Data	Measuring method	Data
			

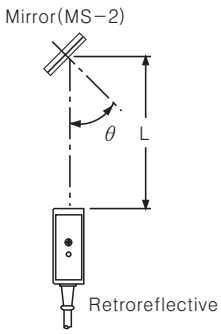
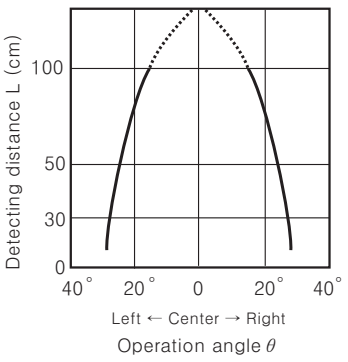
◎Retroreflective

●BM1M-MDT

Parallel shifting characteristic		Sensor angle characteristic	
Measuring method	Data	Measuring method	Data
			

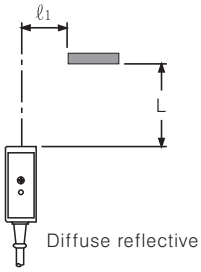
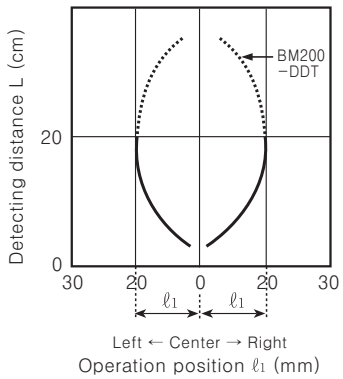
◎Retroreflective

●BM1M-MDT

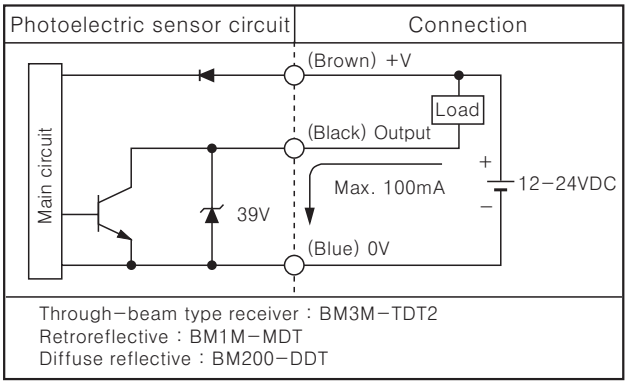
Mirror angle characteristic	
Measuring method	Data
	

◎Diffuse reflective

●BM200-DDT

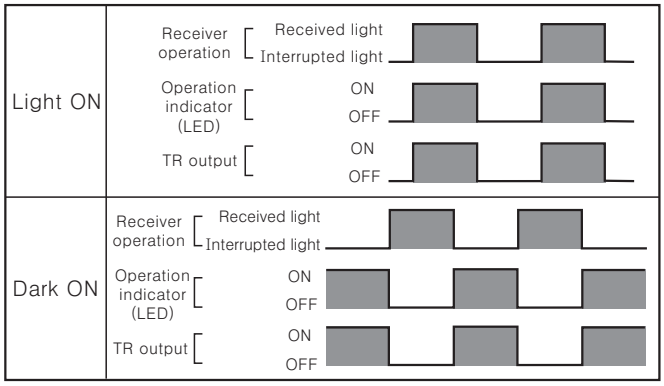
Detecting area	
Measuring method	Data
Standard detecting target : Non-glossy white paper 200×200mm 	

▣Control output diagram

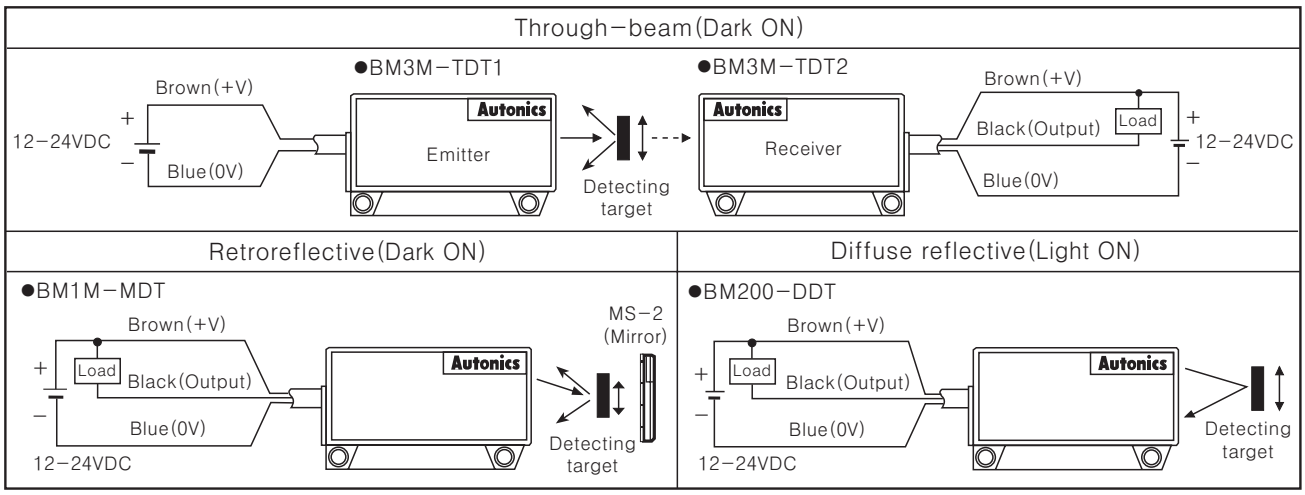


Through-beam type receiver : BM3M-TDT2
Retroreflective : BM1M-MDT
Diffuse reflective : BM200-DDT

▣Operation mode

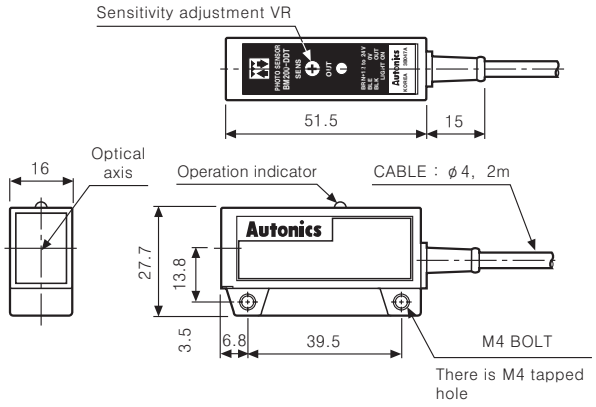


▣Connections

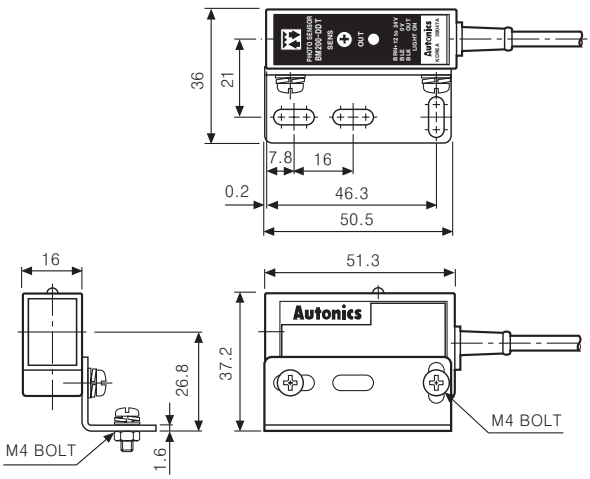


▣Dimensions

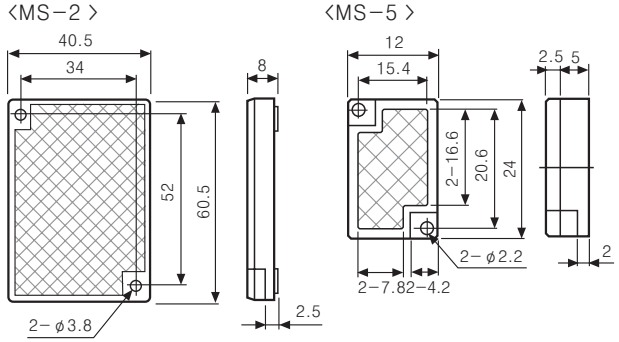
●Product



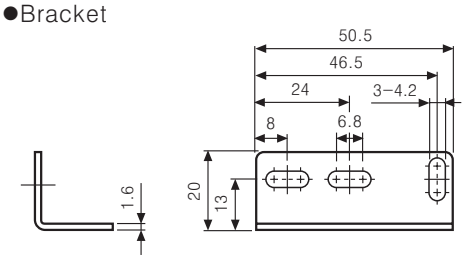
●Bracket



●Mirror



●Bracket



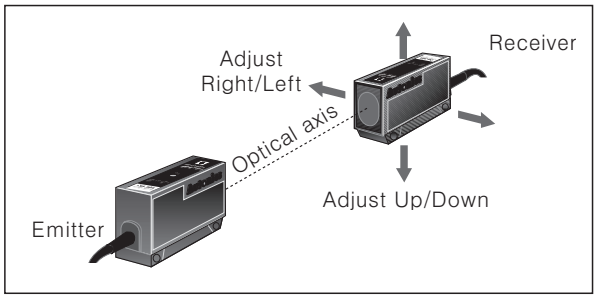
Unit:mm

▣Mounting & Adjustment

◎Through-beam type

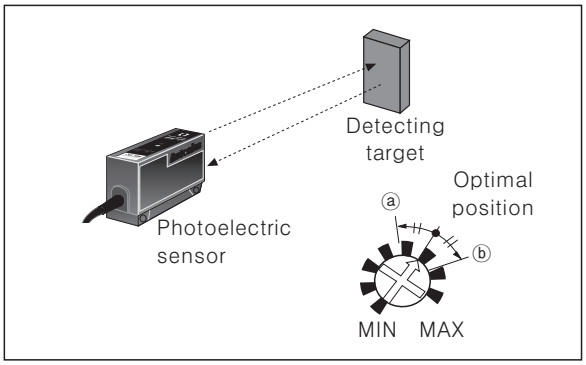
1. Supply the power to the photoelectric sensor, after setting the emitter and the receiver in face to face.
2. Set the receiver in center of position where indicator turns on, as adjusting the receiver or the emitter right and left, up and down.
3. Fix both units tightly after checking that the unit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

※If the detecting target is translucent body or smaller than ϕ8mm, it may not detect the target cause light passed.



◎Diffuse reflective type

1. Even though the diffuse reflective type is set at Max. sensitive position, the sensitivity of the sensor must be adjusted according to the existence of the reflective material background.
2. Set the target at a position to be detected by the beam, then turn the adjuster until point ⓐ where the indicator 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 ⓐ, ⓑ.

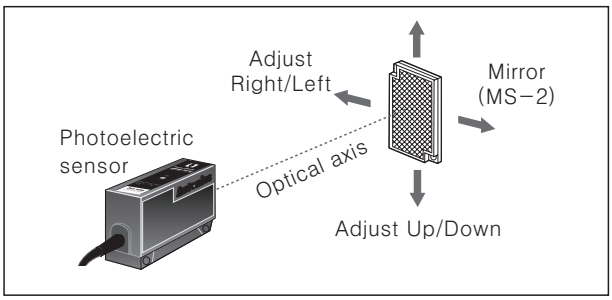


※The detecting distance indicated on specification chart is against 200×200mm of non-glossy white paper. Be sure that it can be different by size, surface and gloss of target.

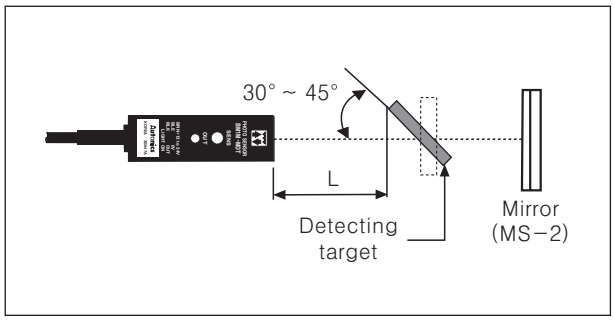
◎Retroreflective type

1. Supply the power to the photoelectric sensor, after setting the emitter and the mirror(MS-2) in face to face.
2. Set the Photoelectric sensor in the in position which indicator turns on, as adjusting the mirror or the sensor right and left, up and down.
3. Fix both units tightly after checking that the unit detects the target.

※If use more than 2 photoelectric sensor in parallel, the space between them should be more than 30cm.



※If reflectance of target is higher than non-glossy white paper, it might cause malfunction by reflection from the target when thr target is nea to photoelectric sensor.
Therefore put enough space between the target and photoelectric sensor or the surface of target should be installed at an angel of 30° ~45° against optical axis.



※If the installing place is too small, please use MS-5 instead of MS-2.
It makes same detecting distance.