

BMS Series

Output protection built in/High speed response type

■ Features

- Reverse power polarity protection and over current protection built in.
- High speed response : Under 1ms
- Change Light ON/Dark ON mode by control wire.
- Built in the sensitivity adjustment VR.



(MS-2) (MS-5)

※ MS-5 is optional.

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

■ Specifications

Model	BMS5M-TDT	BMS2M-MDT	BMS300-DDT
	BMS5M-TDT-P	BMS2M-MDT-P	BMS300-DDT-P
Type	Through-beam	Retroreflective	Diffuse reflective
Detecting distance	5m	(*1) 0.1 ~ 2m	(*2) 300mm
Detecting target	Opaque materials of min. ϕ 10mm	Opaque materials of min. ϕ 60mm	Transparent, Translucent, Opaque materials
Hysteresis	—————		Max. 20% at detecting distance
Response time	Max. 1ms		
Power supply	12-24VDC \pm 10% (Ripple P-P : Max. 10%)		
Current consumption	Max. 50mA	Max. 45mA	
Light source	Infrared LED(modulated)		
Sensitivity adjustment	—————	Adjustable VR	
Operation mode	Selectable Light ON, Dark ON by control wire		
Control output	<ul style="list-style-type: none"> ● NPN open collector output \Rightarrow Load voltage : Max. 30VDC, Load current : Max. 200mA, Residual voltage Max. 1V ● PNP open collector output \Rightarrow Output voltage : Min. (Power supply-2.5)V, Load current : Max. 200mA 		
Protection circuit	Reverse polarity protection, Short-circuit protection		
Indication	Operation indicator : Red LED, Power indicator : Red LED(BMS5M-TDT1)		
Connection	Outgoing cable(2m)		
Insulation resistance	Min. 20M Ω (at 500VDC)		
Noise strength	\pm 240V the square wave noise(pulse width:1 μ s) by the noise simulator		
Dielectric strength	1000VAC 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/s ² (50G) in X, Y, Z directions for 3 times		
Ambient illumination	Sunlight : Max. 11,000lx, Incandescent lamp : Max. 3,000lx		
Ambient temperature	-10 ~ +60 $^{\circ}$ C (at non-freezing staunts), Storage : -25 ~ +70 $^{\circ}$ C		
Ambient humidity	35 ~ 85%RH, Storage : 35 ~ 85%RH		
Material	Case:ABS, Lens:Acryl(Retroreflective:PC)		
Cable	4P, ϕ 5mm, Length : 2m (Emitter of through-beam type: 2P, ϕ 5mm, length:2m)		
Accessories	Individual	—————	Mirror(MS-2), Adjustment Driver
	Common	Mounting bracket, Bolts/Nuts	
Approval	CE		
Weight	Approx. 180g	Approx. 110g	Approx. 100g

※ (*1) Detecting distance between sensor and MS-2, It is the same when using MS-5 it is detectable under 0.1m

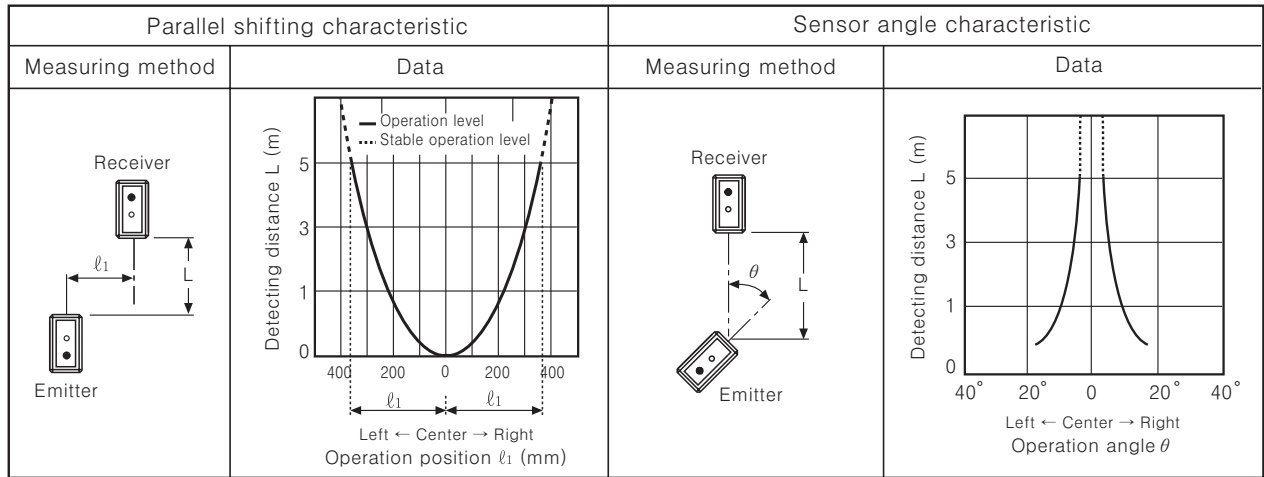
※ (*2) It is for Non-glossy white paper(100 \times 100mm)

DC Small size, Vertical Mounting Type

Characteristic

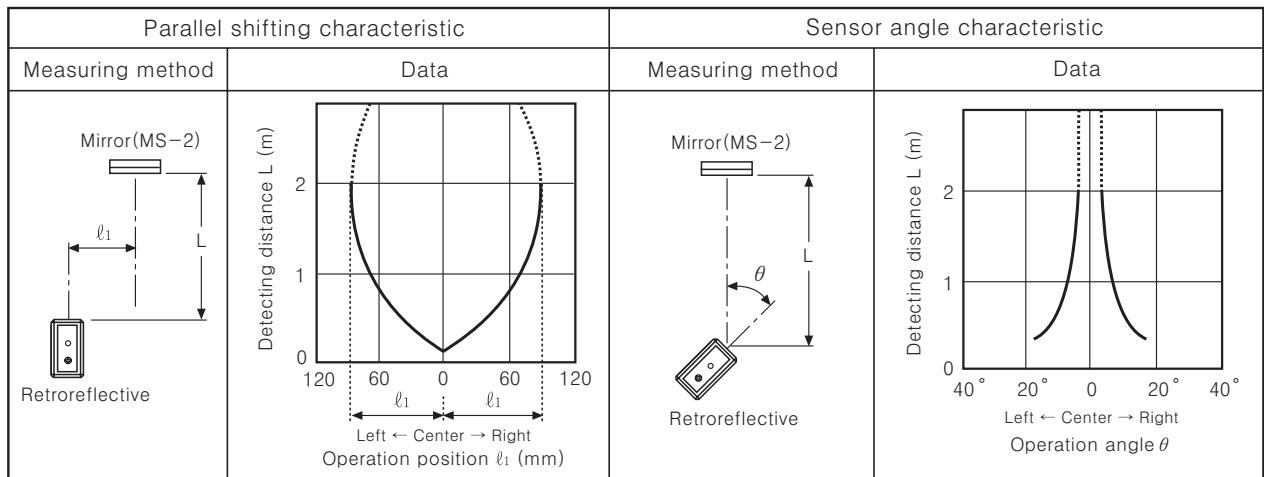
Through-beam

- BMS5M-TDT ●BMS5M-TDT-P



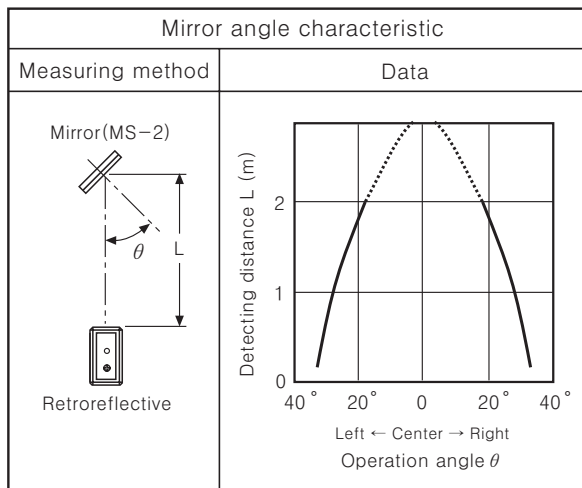
Retroreflective

- BMS2M-MDT ●BMS2M-MDT-P



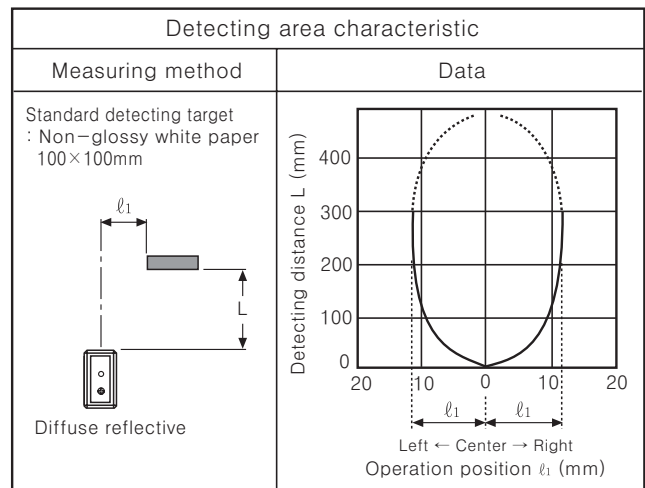
Retroreflective

- BMS2M-MDT
- BMS2M-MDT-P



Diffuse reflective

- BMS300-DDT
- BMS300-DDT-P



(A)
Counter

(B)
Timer

(C)
Temp.
controller

(D)
Power
controller

(E)
Panel
meter

(F)
Tacho/
Speed/
Pulse
meter

(G)
Display
unit

(H)
Sensor
controller

(I)
Proximity
sensor

(J)
Photo
electric
sensor

(K)
Pressure
sensor

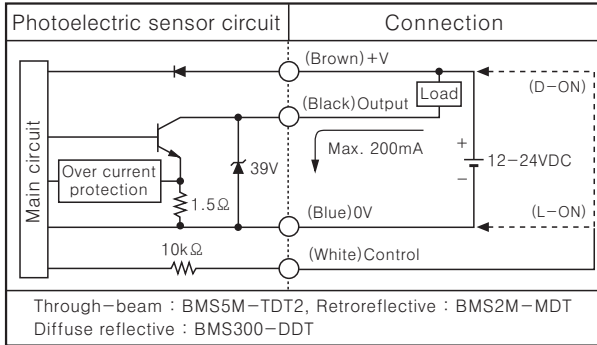
(L)
Rotary
encoder

(M)
5-Phase
stepping
motor &
Driver &
Controller

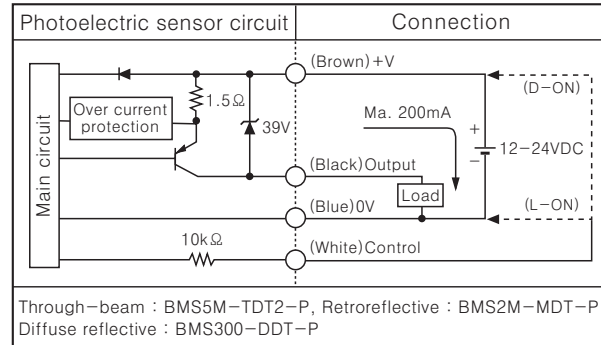
BMS Series

Control output diagram

●NPN open collector output

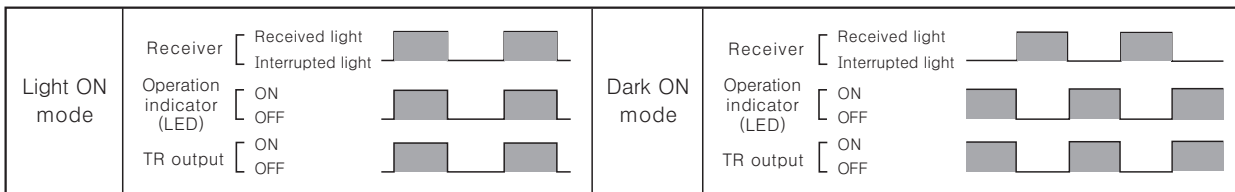


●PNP open collector output

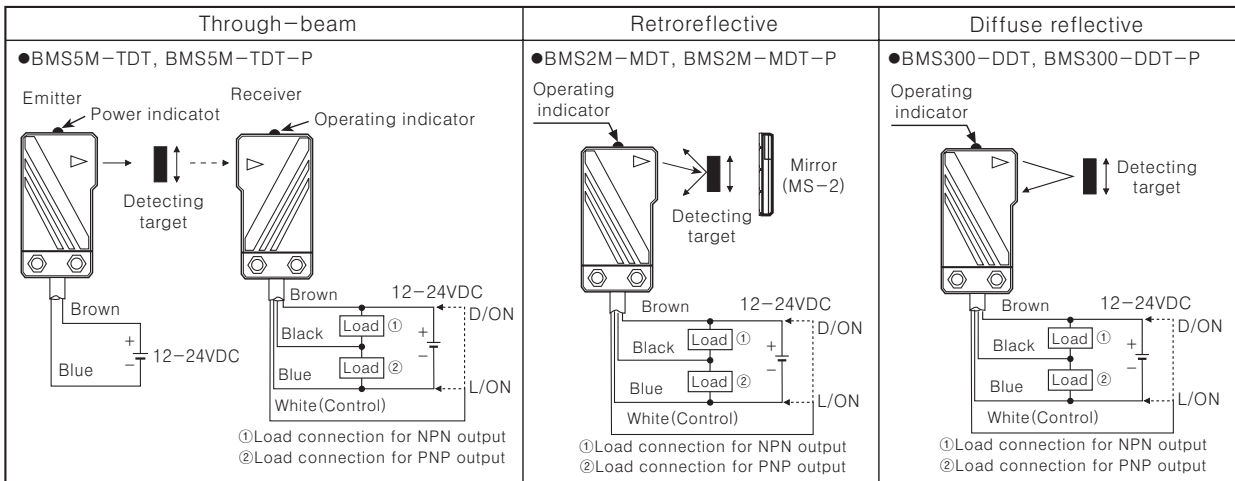


*Selectable Light ON / Dark ON by control wire(White) Light ON : Connect control wire to 0V
Dark ON : Connect control wire to +V

Operation mode



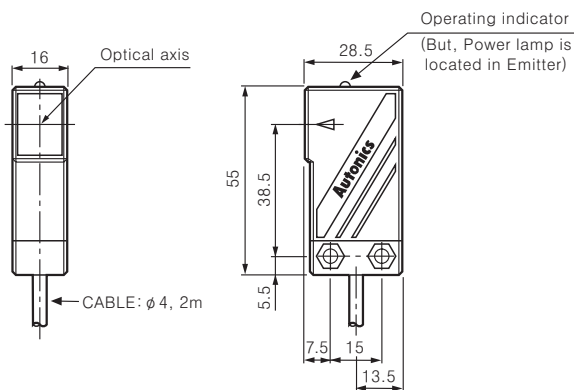
Connections



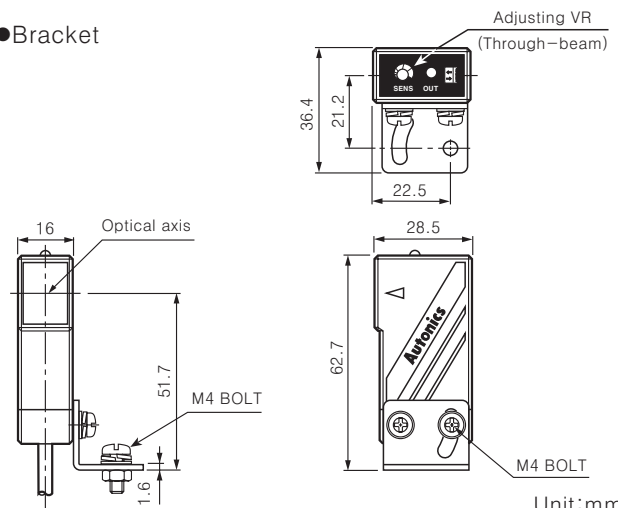
*Dark ON mode is on when control line is opened.

Dimensions

●Product



●Bracket

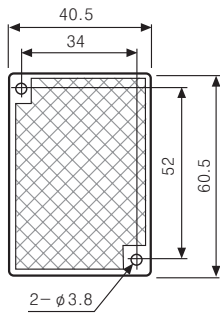


Unit:mm

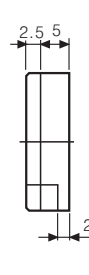
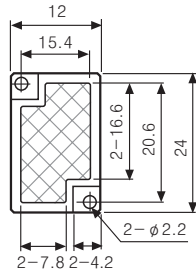
DC Small size, Vertical Mounting Type

●Mirror

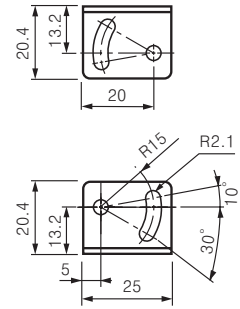
<MS-2 >



<MS-5 >



●Bracket



Unit:mm

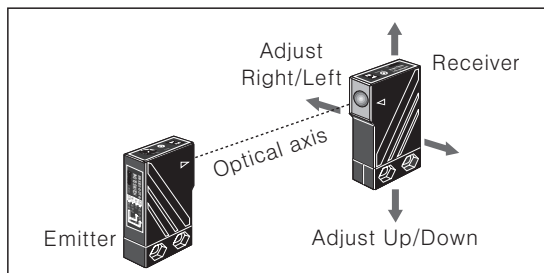
■Mounting & Adjustment

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

◎Optical axis adjustment

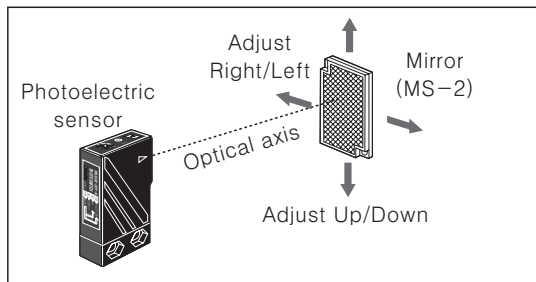
1. Through-beam type

Set the photoelectric sensor in the middle of receiver indicator turns on, as adjusting the receiver or emitter right and left, up and down.



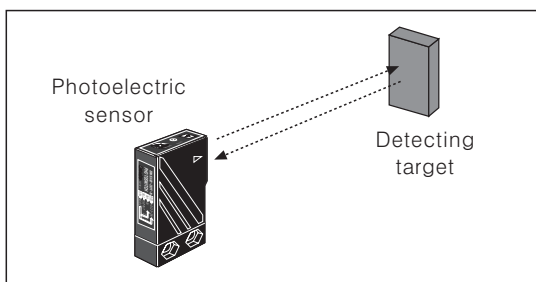
2. Retroreflective type

Install the photoelectric sensor and mirror face then fix them in the middle of operation indicator turns on, as adjusting the mirror right and left, up and down.



3. Diffuse reflective type

Install the photoelectric sensor and the target then fix it in the middle of operation indicator turns ON, as adjusting the photoelectric sensor right and left, up and down.



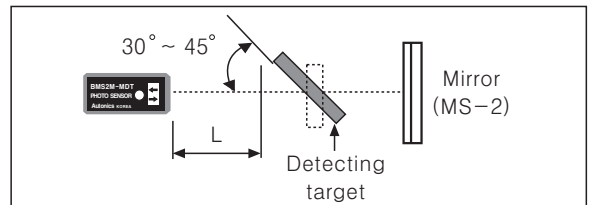
◎Sensitivity adjustment

1. Retroreflective type Fix the adjuster at max. position and then check if the sensor operate normally or not, as passing the target within detecting range of the sensor.

If the sensor does not work normally by noise or external shine, turn the adjuster slowly at position where the sensor works normally.

※If reflectance of target is higher than non-glossy white paper, it might cause malfunction by reflection from the target when the target is near 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.

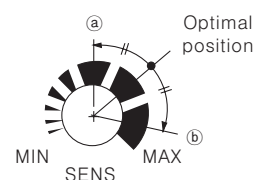


※If the installing place is too small, please use MS-5 instead of MS-2. It makes same detecting distance.



2. Diffuse reflective type

Set the target at a position to be detected by the beam, then turn the adjuster until point (a) where the indicator turns on from min. position of the adjuster. till point (a) which the indicator turn on from min. Take the target out of the sensing area, then turn the adjuster until point (b) where the indicator turns on. If the indicator does not turn on, Max. position is point (b). Set the adjuster at the center of two switching point (a), (b).



(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/ Speed/ Pulse meter

(G) Display unit

(H) Sensor controller

(I) Proximity sensor

(J) Photo electric sensor

(K) Pressure sensor

(L) Rotary encoder

(M) 5-Phase stepping motor & Driver & Controller