



Adjustable Range & Fixed-focus Reflective Photoelectric Sensor

The EQ-500 series of photoelectric sensors provides a long-range diffuse reflective solution that is suitable for applications where it is not feasible to get close to the sensing object. The sensor is impervious to changes in an object's angle, gloss, or even color, so you get an accurate detection every time. Built in an IP-67 rated enclosure, the EQ-500 series is also good for use in harsh environments. The sensing range is easily adjustable to a maximum of 2.5m (1m version also available). There are two main product types available:

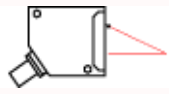
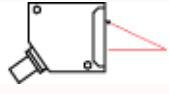



Multi-Voltage Type

- Can be powered with 24-240VAC or 12-240VDC. This free ranging input allows for nearly any power source in the world to be used.
- 1 Form A relay output is used which is suitable for direct switching of a load up to 3A 250VAC (resistive) or 3A 30VDC (resistive).

DC-Voltage Type

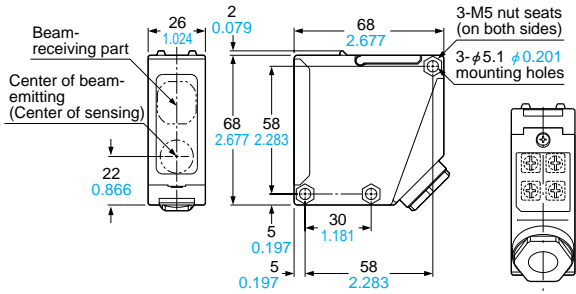
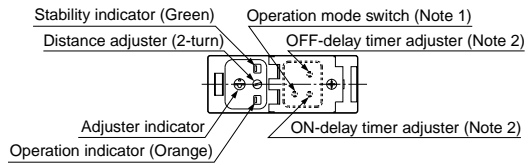
- Powered by 12-24 VDC
- NPN and PNP transistor outputs are used.
- Equipped with Background and Foreground suppression to eliminate the effects of unwanted objects and provides more stability in your sensing operation.

All models are also available with a built-in ON or OFF delay timer function.

Model Name	Model Pic	Type	Output Operation	Output Configuration	Emitting Element	Max. Range (mm)	Max. Range (in)
Sort ▲ ▼		Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼	Sort ▲ ▼
EQ-501		Multi-voltage, Long Sensing, Adjustable Range	Light-ON/Dark-ON	Relay Contact 1a	Infrared LED	2500	98.4
EQ-501T		Multi-voltage, Long Sensing, Adjustable Range w/ Timer	Light-ON/Dark-ON	Relay Contact 1a	Infrared LED	2500	98.4
EQ-502		Multi-voltage, Long Sensing, Adjustable Range	Light-ON/Dark-ON	Relay Contact 1a	Infrared LED	1000	39.4
EQ-502T		Multi-voltage, Long Sensing, Adjustable Range w/Timer	Light-ON/Dark-ON	Relay Contact 1a	Infrared LED	1000	39.4
EQ-511		DC-voltage Long sensing Adjustable Range, BGS/FGS	Light-ON/Dark-ON	NPN/PNP	Infrared LED	2500	98.4

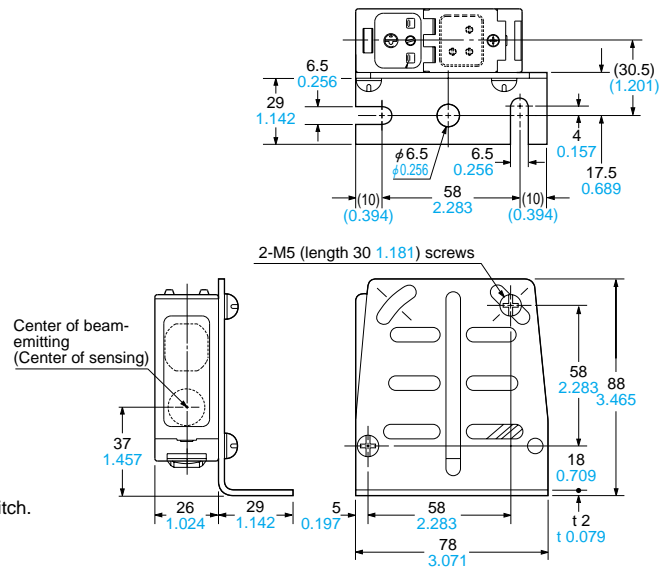
DIMENSIONS (Unit: mm in)

EQ-501(T) EQ-502(T)
EQ-511(T) EQ-512(T) Sensor



Notes: 1) The operation mode switch of the DC-voltage type is the DIP switch.
2) EQ-5□T does not incorporate those.

Assembly dimensions with sensor mounting bracket MS-EQ5-01 (Optional) (Foot angled mounting)



SPECIFICATIONS

Item	Type Model No.	Multi-voltage				DC-voltage			
			With timer		With timer		With timer		With timer
		EQ-501	EQ-501T	EQ-502	EQ-502T	EQ-511	EQ-511T	EQ-512	EQ-512T
Adjustable range (Note 1) (Note 2)		0.2 to 2.5 m	0.656 to 8.202 ft	0.2 to 1.0 m	0.656 to 3.281 ft	0.2 to 2.5 m	0.656 to 8.202 ft	0.2 to 1.0 m	0.656 to 3.281 ft
Sensing range (at maximum setting distance) (Note 2)		0.1 to 2.5 m	0.328 to 8.202 ft	0.1 to 1.0 m	0.328 to 3.281 ft	0.1 to 2.5 m	0.328 to 8.202 ft	0.1 to 1.0 m	0.328 to 3.281 ft
Hysteresis		10 % or less of operation distance							
Supply voltage		24 to 240 V AC $\pm 10\%$ or 12 to 240 V DC $\pm 10\%$ Ripple P-P 10 % or less				12 to 24 V DC $\pm 10\%$ Ripple P-P 10 % or less			
Power / Current consumption		AC: 4 VA or less DC: 3 W or less	AC: 5 VA or less DC: 4 W or less	AC: 4 VA or less DC: 3 W or less	AC: 5 VA or less DC: 4 W or less	45 mA or less			
Output		Relay contact 1a <ul style="list-style-type: none"> Switching capacity: 250 V AC 3 A (resistive load) 30 V DC 3 A (resistive load) Electrical life: 100,000 or more switching operations (switching frequency 1,200 operations/hour) Mechanical life: 50 million or more switching operations (switching frequency 18,000 operations/hour) 				NPN open-collector transistor <ul style="list-style-type: none"> Maximum sink current: 100 mA Applied voltage: 30 V DC or less (between output and 0 V) Residual voltage: 1 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current) PNP open-collector transistor <ul style="list-style-type: none"> Maximum source current: 100 mA Applied voltage: 30 V DC or less (between output and +V) Residual voltage: 1 V or less (at 100 mA source current) 0.4 V or less (at 16 mA source current) 			
Output operation		Switchable either Detection-ON or Detection-OFF							
Short-circuit protection		—				Incorporated			
Response time		20 ms or less (For EQ-50□T depends on the setting timer period)				2 ms or less (For EQ-51□T depends on the setting timer period)			
Operation indicator		Orange LED (lights up when the output is ON)							
Stability indicator		Green LED (lights up under stable operating condition)							
Distance adjuster		2-turn mechanical adjuster with indicator							
Sensing mode		—				Switchable either BGS or FGS function			
Timer function		—	Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer	—	Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer	—	Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer	—	Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer
Automatic interference prevention function		Incorporated (Note 3)							
Environmental resistance	Protection	IP67 (IEC)							
	Ambient temperature	-20 to +55 °C -4 to +131 °F (No dew condensation or icing allowed), Storage: -30 to +70 °C -22 to +158 °F							
	Ambient humidity	35 to 85 % RH, Storage: 35 to 85 % RH							
	Ambient illuminance	Sunlight: 10,000 lx at the light-receiving face, Incandescent light: 3,000 lx at the light-receiving face							
	Voltage withstandability	2,000 V AC for one min. among supply terminals, non-supply metal parts and relay contact output terminals, 1,000 V AC for one min. between relay contacts							
	Insulation resistance	100 MΩ, or more, with 500 V DC megger among supply terminals, non-supply metal parts and relay contact output terminals as well as between relay contacts							
	Vibration resistance	10 to 55 Hz frequency, 1.5 mm 0.059 in amplitude in X, Y and Z directions for two hours each							
Shock resistance	500 m/s ² acceleration (50 G approx.) in X, Y and Z directions for three times each								
Emitting element		Infrared LED (modulated)							
Receiving element		2-segment photodiode							
Material		Enclosure: ABS, Front cover: Polycarbonate, Display cover: Polycarbonate							
Connection method		Screw-on terminal connection							
Cable		Suitable for round cable $\phi 9$ to $\phi 11$ mm $\phi 0.354$ to $\phi 0.433$ in							
Cable length		Extension up to total 100 m 328.084 ft is possible with 0.3 mm ² , or more, cabtyre cable							
Weight		100 g approx.				85 g approx.			
Accessory		Adjusting screwdriver: 1 pc.							