

Information of Discontinued Models

Adjustable long range & fixed-focus reflective photoelectric sensor MR3 series

Stopping taking order date: **30, Sep, 2005**
Date of production discontinuance: **31, Dec, 2005**

Discontinued models

Adjustable long range & fixed-focus reflective photoelectric sensor
MR3 series



※Confirm that table in

Main points of difference between recommended replacements and discontinued models for details on model numbers for each type.

Recommended replacements

Adjustable range reflective photoelectric sensor
EQ-500 series



Refer to 'Adjustable range reflective photoelectric sensor EQ-500 series catalog' for details.

Advantages of switching to recommended replacements

Stable sensing

The optical system has been advanced so that sensing is not easily affected by variations in color and angle.

Complete installation interchangeability

Holes with the same size of mounting pitch ensure that the recommended replacement are fully interchangeable.

Includes a BGS / FGS function

The DC voltage type in the EQ-500 series of recommended replacements are equipped with a BGS / FGS function.

BGS (Background suppression): This is used when the objects being sensed and the background are separate from each other. This is useful when sensing objects on a conveyor line from the side of the conveyor. Not affected if the background color changes or someone passes behind the conveyor.

FGS (Foreground suppression): This is used when the objects being sensed and the background are close together. This is useful when sensing objects on a conveyor line from above the conveyor. If there is an object on the conveyor that has been set, sensing is not affected by the glossy, color or uneven in the object.

Notes on using recommended replacements

Recommended replacements	Sensing performance	Specifications	Output circuit	Mounting dimensions	Dimensions	Enclosure color
EQ-500 series	◎	◎	◎	◎	◎	※

◎: Highly interchangeable ○: Almost no difference
※: Large differences -: No corresponding item or model

- High degree of interchangeability in specifications, mounting dimensions and operability, so that replacement of the MR3 series with the EQ-500 series can be carried out smoothly.
- The sensors with a timer function in the MR3 series are provided with ON-delay / OFF-delay / ONE SHOT timers, but the sensors with a timer function in the EQ-500 series are only equipped with an ON-delay / OFF-delay timer.
- The sensor mounting bracket is not attached with EQ-500 series.
- The recommended replacements have blind sectors.

Main points of difference between recommended replacements and discontinued models

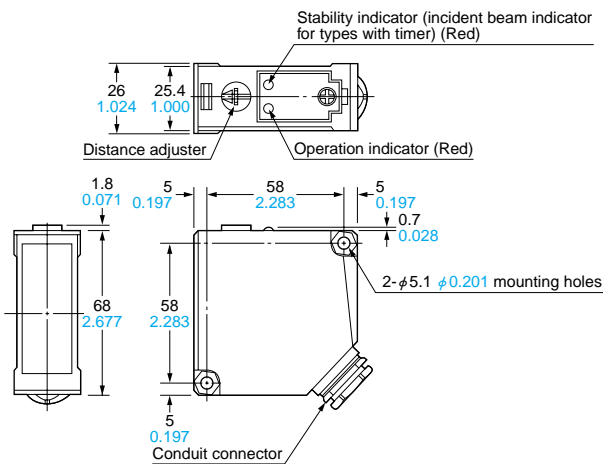
Discontinued models	Recommended replacements	Main points of difference from discontinued models																				
<ul style="list-style-type: none"> • DC-voltage type (9.6 to 30 V DC) Transistor output (NPN and PNP) 	<ul style="list-style-type: none"> • DC-voltage type (12 to 24 V DC ± 10 %) Transistor output (NPN and PNP) 																					
<table border="1"> <thead> <tr> <th>Model No.</th> <th>Sensing range</th> </tr> </thead> <tbody> <tr> <td>MR3-M100A-DC12-24V</td> <td>0 to 1 m 0 to 3.281 ft</td> </tr> <tr> <td>MR3-M100AT-DC12-24V</td> <td>0 to 1 m 0 to 3.281 ft</td> </tr> <tr> <td>MR3-M200A-DC12-24V</td> <td>0 to 2 m 0 to 6.562 ft</td> </tr> <tr> <td>MR3-M200AT-DC12-24V</td> <td>0 to 2 m 0 to 6.562 ft</td> </tr> </tbody> </table>	Model No.	Sensing range	MR3-M100A-DC12-24V	0 to 1 m 0 to 3.281 ft	MR3-M100AT-DC12-24V	0 to 1 m 0 to 3.281 ft	MR3-M200A-DC12-24V	0 to 2 m 0 to 6.562 ft	MR3-M200AT-DC12-24V	0 to 2 m 0 to 6.562 ft	<table border="1"> <thead> <tr> <th>Model No.</th> <th>Sensing range</th> </tr> </thead> <tbody> <tr> <td>EQ-512</td> <td>0.1 to 1.0 m 0.328 to 3.281 ft</td> </tr> <tr> <td>EQ-512T</td> <td>0.1 to 1.0 m 0.328 to 3.281 ft</td> </tr> <tr> <td>EQ-511 (Note)</td> <td>0.1 to 2.5 m 0.328 to 8.202 ft</td> </tr> <tr> <td>EQ-511T (Note)</td> <td>0.1 to 2.5 m 0.328 to 8.202 ft</td> </tr> </tbody> </table>	Model No.	Sensing range	EQ-512	0.1 to 1.0 m 0.328 to 3.281 ft	EQ-512T	0.1 to 1.0 m 0.328 to 3.281 ft	EQ-511 (Note)	0.1 to 2.5 m 0.328 to 8.202 ft	EQ-511T (Note)	0.1 to 2.5 m 0.328 to 8.202 ft	<ul style="list-style-type: none"> • Includes a BGS / FGS function. • The recommended replacements have 0.1 m 0.328 ft blind sectors. <p>Note: The recommended replacements have a sensing range of 2.5 m 8.202 ft.</p>
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<table border="1"> <thead> <tr> <th>Model No.</th> <th>Sensing range</th> </tr> </thead> <tbody> <tr> <td>MR3-M100P-12-240VCE</td> <td>0 to 1 m 0 to 3.281 ft</td> </tr> <tr> <td>MR3-M100PT-12-240VCE</td> <td>0 to 1 m 0 to 3.281 ft</td> </tr> <tr> <td>MR3-M200P-12-240VCE</td> <td>0 to 2 m 0 to 6.562 ft</td> </tr> <tr> <td>MR3-M200PT-12-240VCE</td> <td>0 to 2 m 0 to 6.562 ft</td> </tr> </tbody> </table>	Model No.	Sensing range	MR3-M100P-12-240VCE	0 to 1 m 0 to 3.281 ft	MR3-M100PT-12-240VCE	0 to 1 m 0 to 3.281 ft	MR3-M200P-12-240VCE	0 to 2 m 0 to 6.562 ft	MR3-M200PT-12-240VCE	0 to 2 m 0 to 6.562 ft	<table border="1"> <thead> <tr> <th>Model No.</th> <th>Sensing range</th> </tr> </thead> <tbody> <tr> <td>EQ-502</td> <td>0.1 to 1.0 m 0.328 to 3.281 ft</td> </tr> <tr> <td>EQ-502T</td> <td>0.1 to 1.0 m 0.328 to 3.281 ft</td> </tr> <tr> <td>EQ-501 (Note)</td> <td>0.1 to 2.5 m 0.328 to 8.202 ft</td> </tr> <tr> <td>EQ-501T (Note)</td> <td>0.1 to 2.5 m 0.328 to 8.202 ft</td> </tr> </tbody> </table>	Model No.	Sensing range	EQ-502	0.1 to 1.0 m 0.328 to 3.281 ft	EQ-502T	0.1 to 1.0 m 0.328 to 3.281 ft	EQ-501 (Note)	0.1 to 2.5 m 0.328 to 8.202 ft	EQ-501T (Note)	0.1 to 2.5 m 0.328 to 8.202 ft	<ul style="list-style-type: none"> • The recommended replacements have 0.1 m 0.328 ft blind sectors. <p>Note: The recommended replacements have a sensing range of 2.5 m 8.202 ft.</p>
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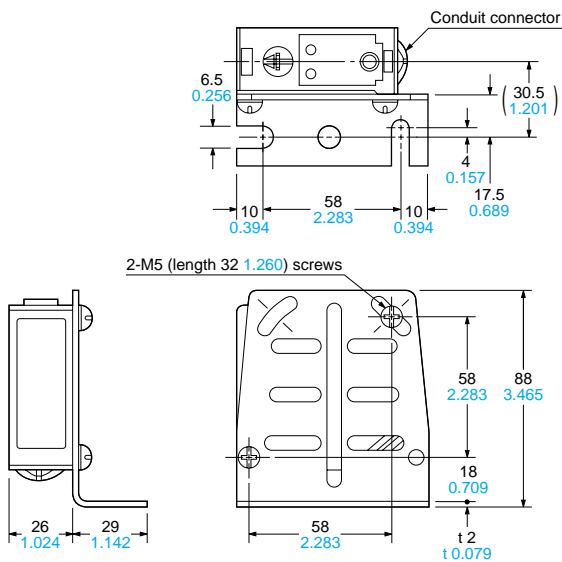
Dimensions (Unit: mm in)

Discontinued models

MR3 series

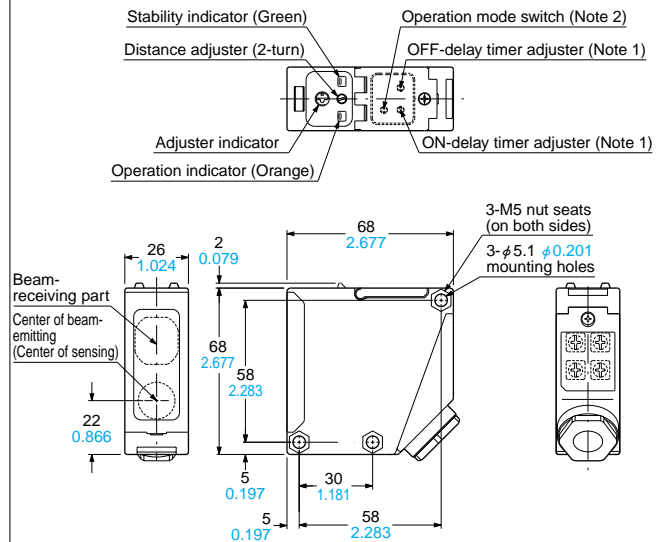


Assembly dimensions with sensor mounting bracket (Accessory)



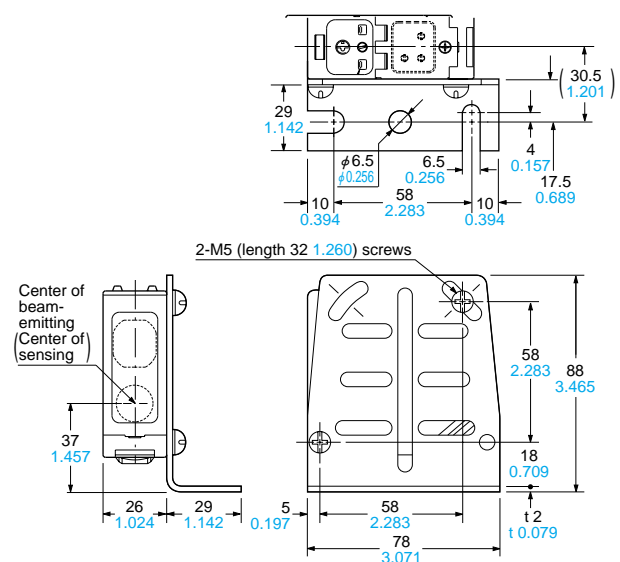
Recommended replacements

EQ-500 series



- Notes: 1) EQ-5□T incorporate those.
 2) The operation mode switch of the DC-voltage type is the DIP switch.

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



Information of Discontinued Models

Adjustable long range & fixed-focus reflective photoelectric sensor MR3 series

Main rated specifications

Item	Type	Discontinued models				Recommended replacements			
	Model No. (Note 1)	MR3-M200P (T) -12-240VCE	MR3-M100P (T) -12-240VCE	MR3-M200A (T) -DC12-24V	MR3-M100A (T) -DC12-24V	EQ-501 (T)	EQ-502 (T)	EQ-511 (T)	EQ-512 (T)
Adjustable range		0.5 to 2 m 1.640 to 6.562 ft	0.2 to 1.0 m 0.656 to 3.281 ft	0.5 to 2 m 1.640 to 6.562 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	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		0 to 2 m 0 to 6.562 ft	0 to 1.0 m 0 to 3.281 ft	0 to 2 m 0 to 6.562 ft	0 to 1.0 m 0 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	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		21.6 to 264 V AC or 10.8 to 264 V DC		9.6 to 30 V DC		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	
Output		Relay contact 1a <ul style="list-style-type: none"> Switching capacity: 250 V AC 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: 1.2 V or less (at 100 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: 2 V or less (at 100 mA source current) 		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							
Response time		20 ms or less (Response frequency: 25 Hz or more)		1 ms or less (Response frequency: 500 Hz or more)		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)	
Timer function		Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay / ONE SHOT timer (type with timer only)				Incorporated with variable (0.1 to 5 sec.) ON-delay / OFF-delay timer (EQ-50□T only)			
Protection		IP66 (IEC)				IP67 (IEC)			
Ambient temperature		- 25 to + 55 °C - 13 to + 131 °F (No dew condensation or icing allowed), Storage: - 30 to + 70 °C - 22 to + 158 °F				- 20 to + 55 °C - 4 to + 131 °F (No dew condensation or icing allowed), Storage: - 30 to + 70 °C - 22 to + 158 °F			
Connection method		Screw-on terminal connection							
Accessory		Sensor mounting bracket: 1 set				Adjusting screwdriver: 1 pc.			

Note: (T) indicates types with timer.

Refer to 'Adjustable range reflective photoelectric sensor EQ-500 series catalog' for details.