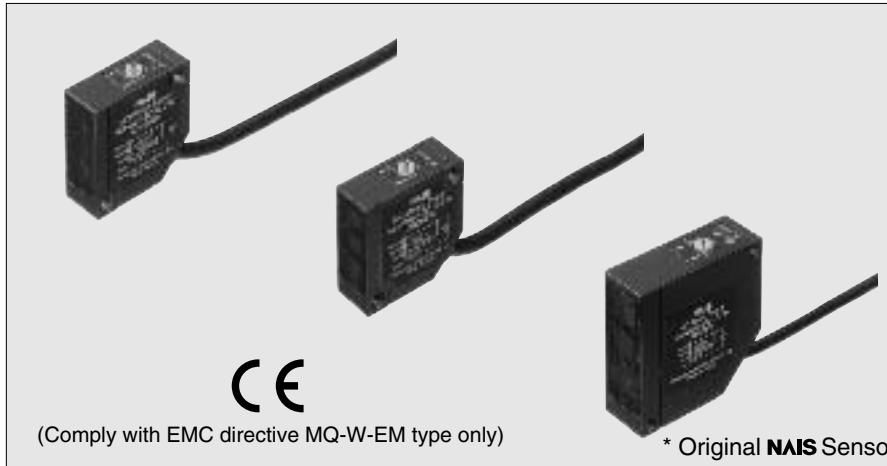


MQ-W SERIES

Triple Beam Trigonometric Area Reflective Photoelectric Sensors

Very accurate detection by triple beam triangulation sensing method in a compact package.

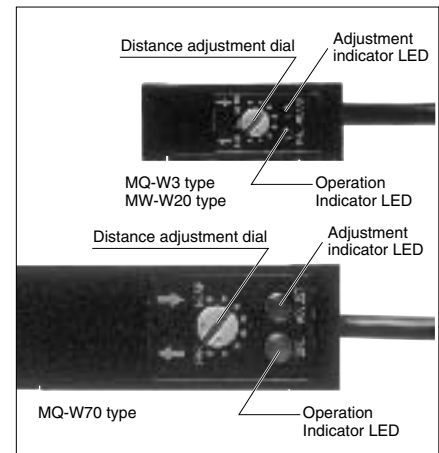


Environmental resistance

Immersion protected construction (equivalent to IEC IP67)

High speed detection: Max. 2 ms
Light-ON/Dark-ON output is wire selectable.

Operating voltage of 12 to 24 V DC
Adjuster and Indicators



FEATURES

Accurate detection regardless of color, material, or shape of objects
Area reflective type sensor can detect white or black object at the same distance. In case of diffuse reflective type, it is difficult to detect objects of various color with the same sensitivity setting. MQ-W area reflective type sensor is useful for such a case.

No-miss operation regardless of back-grounds

Area reflective type sensor does not detect objects beyond the set range.

Resistant to lens surface soiling

Area reflective type sensor detects the distance by the angle, not the intensity of received light. Even if the lens surface is soiled by dust or any powdery material, there is a little variation of sensing range.

SENSING RANGES

	Sensing range (m ft.)		
	0.03 .098	0.2 .656	0.7 2.297
MQ-W3 types	[Bar chart showing range from 0.03 to 0.098 m]		
MQ-W20 types	[Bar chart showing range from 0.03 to 0.2 m]		
MQ-W70 types	[Bar chart showing range from 0.03 to 0.7 m]		

PRODUCT TYPE

Detection method	Range	Rated operating voltage	Control output	Light source	Part number	*1 CE types	
Triple beam area reflective type	0.03 m .098 ft.	12 to 24 V DC	NPN	Infrared LED	MQ-W3A-DC12-24V	MQ-W3A-DC12-24VEM	
				Red LED	MQ-W3AR-DC12-24V	MQ-W3AR-DC12-24VEM	
			PNP	Infrared LED	MQ-W3C-DC12-24V	MQ-W3C-DC12-24VEM	
				Red LED	MQ-W3CR-DC12-24V	MQ-W3CR-DC12-24VEM	
			0.2 m .656 ft.	NPN	Infrared LED	MQ-W20A-DC12-24V	MQ-W20A-DC12-24VEM
					Red LED	MQ-W20AR-DC12-24V	MQ-W20AR-DC12-24VEM
	PNP			Infrared LED	MQ-W20C-DC12-24V	MQ-W20C-DC12-24VEM	
				Red LED	MQ-W20CR-DC12-24V	MQ-W20CR-DC12-24VEM	
	0.7 m 2.297 ft.			NPN	Infrared LED	MQ-W70A-DC12-24V	MQ-W70A-DC12-24VEM
					PNP	Infrared LED	MQ-W70C-DC12-24V

*1 These suffix EM types conform to CE. These types have the grounding connection inside of housing

SPECIFICATIONS

1) Ratings

Operating side	Rated operating voltage	12 to 24 V DC
	Rated current consumption	30 mA or less (excluding load)
Load side	Output current capacity	100 mA or less

2) Performance

Detection principle	Triple beam triangulation sensing method		
Detection method	Area reflective type		
Type	Amplifier selfcontained DC type		
Part number	MQ-W3A-DC12-24V MQ-W3AR-DC12-24V MQ-W3C-DC12-24V MQ-W3CR-DC12-24V	MQ-W20A-DC12-24V MQ-W20AR-DC12-24V MQ-W20C-DC12-24V MQ-W20CR-DC12-24V	MQ-W70A-DC12-24V MQ-W70C-DC12-24V
Sensing range	0.03 m .098 ft.	0.2 m .656 ft.	0.7 m 2.297 ft.
Detectable distance	0.02 to 0.04 m .066 to .131 ft.	0.04 to 0.2 m .131 to .656 ft.	0.2 to 0.7 m .656 to 2.297 ft.
Standard target	White drawing paper 1×1 cm .394×.394 inch	White drawing paper 2×2 cm .787×.787 inch	White drawing paper 7.5×7.5 cm 2.953×2.953 inch
Detectable target	Opaque, translucent		
Hysteresis	10% or less the set range	20% or less of the set range	
Operating voltage range	9.6 to 30 V DC ripple (P-P) included		
Response time (freq.)	2 ms or less (250 times per second or less)		
Initial insulation resistance	Min. 20 MΩ between a lead wire and external housing (at 500 V DC)		
Initial breakdown voltage	Between a lead wire and external housing: 500 Vrms for 1 min		
Vibration resistance	10 to 55 Hz (1 cycle/min), double amplitude 1.5 mm .059 inch (2 h each on 3 axes)		
Shock resistance	980 m/s ² {approx. 100 G} (6 times each on 3 axes)		
Protective construction	Diecast case immersion protected (equivalent to IEC IP67)		
Usable ambient light level	Incandescent lamp	10,000 lux or less	
	Sunlight	30,000 lux or less	
Ambient temperature	-25 to 55°C -13 to +131°F (non-icing condition)		
Ambient humidity	Max. 85% RH (non-condensing condition)		
Storage temperature	-25 to 55°C -13 to +131°F		
Indicator	Operation indicator: Red LED ON with light entry Adjustment indicator: Red LED ON with sufficient volume of lights		
Light source	Infrared LED/Red LED (R is added to the suffix of W3(20)A(C) in the part No.)		

Note: Unless otherwise specified, the measurement conditions comprise rated operating voltage, power supply by battery, 20°C 68°F ambient temperature, standard target and 200 lux or less illuminance on the receiver surface.

3) Output circuit diagram

NPN Output type

PNP Output type

