Model MDE-Q12 Inductive Detection Sensor for All Metals

Model List	Operation Status	Frequency
MDE-Q12	Normally open	Standard
MDE-Q12B		Different
MDE-Q121	Normally closed	Standard
MDE-Q121B		Different

Application

- Positioning of the processing machines
- Position detection of the the metal pallets and moving table

Features

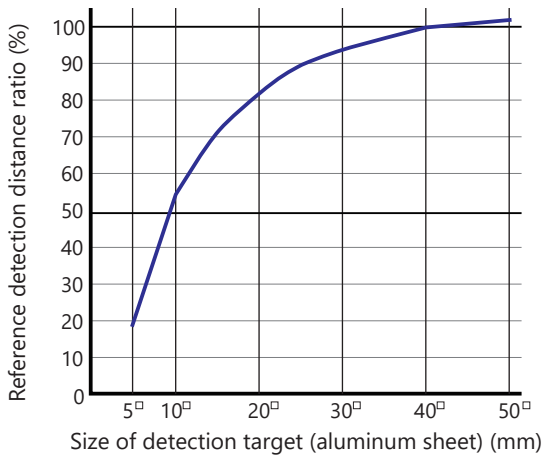
- Even with nonmagnetic materials such as aluminum, increased detection distance is possible.
- Mounting is easy due to the square form factor. can be installed directly on metal surfaces.
- With its molded casing, the sensor can be safely used in the presence of liquid water.
- Inductive sensor with detection surface dimensions of 40 × 40 mm and a detection distance of 12 mm (Front-side detection type).

Rating/Performance

Model	MDE-Q12	MDE-Q121
Detection Surface	Front side detection	
Detection Distance	12 mm ± 10 %	
Hysteresis	10 % or less of the detection distance	
Set Distance	0 to 9.5mm	
Standard Detection Object	Aluminum of 40 × 40 mm, sheet thickness : 1 mm	
Power Supply Voltage	12 V to 24 V DC (Operating voltage range : 10.8 V to 26.4 V DC)	
Current Consumption	15 mA DC or less	
Output	Nch MOS FET open drain 30 V DC, 100 mA DC or less	
Output Residual Voltage	0.5 V DC or less (Load current 100 mA DC and a 1-meter cord)	
Operation Status	Normally open (ON output when detecting)	Normally closed (OFF output when detecting)
Operation Indicator	Red LED (Lit when the output is ON)	
Response Frequency	300 Hz or more	
Temperature Range	-10 to 60 °C (-10 to 60 °C storage temperature range) (Without dew condensation or icing)	
Humidity Range	35 to 95 % RH (35 to 95 % RH storage humidity range) (Without dew condensation)	
Dielectric Strength	1000 V AC for 1 minute (Between the live part and case)	
Insulation Resistance	50 MΩ or more at 500 V DC megger (Between the live part and case)	
Vibration Resistance	10 to 55 Hz, 1.5 mm double amplitude in X, Y and Z directions for 2 hours each (at power off)	
Shock Resistance	500 m/s^2 (Approx. 50 G) in X, Y and Z directions 3 times each (at power off)	
Protection	IP67	
Case Material	ABS resin (Blue)	
Cable	ø6, 3-core round cord of 0.5 mm^2 and insulation 1.9 mm and 1 m in length (Oil and heat resistant vinyl)	
Weight	Approx. 100 g	

Change in Detection Distance Depending (Typical)

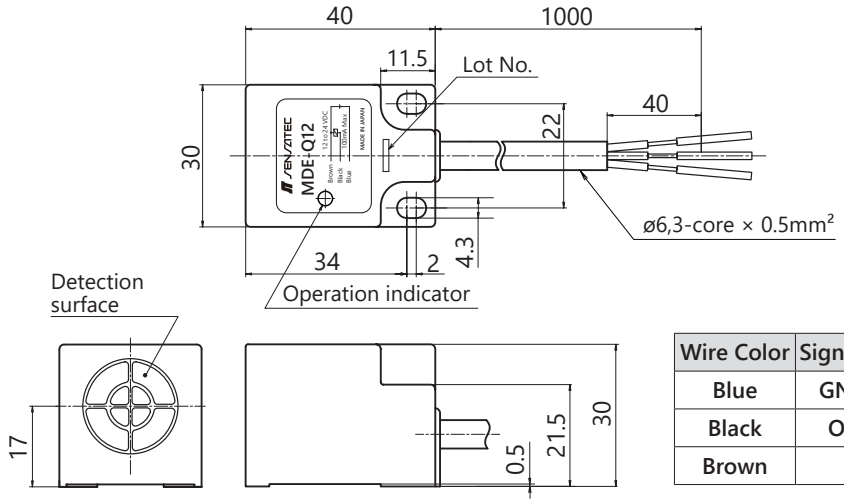
Graph of detection distance vs detection target size



Change in detection distance depending on the detection object material

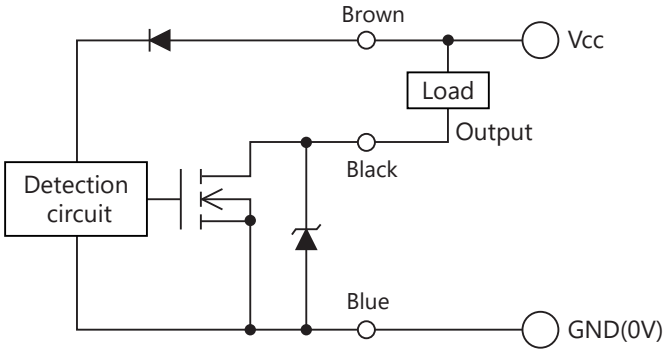
Material	Sensitivity ratio (%)
Aluminum	100
Iron	96
Copper	100
Brass	100
SUS304	99
SUS430	91

Outline Dimensions

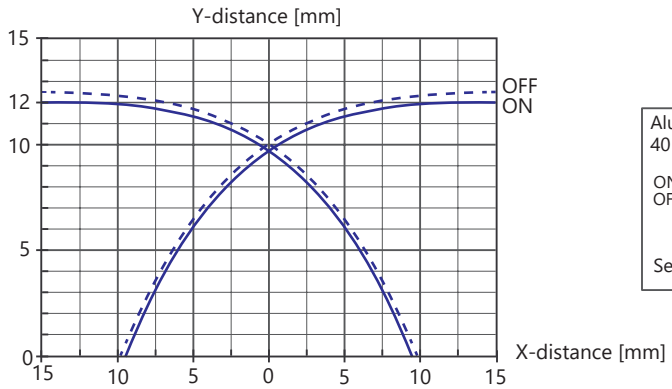


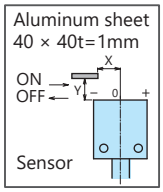
Wire Color	Signal Name
Blue	GND(0V)
Black	Output
Brown	Vcc

Output Circuit



Characteristics Graph (Typical Example)

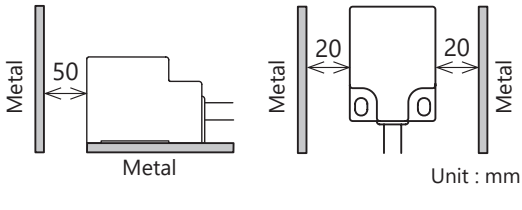




Precautions During Use

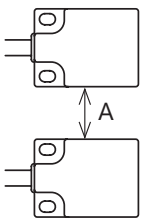
Influence of surrounding metal

If there are metals present near the inductive sensor, keep them away from and beneath the plane of the sensor detection surface at a minimum of the values specified in the figure below.



Mutual interference

When a number identical sensors are used, observe the minimum values shown in the figure below to prevent mutual interference. (The different frequency model type has "B" at the end of its model designation.)



	Same Frequency	Different Frequency
A	100 mm	20 mm

Mounting

- Always use plain washers to tighten the case and use a torque of 1.2 N·m or less.

* For other precautions, refer to "General Precautions" for inductive sensors.