

# Model **MDE-Q5** Proximity Detection Sensor for All Metals



Model List	Operation Configuration	Frequency
<b>MDE-Q5</b>	Normally open	Standard
<b>MDE-Q5B</b>		Different
<b>MDE-Q51</b>	Normally closed	Standard
<b>MDE-Q51B</b>		Different

## Application

- Non-magnetic metals such as aluminum, copper, etc. can be detected at a long distance as well as magnetic metals such as iron.

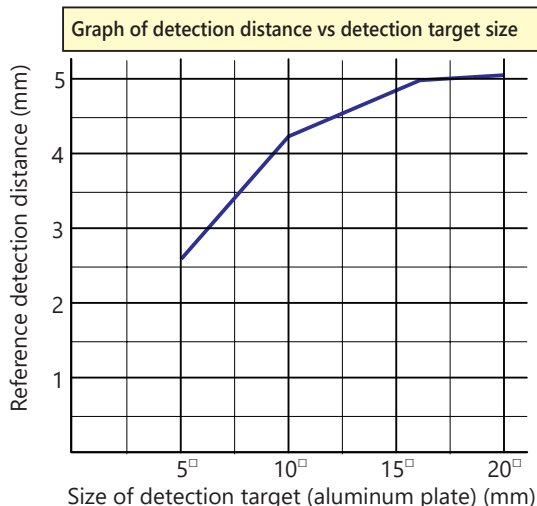
## Features

- Installation is easy due to the square form factor. can be installed directly on metal surfaces.
- Safely available even in the place where water may splash thanks to its molded type.
- Small proximity sensor with a detection surface of 17 x 17 mm and a detection distance of 5 mm (front side detection type)

## Rating/Performance

Model	MDE-Q5	MDE-Q51
Detection Surface	Front side detection	
Detection Distance	5 mm ± 10 %	
Hysteresis	15 % or less of the detection distance	
Setting Distance	0 to 4 mm	
Standard Detection Object	Aluminum of 17 x 17 mm, plate thickness : 1 mm	
Power Voltage	12 V to 24 V DC (Operating voltage range: 10.8 V to 26.4 V DC)	
Power 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 with detection target)	Normally closed (Off output with detection target)
Operation Indication	Red LED (Lit when On output)	
Response Frequency	500 Hz or more	
Temperature Range	-10 to 60 °C (-10 to 60 °C during storage)(Without dew condensation or freezing)	
Humidity Range	35 to 95 % RH (35 to 95 % RH during storage)(Without dew condensation)	
Breakdown Voltage	1000 V AC, 50/60 Hz for 1 min (Between live parts and the case)	
Insulation Resistance	50 MΩ or more, at 500 V DC megger (Between live parts and the case)	
Vibration Resistance	Durability : 10 to 55 Hz, Double amplitude: 1.5 mm in X-, Y-, and Z-direction, each 2 hours (Device not powered)	
Shock Resistance	Durability : 500 m/s <sup>2</sup> (Approx. 50 G) in X-, Y-, and Z-direction, each 3 times (Device not powered)	
Ingress Protection	IP67	
Case Material	ABS resin (Blue)	
Cable	ø4, 3-core round cord of 0.3 mm <sup>2</sup> and insulation 1.1 mm and 1 m in length (Oil and heat resistant)	
Weight	Approx. 30 g	

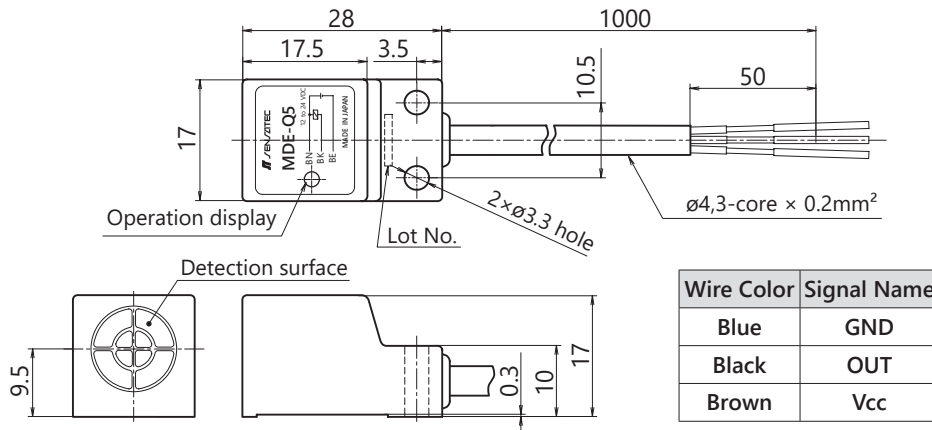
## Change in Detection Distance Depending (Reference)



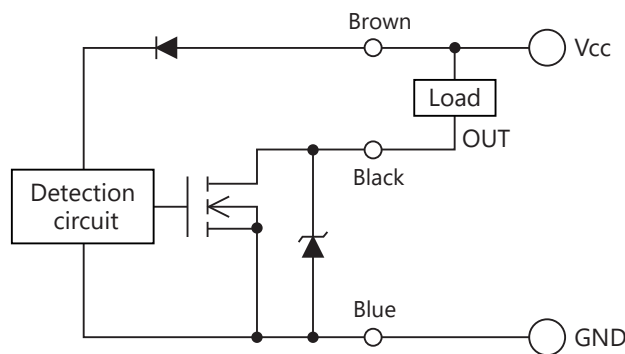
Change in detection distance depending on the detection object material

Material	Sensitivity ratio (%)
Aluminum	100
Iron	93
Copper	100
Brass	100
SUS304	99
SUS430	88

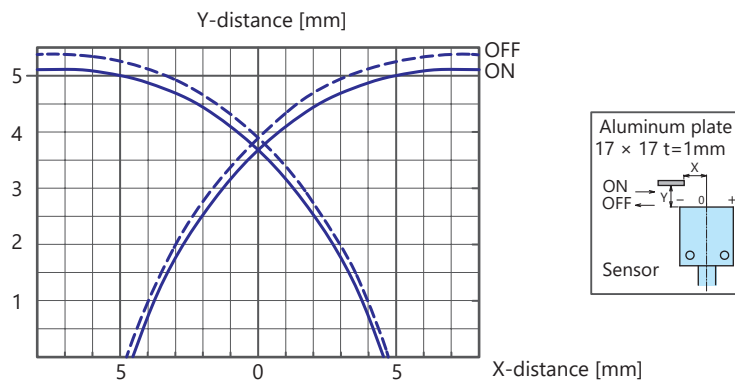
## Dimensions



## Output Circuit



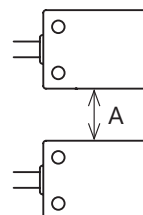
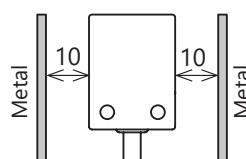
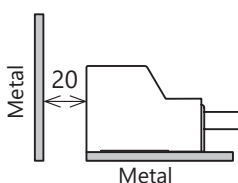
## Characteristics Graph (Typical Example)



## Precautions During Use

### Influence of surrounding metal

If there are metals present near the proximity 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.



	Same Frequency	Different Frequency
A	60 mm	10 mm

### Mutual interference

When two or more 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.)

## Installation

- The tightening torque for the case should be 0.59 N·m(6kgf·cm) or less.
- \* For other precautions, refer to "General Precautions" for proximity sensors.