

# Model MDG-4L High Speed Response Groove(U) Type Proximity Sensor

## Mounting Plate



MDG-4LP2

Model List	Operation Configuration	Mounting Plate
MDG-4L	Normally open	None
MDG-41L	Normally closed	None
MDG-4LP2	Normally open	Mounting Plate
MDG-41LP2	Normally closed	Mounting Plate

## Application

- Detection of coins for ATM and vending machines
- Detection of tokens of amusement equipment
- Rotational speed detection using a metal plate gear
- High frequency pulse generation

## Features

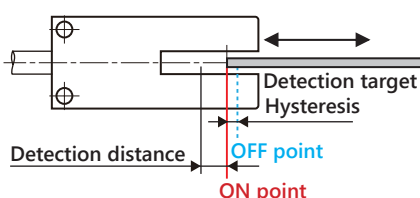
- The proximity sensor has an open collector output for simple operation.
- Detects the passage of all types of metals, tokens and coins.
- Perfect to detect the number of rotations of metal sheet slitters or gears.
- Supports high-speed detection.
- The unit is equipped with a LED display for clear indication of operation status.

## Rating/Performance

Model	MDG-4L	MDG-4LP2	MDG-41L	MDG-41LP2
Detection Groove Width	4 mm			
Detection Distance	* 11.5 mm ± 1.5 mm (Detection target and the bottom of the sensor groove)			
Standard Detection Target	Aluminum plate of 10 x 10 mm and 1 mm in thickness			
Setting Distance	*2.5 mm or less			
Hysteresis	*1.0 mm or less			
Power Voltage	5 V to 24 V DC (Operating voltage range : 4.5 V to 28 V DC)			
Power Consumption	12 mA DC or less			
Output	NPN transistor open collector 30 V DC, 50 mA DC or less			
Output Residual Voltage	0.4 V DC or less (Load current 50 mA DC)			
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	5 kHz or more (At 9 mm away from the bottom of sensor concave groove under the condition of the detection body; Tooth thickness : 5 mm or more, Width of tooth space : 5 mm or more, Thickness : 1 mm)			
Temperature Range	-20 to 65 °C (-20 to 65 °C during storage) (Without dew condensation or freezing)			
Humidity Range	95 % RH or less (85 % RH or less during storage)(Without dew condensation)			
Breakdown Voltage	500 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 10 times (Device not powered)			
Ingress Protection	IP67			
Case Material	Polyarylate			
Cable	Cable : ø4, 3-core round cord of 0.15 mm <sup>2</sup> and insulation 1.1 mm and 1 m in length (Oil and heat resistant)			
Weight	Approx. 30 g	Approx. 32 g	Approx. 30 g	Approx. 32 g

\*Detection distance : See Detection distance conditions on the next item.

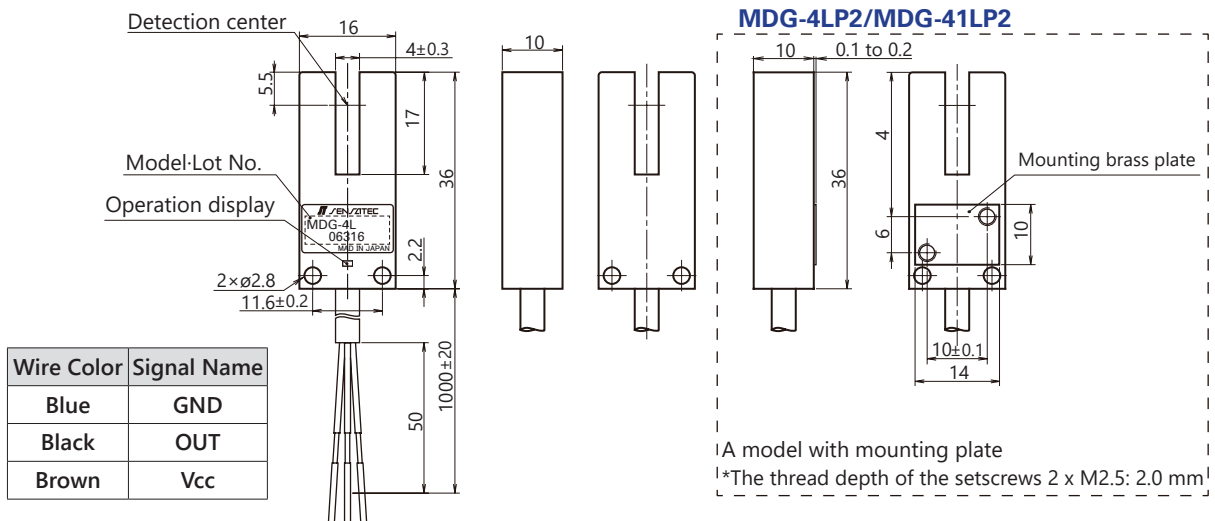
## Detection Distance Conditions



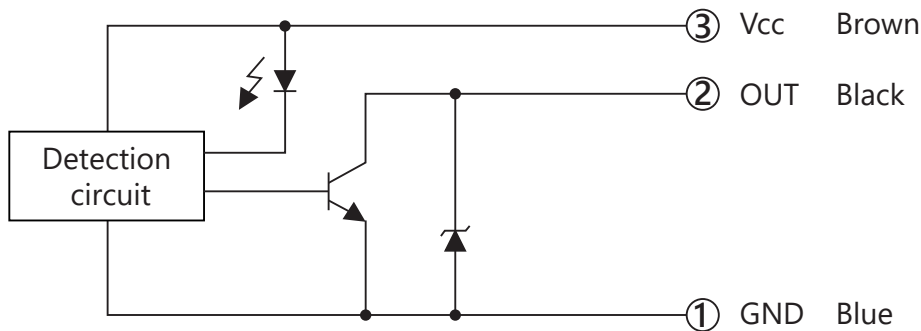
- Insert the standard detection target at the center of the detection sensor groove to measure.

Standard detection target : Aluminum plate of 10 x 10 mm and 1 mm in thickness  
 Detection distance: Distance from the sensor ON point to the groove bottom surface  
 Hysteresis: Distance between the ON point and the OFF point

## Dimensions



## Output Circuit

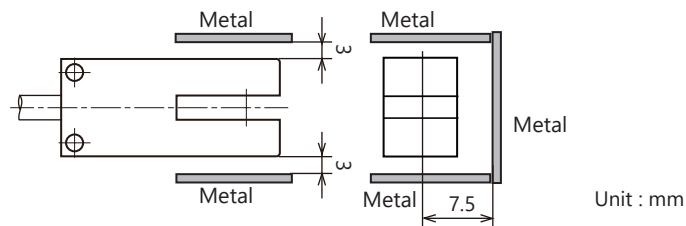


\*Because there is no reverse connection protection diode built-in, pay careful attention to the polarity of the power supply.

## Precautions During Use

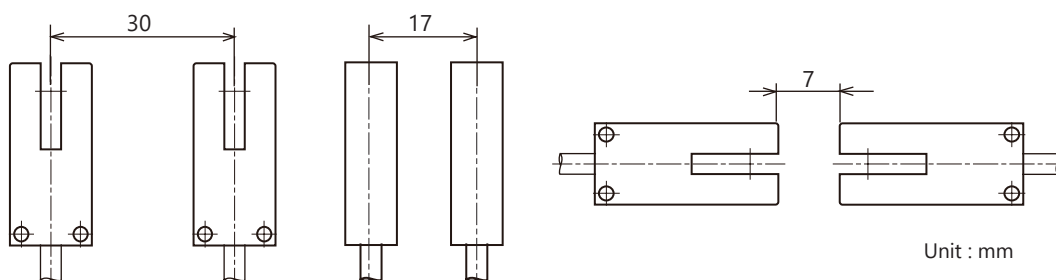
### Influence of surrounding metal

- If there are metal objects around the proximity sensor, leave at least the space indicated in the figure below between them and the sensor.  
The parts other than the detection groove can be in close contact.



### Mutual interference

- If you use two or more of the same product, separate them at least by the distances shown in the figure below to prevent reciprocal interference.



## Installation

- Tighten the case with a torque of 0.5 N·m or less.

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