Model **MDS-G4-S** High Speed Response Groove(U) Type Inductive Sensor

Model List	Operation Status
MDS-G4-S	Normally open
MDS-G4-S1	Normally closed

Application

- Detection of coins for ATM and vending machines
- Detection of tokens of amusement equipment
- Rotational speed detection using a metal sheet gear

Features

- 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.

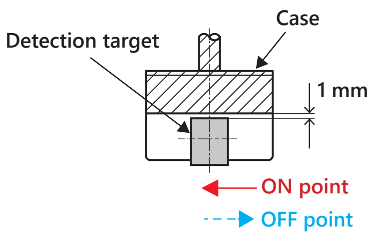
Rating / Performance

Model	**MDS-G4-S**	**MDS-G4-S1**
Detection Groove Width	4 mm	
Standard detection target	Iron sheet of ø 42, 15 P / R, aluminum sheet thickness 1.5 mm, the slit width 2.5 mm	
Hysteresis	0.3 mm or more	
Power Supply Voltage	6.0 V to 26.4 V DC, ripple 1 % P-P	
Output	NPN transistor (Between Output and GND(0V), output characteristics when load resistance 10 kΩ is connectedare refer to the following table)	
Operation Status	Normally open (ON output when detecting)	Normally closed (OFF output when detecting)
Response Frequency	0 to 3 kHz (At -20 °C 1kHz Max.)	
Temperature Range	-10 to 80 °C (-20 to 85 °C storage temperature range) (Without dew condensation or icing)	
Humidity Range	93 % RH or less (At a temperature of 65 °C) (Without dew condensation)	
Dielectric Strength	1,000 V AC for 1 minute (Between the live part and case)	
Insulation Resistance	100 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/s² (Approx. 50 G) in X, Y and Z directions 10 times each (at power off)	
Protection	IP55	
Case Material	Case : ABS resin with glass-fiber, Cover : SUS304 t0.8	
Cable	ø5, 3-core round cord of 0.3 mm² and insulation 1.5 mm and 0.2 m in length (Oil and heat resistant vinyl)	
Weight	Approx. 40 g	

Output Characteristics

Operating Power Voltage	At 6 V DC (Vcc)	At 12 V DC (Vcc)	At 24 V DC (Vcc)	At 6 V DC (Vcc)	At 12 V DC (Vcc)	At 24 V DC (Vcc)
During Non-shielding	3.8 V DC or more (VOH)	8.0 V DC or more (VOH)	17.0 V DC or more (VOH)	0.5 V DC or less (VOL)	0.5 V DC or less (VOL)	0.5 V DC or less (VOL)
During Shielding	0.5 V DC or less (VOL)	0.5 V DC or less (VOL)	0.5 V DC or less (VOL)	3.8 V DC or more (VOH)	8.0 V DC or more (VOH)	17.0 V DC or more (VOH)
Current Consumption	13 mA Max.	17 mA Max.	23 mA Max.	15 mA Max.	20 mA Max.	25 mA Max.
Output Impedance	2.4 kΩ ± 5 %					
Output Rise Time	3 μs or less					
Output Fall Time	3 μs or less					

Detection Distance Conditions

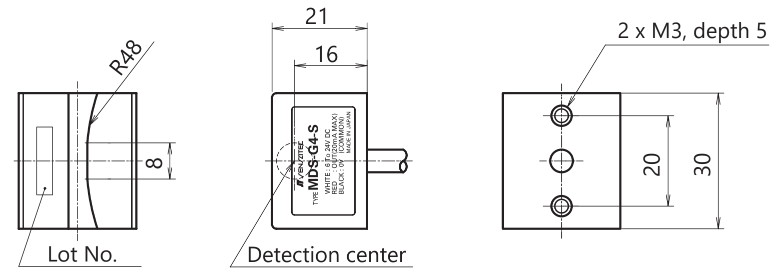


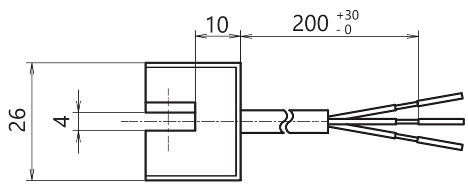
The detection object (11 × 6 × t1.5 aluminum sheet) is installed than the groove bottom surface of the case at the 1mm, and inserting the detected object in the case the center direction.

MDS-G4-S :
Returns the detected object from the point where output becomes Low, Measure the distance between the point at which the output becomes High.

MDS-G4-S1 :
Returns the detected object from the point where output becomes High, Measure the distance between the point at which the output becomes Low.

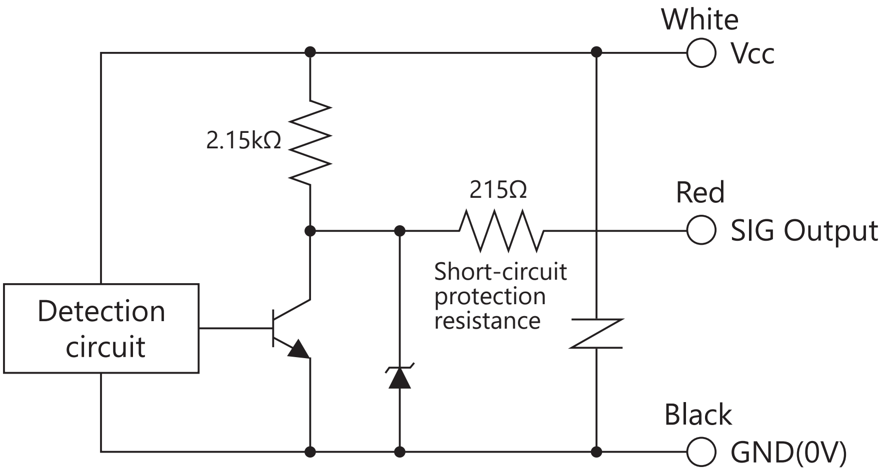
Outline Dimensions





Wire Color	Signal Name
Black	GND(0V)
Red	SIG Output
White	Vcc

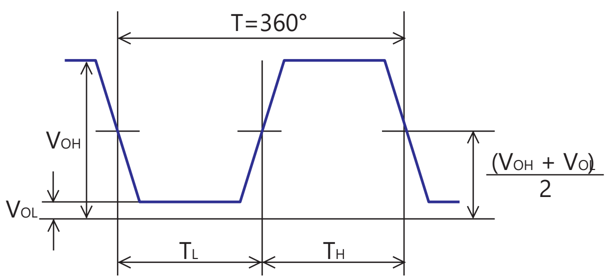
Output Circuit



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

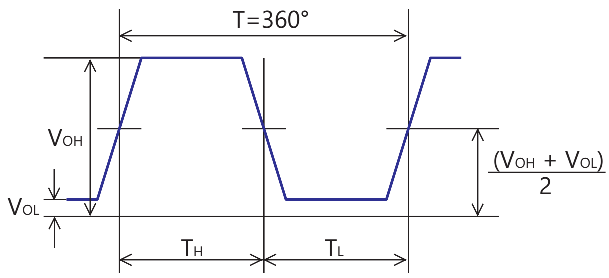
Output Waveform

MDS-G4-S



* Waveform ratio 0.3 T ≦ TL ≦ 0.7 T
(In the full operating temperature range)
** Iron sheet ø 42, 15 P / R, slit width 2.5 mm,
T 1.5 during use

MDS-G4-S1



* Waveform ratio 0.3 T ≦ TH ≦ 0.7 T
(In the full operating temperature range)
** Iron sheet ø 42, 15 P / R, slit width 2.5 mm,
T 1.5 during use

Precautions During Use

1. If you use a switching regulator to power, please ground always FG (frame ground) terminal.
2. Always use plain washers to tighten the case and use a torque of 0.5 N·m or less.
3. Cable wiring color of the sensor is different from the other models.
   Please be wired as that has been described in the Dimensions.
4. Cable length standard has become 0.2 m.
5. For other precautions, refer to “General Precautions” for inductive sensors.