Model MS-7H High-sensitivity Inductive Sensor

PATENTED

Mounting bracket
(Sold separately)
PMS-5TS

Model List	Power Supply Voltage	Operation Status	Frequency
MS-7H	12 to 24 V DC	Normally open	Standard
MS-7HB			Different
MS-7H1		Normally closed	Standard
MS-7H1B			Different
MS-7H5	5 V DC	Normally open	Standard
MS-7H5B			Different
MS-7H15		Normally closed	Standard
MS-7H15B			Different

Application

- Iron sheet detection
- Metal steel balls detection
- Positioning of the processing machines
- Metal detection in a narrow space
- Coin and medal detection

Features

- Minimized effect on sensitivity in the event of unexpected condensation.
- Features a keyway on the case side for an easy mounting in one touch.
- You may also use the mounting bracket (Sold separately).

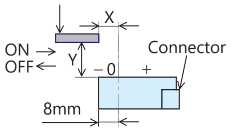
Rating / Performance

Model	MS-7H5	MS-7H15	MS-7H	MS-7H1
Detection Surface	Upper side detection			
Detection Distance	7.5 mm ± 0.5mm (Detection Target : Iron sheet of 20 × 20 mm and 1 mm in thickness)			
Hysteresis	15 % or less of the detection distance			
Set Distance	0 to 6.0 mm			
Power Supply Voltage	5 V DC (Operating voltage range : 4.5 V to 10 V DC)		12 to 24 V DC (Operating voltage range : 9 V to 33 V DC)	
Current Consumption	4 mA DC or less		5 mA DC or less	
Output	NPN transistor open collector 5 V DC : 33 V DC 80 mA DC or less , 12 / 24 V DC : 33 V DC 100 mA DC or less			
Output Residual Voltage	1 V DC or less (Load current 5 V DC : 80 mA DC , 12 / 24 V DC : 100 mA DC)			
Operation Status	Normally open (ON output when detecting)	Normally closed (OFF output when detecting)	Normally open (ON output when detecting)	Normally closed (OFF output when detecting)
Operation Indicator	Green LED (Lit when the output is ON)			
Response Frequency	500 Hz or more			
Temperature Range	-25 to 80 °C (-25 to 80 °C storage temperature range) (Without dew condensation or icing)			
Humidity Range	25 to 85 % RH (25 to 85 % RH storage humidity range) (Without dew condensation)			
Dielectric Strength	500 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	1,000 m/s² (Approx. 100 G) in X, Y and Z directions 10 times each (at power off)			
Anti-static Electricity	15 kV between the outside coating and electrode (Discharge capacity: 150pF, discharge resistance: 330Ω) Only at the detection surface side			
Protection	IP50			
Case Material	Case: ABS resin with glass (Black), Cover:PC (Transparent)			
Connector	Connector : S3B-ZR (3-pin) (from J.S.T. Mfg. Co., Ltd.) [Connections] Housing : ZHR-3, Contact: SZH-002T-P0.5 (from J.S.T. Mfg. Co., Ltd.)			
Weight	Approx. 4.2 g			
Options (Sold Separately)	Mounting bracket : PMS-5TS, Connector harness : SZH-3-300			

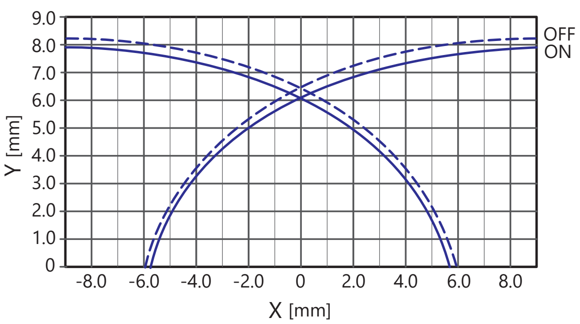
Characteristics Graph (Typical Example)

Detection area diagram

Detection target : 20 × 20
Iron sheet t=1mm



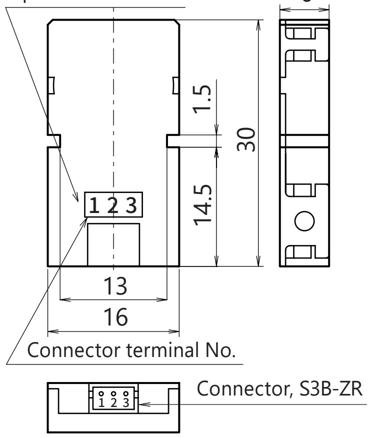
(Center of the detection surface)

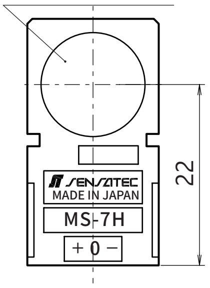


Reference Operating Sensitivity

Detection object	Operation distance
Stainless medal	5.5 mm
Dye cast medal	5.4 mm
Bimetal medal	4.9 mm
Nickel silver medal	4.4 mm
Nickel medal	3.6 mm
Gold nickel silver	3.5 mm
Brass medals	3.5 mm
Gold plate	3.6 mm
Iron Pachinko ball	5.0 mm
SUS Pachinko ball	3.5 mm
20 x 20 x t1 iron sheet	7.5 mm

Outline Dimensions

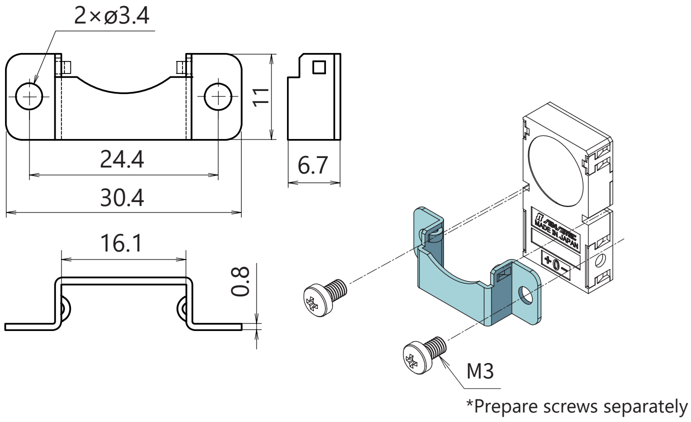




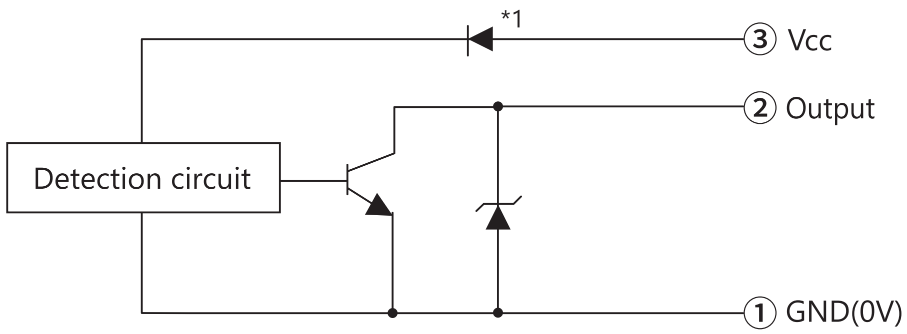
Pin No.	Signal Name
1	GND(0V)
2	Output
3	Vcc

Mounting Bracket (Sold Separately)

PMS-5TS



Output Circuit

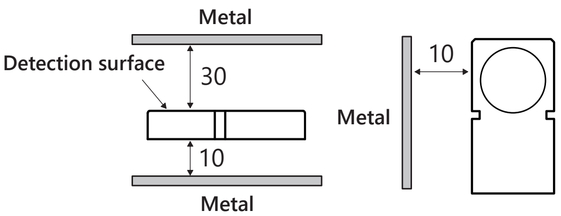


*1 The 5V DC type has no reverse connection protection diode built-in.
Be sure to pay careful attention to the polarity of the power supply.

Precautions During Use

Influence of Surrounding Metal

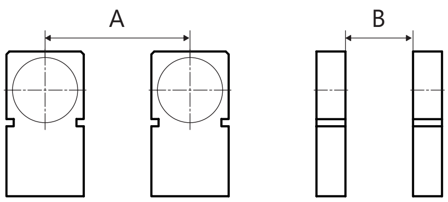
Do not place metal objects around the inductive sensor, i.e. within 30 mm from the detection surface,10 mm from the front side, or 10 mm from the sides. Otherwise, the detection distance may increase or other malfunctions may occur. Also, if there are surrounding metals on two or more sides including the side surface, please contact us in advance.



Unit : mm

Mutual interference

When using multiple sensors side by side, separate them at least by the distances 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	126 mm	28 mm
B	180 mm	60 mm

Mounting

Note that this sensor cannot be mounted on metal surfaces.

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