

Model MDS-H12XFD 2-Wire Through-Type Proximity Sensor for Steel Pachinko Balls (Shield Type)



Model List	Operation Configuration
MDS-H12XFD	Steel material pachinko ball

Application

- Steel material pachinko ball detection

Features

- A 2-wire through-type proximity sensor exclusively for steel pachinko balls that can save wiring.
- Being a magnetic shield type, the sensor has less effects of mutual interference between sensors, it can be mounted in close contact with the side of the sensor.
- A transparent cover allows easy check of the internal condition.
- Steel pachinko balls can be counted even when passing in an unbroken consecutive line.
- Since the C-cut shape is used for the main body case, it is possible to prevent incorrect installation orientation.
- Features a keyway on the case side for an easy installation in one touch.
- Combined use with EWD-271 (radio wave sensor) gives greater safety against radio interference.

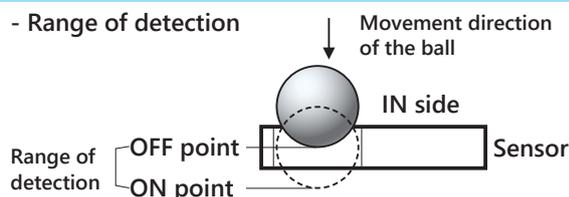
Rating/Performance

Model	MDS-H12XFD	
Range of Detection	4.5 to 7.5 mm (* Refer to "Characteristics")	
Hysteresis	0.4 to 1.5 mm or more (* Refer to "Characteristics")	
Standard Detection Target	Steel pachinko ball (ø 11 ± 0.05 mm)	
Power Voltage	12 V to 24 V DC (Operating voltage range : 10.8 V to 26.4 V DC)	
Power Consumption	0.2 to 1.4 mA (At 12 VDC) , 0.2 to 1.8 mA (At 24 VDC)	
Residual Voltage	At 12 V DC: 5.6 V to 7.0 V DC or less (Load resistance 680 Ω to 1.1 kΩ)	At 24 V DC: 5.6 V to 7.0 V DC or less (Load resistance 2.0 kΩ to 3.3 kΩ)
Load Resistance	When 12 V DC is applied : 680 Ω(-5%) to 1.1 kΩ(+5%)	When 24 V DC is applied : 2.0 kΩ(-5%) to 3.3 kΩ(+5%)
Operation Status	Output ON when not detected. Output OFF when detected	
Resolution	Balls passing continuously can be detected	
Response Frequency	100 Hz or more	
Temperature Range	-10 to 70 °C (Without dew condensation or freezing)	
Humidity Range	35 to 85 % RH (Without dew condensation or freezing)	
Breakdown Voltage	500 V AC, 50/60 Hz for 1 min (Between live parts and casing)	
Insulation Resistance	50 MΩ or more, at 500 V DC megger (Between live parts and casing)	
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 ² (Approx. 50 G) in X-, Y-, and Z-direction, each 10 times (Device not powered)	
Anti-static Electricity	Between the outer cover (pachinko ball passage hole) and connector No. 2 terminal (-) 15kV (C = 150pF, R = 330Ω)	
Ingress Protection	IP50	
Case Material	Case : ABS resin with glass (Black), Cover : ABS resin (Transparent)	
Connector	Connector : S2B-ZR (2-pin) (from J.S.T. Mfg. Co., Ltd.) [Connections] Housing : ZHR-2, Contact: SZH-002T-P0.5 (from J.S.T. Mfg. Co., Ltd.)	
Weight	Approx. 2.5 g	
Options (Sold Separately)	Connector harness : SZH-2-300	

* Leakage current: The current that flows through the sensor during detection (output transistor is OFF).

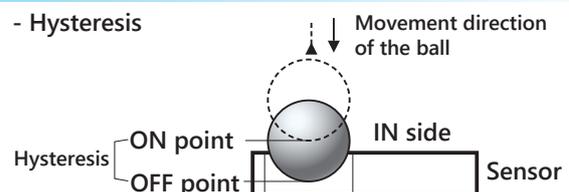
Characteristics

- Range of detection



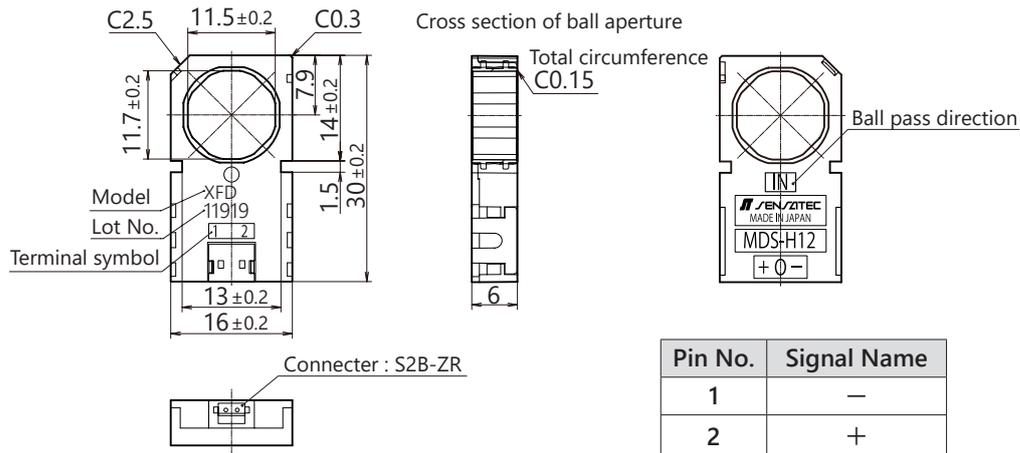
The detection range is the distance from the point where the output transistor is turned off when the pachinko ball is inserted from the IN side to the point where it is further inserted and the point is changed from the OFF point to the ON point.

- Hysteresis

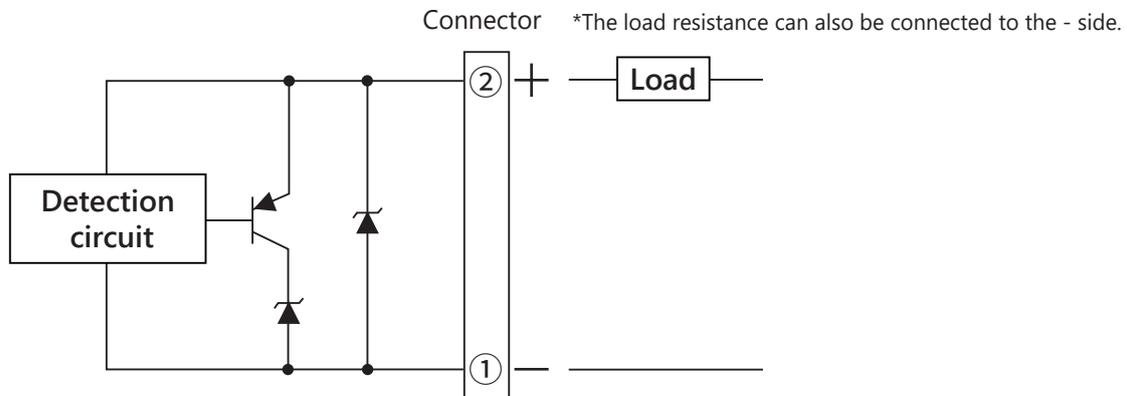


Insert a pachinko ball from the IN side and move it in the opposite direction from the point where the output transistor turns OFF, and use the distance from the OFF point to the ON point as the hysteresis.

Dimensions

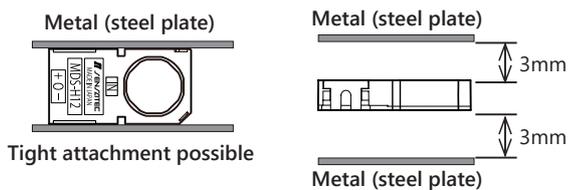


Output Circuit



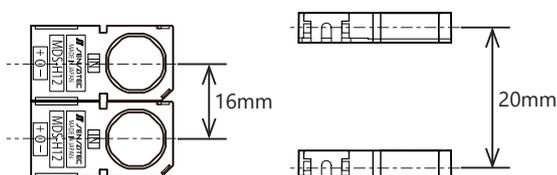
Precautions During Use

Influence by surrounding metals



Avoid metals in the surroundings, within 3 mm of the detection side and back side of the proximity switch.

Mutual interference



When using two or more sets of sensor of the same frequency type, separate them in the distance shown left figure to avoid possible mutual interference.

Others

1. This sensor is a dedicated detection sensor for steel pachinko balls.
Do not use this sensor as it cannot detect SUS pachinko balls.
Please use model / MDS-H12XSD to detect SUS pachinko balls.
2. If you want an open collector output type (3-wire type), please use our sensor MD-HC1.
The 2-wire MDS-H12XFD requires an output residual voltage processing circuit and an open collector output conversion circuit (interface IC, etc.) as an external circuit for the sensor.
On the other hand, the 3-wire MD-HC1 has these circuits built-in, it is possible to significantly reduce the cost of the external circuit of the sensor.
In addition, the open collector output can be logically processed by H / L, it can be directly connected as an input signal of 30V DC or less.
3. For other precautions, refer to "General Precautions" for proximity sensors.