

Model MD-HC41-5 Thin Pass-Through Type Proximity Sensor for Steel Pachinko Balls (Open Collector Output / Shield Type/ 5 V DC)



| Model List | Standard Detection Target | Frequency | Operation Status |
|------------|------------------------------|-----------|------------------|
| MD-HC41-5 | Steel material pachinko ball | Standard | Normally closed |
| MD-HC41-5B | | Different | |

Application

- Steel material pachinko ball detection

Features

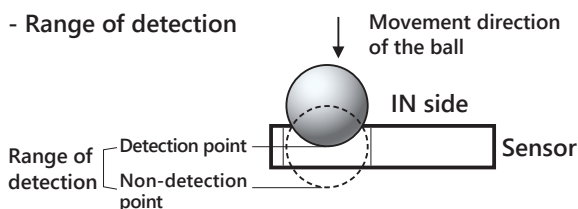
- The 2-wire sensor requires an external output residual voltage processing circuit and an open collector output conversion circuit (interface IC, etc.). Since this sensor has these circuits built-in, the cost of the external circuit of the sensor can be significantly reduced. In addition, since this sensor has an open collector output, High / Low logic processing is possible, and it can be directly connected as an input signal of 30 V DC or less.
- Ultra-thin type with a thickness of 4mm.
- Steel material 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.
- A transparent cover allows easy check of the internal condition.
- 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 | MD-HC41-5 |
|---------------------------|---|
| Range of Detection | 4.5 to 7.5mm (* Refer to "Characteristics") |
| Hysteresis | 0.4 to 1.5 mm or more (* Refer to "Characteristics") |
| Standard Detection Object | Steel Pachinko ball (ø 11 ± 0.05 mm) |
| Power Voltage | 5 V DC (Operating voltage range : 4.7 V to 5.5 V DC) |
| Power Consumption | 15 mA DC or less |
| Output Capacity | NPN transistor open collector 30 V DC, 20 mA DC or less |
| Output Residual Voltage | 1 V DC or less (Load current 20 mA DC) |
| Operation Status | Normally closed (At detection: output OFF) |
| 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) |
| 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) |
| 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 the case) |
| Anti-static Electricity | Between the outer cover (pachinko ball passage hole) and connector No. 1 terminal (GND) ± 15kV (C = 150pF, R = 330Ω) |
| Ingress Protection | IP50 |
| Case Material | Case : PBT resin with glass (Black), Cover : ABS resin (Transparent) |
| Connector | Connector : DF14A-3P-1.25H(22) (3-pin) (from HIROSE ELECTRIC CO., LTD.) [Connections] Housing : DF14-3S-1.25C, Contact : DF14-2628SCF (from HIROSE ELECTRIC CO., LTD.) |
| Weight | Approx. 1.9 g |
| Options (Sold Separately) | Connector harness : CNH-DF1403S26-300 |

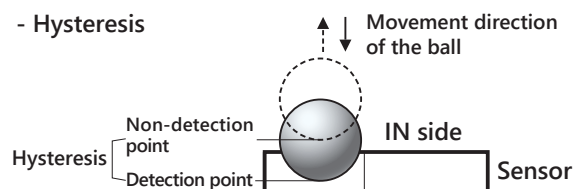
Characteristics

- Range of detection



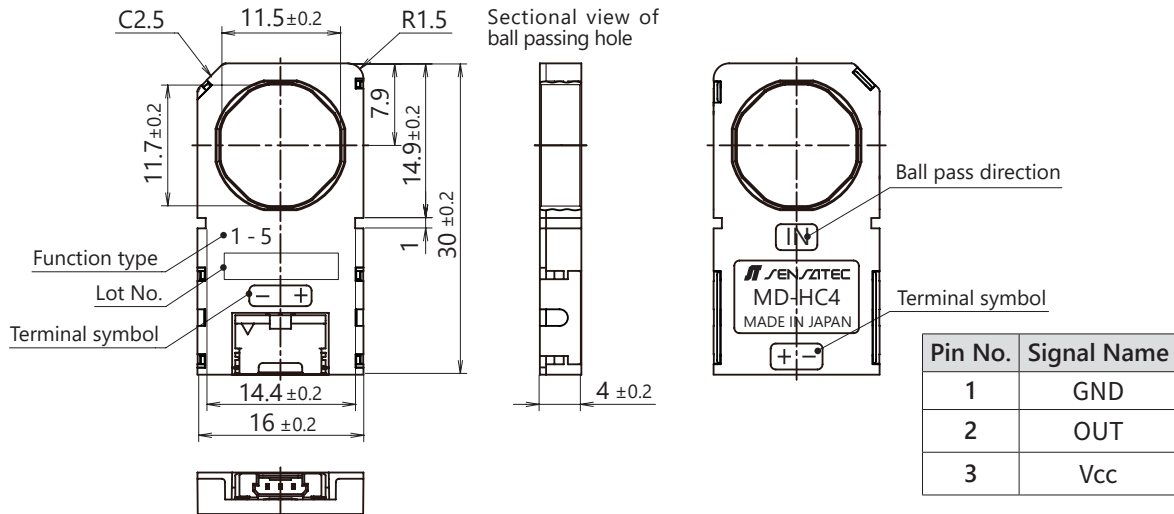
The pachinko ball is inserted from the IN side, and the distance from the detection point to the point where the detection point changes to non-detection is set as the detection range.

- Hysteresis

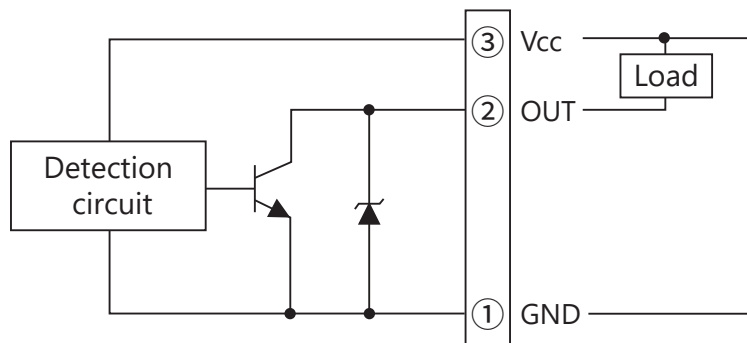


The pachinko ball is inserted from the IN side, the pachinko ball is moved in the opposite direction to the insertion from the point to be detected, and the distance from the point where the detection is changed to the non-detection is used as the hysteresis.

Dimensions



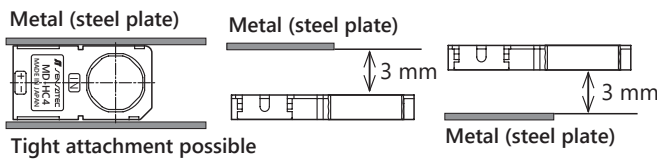
Output Circuit



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

Precautions During Use

Influence by surrounding metals

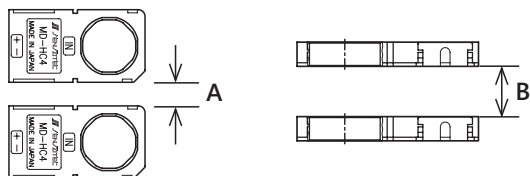


Avoid metals in the surroundings, within 3 mm of the detection side and back side of the proximity switch. Otherwise, the range of detection may increase or other malfunctions may occur.

Mutual interference

When using multiple sensors adjacent to each other, use them at intervals greater than the values 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 | 10 | 0 |
| B | 26 | 11 |

Unit : mm

Others

- This sensor is a dedicated detection sensor for steel pachinko balls. Do not use this sensor as it cannot detect SUS pachinko balls.
- Be sure to insert and remove the connector horizontally. If you insert or remove it at an angle, it may cause terminal deformation, case damage, or poor contact.
- For other precautions, refer to "General Precautions" for proximity sensors.
 - *For other detailed specifications, refer to the specification sheet of the corresponding model.