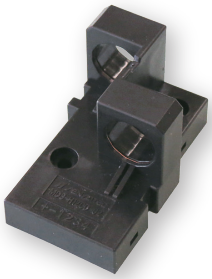
Model MDS-H12CD-02 2-channel Dual Reversible Counter Sensor For Steel Pachinko Balls



Standard frequency

Different frequency

□Model list

	Standard frequency	Different frequency
Normally open type	MDS-H12CD-02	MDS-H12CM-02B
Normally closed type	MDS-H12CD-021	MDS-H12CM-021B

Application

- Counting in steel pachinko ball dispensers or counting bills (currency).

Characteristics

- Can accurately count up and down the number of steel pachinko balls coming continuously.
- The count remains accurate even when steel pachinko balls passing or remaining inside the sensor vibrate or move in the opposite direction.
- A multiple-sensor can be installed side-by-side making it possible to count lots of balls in a short time.
- A different frequency type is also available to prevent interference in multiple-sensor installations.
- A normally closed type is also available to detect errors such as harness poor connection or cable disconnection.

Rating and performance

Model name	**MDS-H12CD-02**	**MDS-H12CD-021**
Detection distance	3.8 to 6.8 mm	
Hysteresis	1.0 mm or less	
Standard detection target	Steel pachinko ball (ø11 ± 0.05 mm)	
Power supply voltage	12 V to 24 V DC (Operating voltage range: 9.6 V to 28.8 V DC)	
Power consumption	25 mA DC or less	
Output	NPN transistor open collector (4-output) 30 V DC 50 mA DC or less	
Operation configuration	"L" output with detection target (Normally open)	"H" output when no detection target (Normally closed)
Resolving power	Can detect balls coming continuously	
Response frequency	100Hz or more	
Operating temperature range	-20 to 60 °C (-25 to 65 °C during storage) (Without dew condensation or freezing)	
Operating humidity range	35 to 85% RH (25 to 85% RH during storage) (Without dew condensation)	
Vibration resistance	Durability: 2 hours in each X, Y, Z direction at 10 to 55 Hz and with durability vibration of 10 G (At power off)	
Shock resistance	Durability: 3 times at 1000 m/s² (approx. 100 G) in each X, Y, Z direction (At power off)	
Screw tightening torque	51.9 to 77.4 Ncm	
Circuit protection	With a protection diode against reverse connection to the power supply	
Static electricity resistance	±15 kV between the ball pass-through opening and GND (C = 150 pF, R = 330 Ω)	
Protection rating	IP50	
Case material	Glass reinforced PBT resin	
Connector	Connector : B6B-ZR-SM4-TF (6-pin) (from J.S.T. Mfg. Co., Ltd.) [Connections] Housing : ZHR-6, Contact : SZH-002T-P0.5 (from J.S.T. Mfg. Co., Ltd.)	
Weight	Approx. 14 g	
Options (Sold separately)	Connector harness : CNH-ZHR06S28-300	

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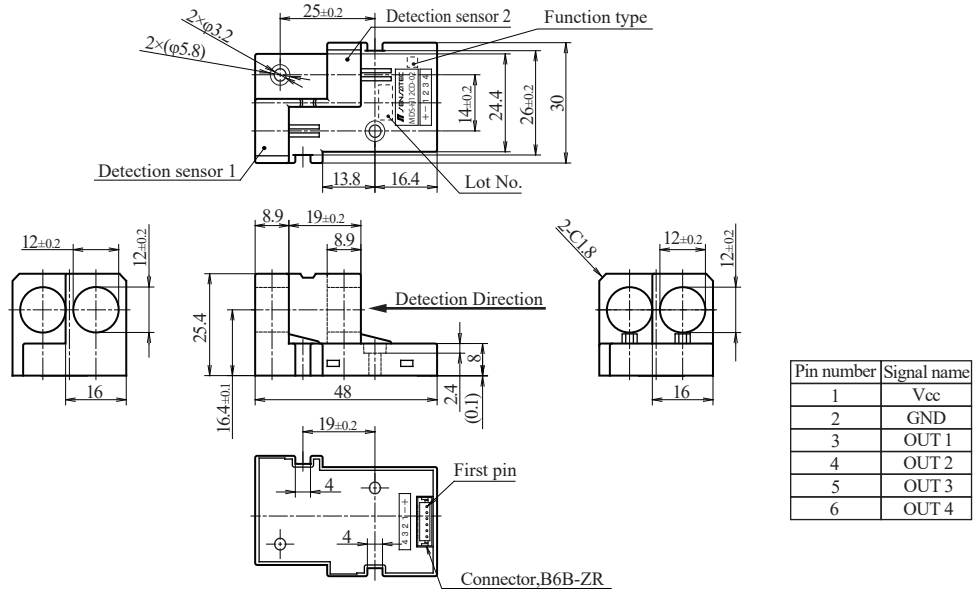
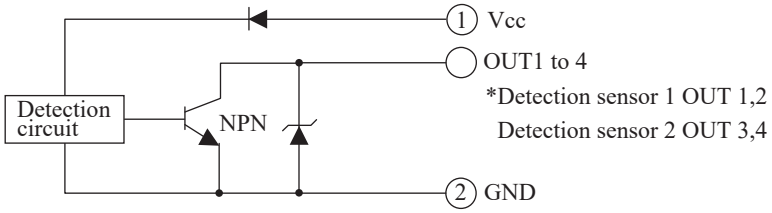
External dimensions diagram



Pin number	Signal name
1	Vcc
2	GND
3	OUT 1
4	OUT 2
5	OUT 3
6	OUT 4

Output circuit

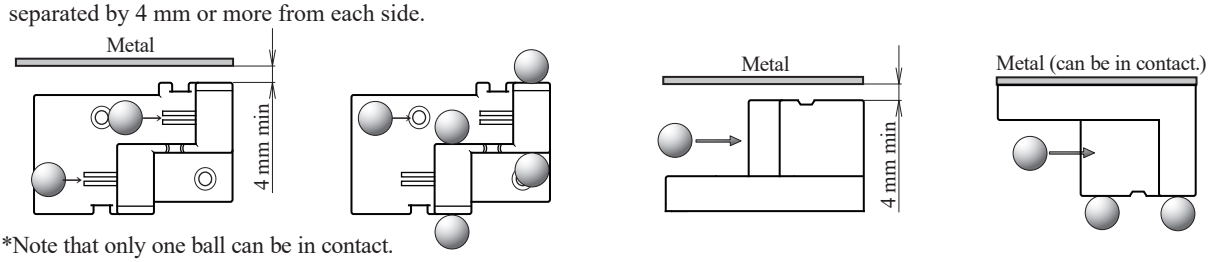


Usage precautions

- Influence of surrounding metal

When installing metal around the proximity sensor, leave space as shown in the figure below. However, metal cannot be installed in all directions, but in one direction only. Contact is possible in case of steel pachinko balls.

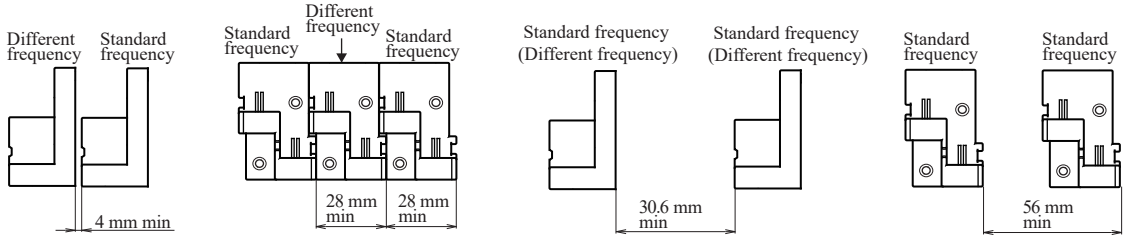
*The detection range varies by ±10% or less when metal is 1.2 mm in thickness, has an area larger than the part surface, and is separated by 4 mm or more from each side.



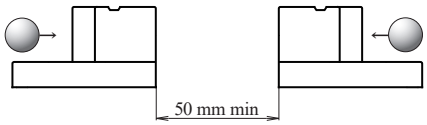
*Note that only one ball can be in contact.

- Mutual interference

If you install two or more sensors laterally, use standard products and products with a different frequency alternately to prevent interference. If you use products with the same frequency, separate them at least by the distances shown in the figure below.



When two or more sensors with the same frequency are installed facing together, use them as shown in the figure below to prevent interference.



- Other

1. Please note that this proximity sensor can detect steel pachinko balls, but not SUS pachinko balls. Contact us for detection of SUS pachinko balls.
2. See proximity sensor general usage precautions for other precautions.

*For a detailed specification of the other, please refer to specifications.