



Model list

Model	Operation configuration	Detection surface	Frequency
MDS-F2R5-5V	Normally open	Front side	Standard
MDS-F2R5B-5V			Different
MDS-F2R5U-5V		Upper side	Standard
MDS-F2R5UB-5V			Different
MDS-F2R51-5V	Normally closed	Front side	Standard
MDS-F2R51B-5V			Different
MDS-F2R5U1-5V		Upper side	Standard
MDS-F2R5U1B-5V			Different

### Application

- Positioning of the processing machines
- Position detection of the moving table and metal pallets
- There is no space, the magnetic detection of a narrow place

### Features

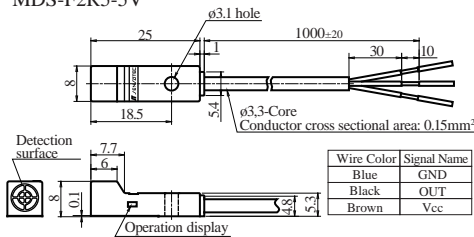
- Small proximity sensor with a detection surface of 8 mm and a detection distance of 2.5 mm.
- Simple installation with a single M3 screw or the mounting bracket that saves space (sold separately).
- Molded type that can be used safely even in places where water may splash.

### Rating/Performance

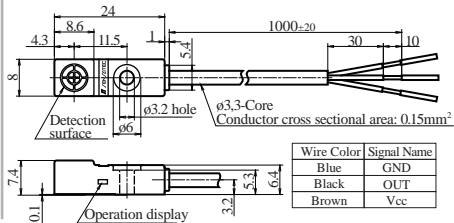
Model	MDS-F2R5-5V	MDS-F2R51-5V	MDS-F2R5U-5V	MDS-F2R5U1-5V
Detection Surface	Front side detection		Upper side detection	
Detection Distance	2.5 mm $\pm$ 20 %			
Hysteresis	20 % or less of the detection distance			
Set Distance	0 to 1.8 mm			
Standard Detection Target	Iron plate of 15 x 15 mm and 1 mm in thickness			
Power Voltage	5 V DC (Operating voltage range: 4.5 V to 5.5 V DC)			
Power Consumption	10 mA DC or less			
Output	NPN transistor open collector 30 V DC, 100 mA DC or less			
Output Residual Voltage	1 V DC or less (Load current 100 mA DC and a 1-meter cord)			
Operation Status	Normally open (On output with detection target)	Normally closed (Off output with detection target)	Normally open (On output with detection target)	Normally closed (Off output with detection target)
Operation Indication	Red LED (lit when On output)			
Response Frequency	1 kHz or more			
Temperature Range	-25 to 70 °C (-25 to 70 °C during storage)			
Humidity Range	35 to 95 % RH (35 to 95 % RH during storage)			
Breakdown Voltage	1000 V AC, 50/60 Hz for 1 min (Between live parts and the case)			
Insulation Resistance	50 M $\Omega$ or more, at 500 V DC megger (Between live parts and the case)			
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: 1000 m/s <sup>2</sup> (Approx. 100 G) in X-, Y-, and Z-direction, each 10 times (Device not powered)			
Ingress Protection	IP67			
Case Material	Polyarylate			
Cable	$\phi$ 3, 3-core round cord of 0.15 mm <sup>2</sup> and 1 m in length (oil and heat resistant)			
Weight	Approx. 15 g			
Options (sold separately)	Mounting bracket : PMS-F2R5S			

**Dimensions**

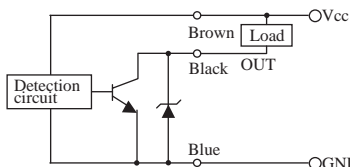
MDS-F2R5-5V



MDS-F2R5U-5V



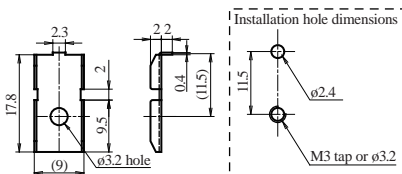
**Output Circuit**



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

**Mounting bracket (sold separately)**

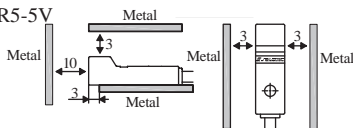
PMS-F2R5S



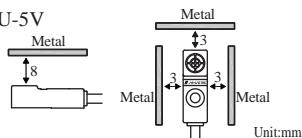
**Precautions during use**

- About the influence of surrounding metal  
If there are metal objects around the proximity sensor, leave at least the space indicated in the figure below between them and the sensor.

MDS-F2R5-5V

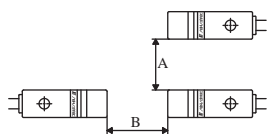


MDS-F2R5U-5V

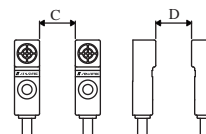


- Reciprocal interference  
If you use two or more of the same product, separate them at least by the distances shown in the figure below to prevent reciprocal interference. (Sensors with a different frequency are indicated with a B after the model name.)

MDS-F2R5-5V



MDS-F2R5U-5V

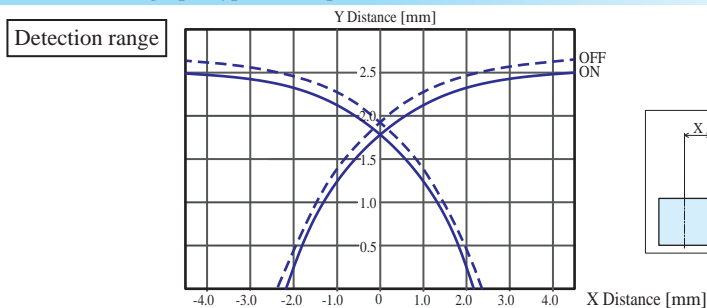


	Same frequency	Different frequency
A	15	*0
B	40	25
C	20	*0
D	40	15

\*Mark values possible for up to two devices.  
Unit:mm

- Installation  
Tighten the case with a torque of 0.5 N.m or less.
- For other precautions during use, refer to the General Precautions for proximity sensors.

**Characteristics graph (typical example)**



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