Model CDS-F8 Capacitive Proximity Sensor

Model list

Model	Detection Distance	Operation Status
CDS-F8	8 mm	Normally open
CDS-F81		Normal close

Application

- Detection of grain
- Detection of the liquid in the paper pack
- Detection of powder of coffee
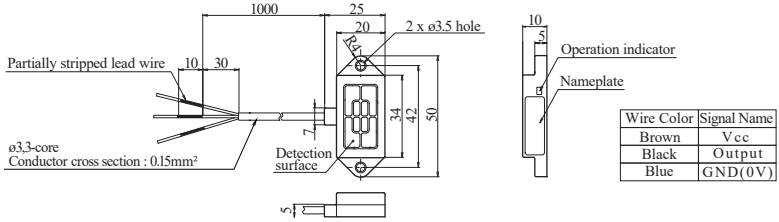- Detection of insulating materials

Features

- High-sensitivity small electrostatic-capacity proximity sensor that can detect almost any target regardless of the material. (Can detect metal, wood, paper, plastic, water, powder, rice, etc.)
- A shielded type that is not affected by metal or other objects approaching from the side and that can be used reliably in small places. Specially adapted to detect plastic, glass, wafer, and other isolating materials. Non-shielded types (CCS series) that can indirectly detect a target when an object with low inductance is on the detection surface. Select the sensor according to your needs.
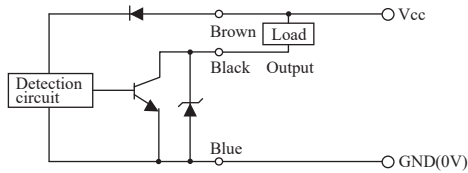
Rating/Performance

Model	CDS-F8	CDS-F81
Detection Surface	Upper side detection	
Detection Distance	8 mm ± 10 %	
Hysteresis	15 % or less of the detection distance	
Set Distance	0 to 6.4 mm	
Standard Detection Target	Grounded metal of 50 x 50 mm and 1 mm in thickness	
Power Voltage	12 V to 24 V DC (Operating voltage range: 10 V to 30 V DC)	
Power Consumption	10 mA DC or less (With 24 V DC)	
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)
Operation Indicator	Red LED (Lit when On output)	
Response Frequency	100 Hz or more	
Temperature Range	-10 to 60 °C (-15 to 60 °C during storage)(Without dew condensation or freezing)	
Humidity Range	35 to 95 % RH (35 to 95 % RH during storage)(Without dew condensation)	
Breakdown Voltage	500 V AC, 50/60 Hz for 1 min (Between live parts and the case)	
Insulation Resistance	50 MΩ 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: 500 m/s² (Approx. 50 G) in X-, Y-, and Z-direction, each 3 times (Device not powered)	
Ingress Protection	IP66	
Case Material	Polyarylate	
Cable	ø3, 3-core round cord of 0.15 mm² and insulation ø1.0 mm and 1 m in length (Oil and heat resistant vinyl)	
Weight	Approx. 21 g	

Dimensions

| 1000 | 25 | 2 x ø3.5 hole | 10 |
| Partially stripped lead wire | 10 | 30 | Operation indicator |

Detection surface

Nameplate

Wire Color	Signal Name
Brown	Vcc
Black	Output
Blue	GND(0V)

ø3,3-core
Conductor cross section : 0.15mm²

Output Circuit

Brown — Load — Vcc
Black — Output
Detection circuit
Blue — GND(0V)
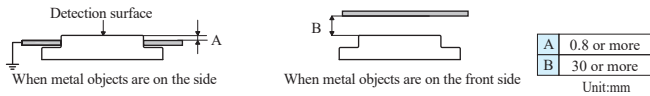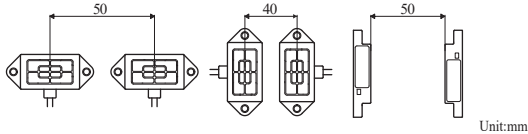
Precautions during use

- 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.

Detection surface

When metal objects are on the side

When metal objects are on the front side

| A | 0.8 or more |
| B | 30 or more |

Unit:mm

- Mutual 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.
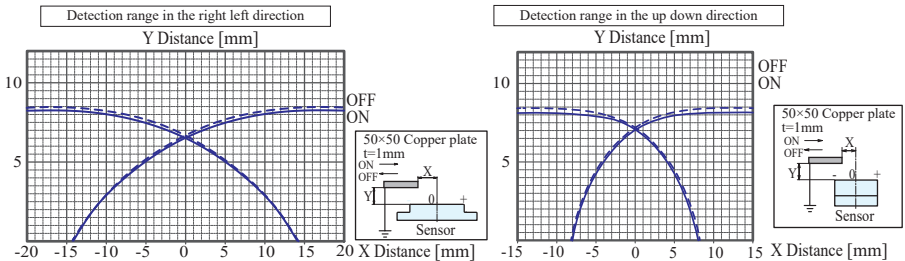
50   40   50

Unit:mm

- Installation
    Always use plain washers to tighten the case and use 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)

Detection range in the right left direction
Y Distance [mm]

Detection range in the up down direction
Y Distance [mm]

50×50 Copper plate t=1mm

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

ST240909C