

# Model CCS-F10-5V/CCS-15V-5V Capacitive Proximity Sensor



CCS-F10-5V



CCS-F15-5V

Model List	Detection Distance	Operation Configuration
CCS-F10-5V	10 mm	Normally open
CCS-F101-5V		Normally closed
CCS-F15-5V	15 mm	Normally open
CCS-F151-5V		Normally closed

## Application

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

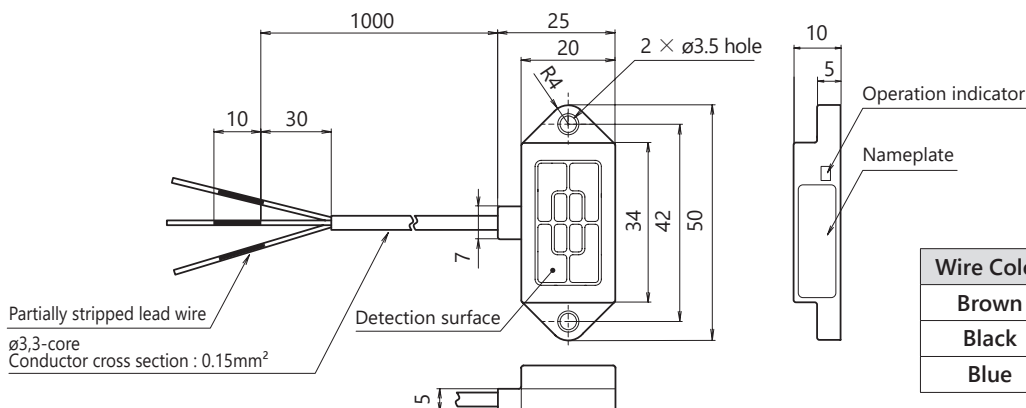
## Features

- 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.)
- Non-shielded type, perfect to detect liquids inside containers with low inductance. Shielded types (CDS series) that are not affected by metal or other objects approaching from the side are also available. Select the sensor according to your needs.

## Rating/Performance

Model	CCS-F10-5V	CCS-F101-5V	CCS-F15-5V	CCS-F151-5V
Detection Surface	Upper side detection			
Detection Distance	10 mm ± 10 %		15 mm ± 10 %	
Detection Target	Grounded metal of 50 × 50 mm and 1 mm in thickness			
Hysteresis	15 % or less of the detection distance			
Measurement Distance	0 to 7.5 mm		0 to 12 mm	
Power Voltage	5 V DC (Operating voltage range : 4.5 V to 5.5 V DC)			
Power Consumption	30 mA DC or less (With 5 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)			
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 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/s <sup>2</sup> (Approx. 50 G) in X-, Y-, and Z-direction, each 3 times (Device not powered)			
Ingress Protection	IP66			
Case Material	Polyarylate resin			
Cable	ø3, 3-core round cord of 0.15 mm <sup>2</sup> and insulation ø1.0 mm and 1 m in length (Oil and heat resistant vinyl)			
Weight	Approx. 21 g			

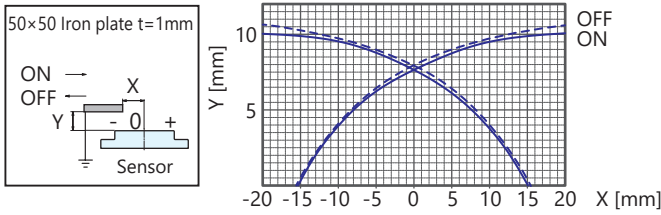
## Dimensions



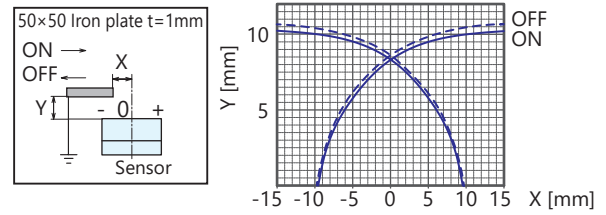
## Characteristics Graph (Typical Example)

### CCS-F10-5V

Detection range in the right left direction

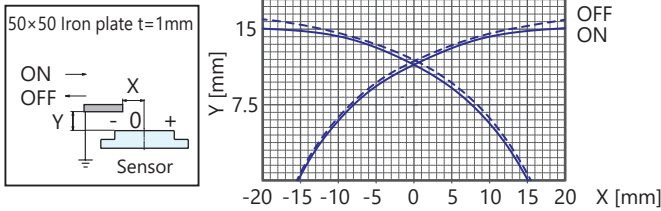


Detection range in the up down direction

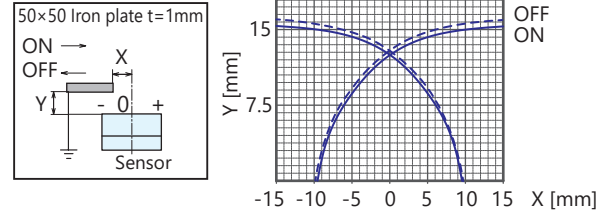


### CCS-F15-5V

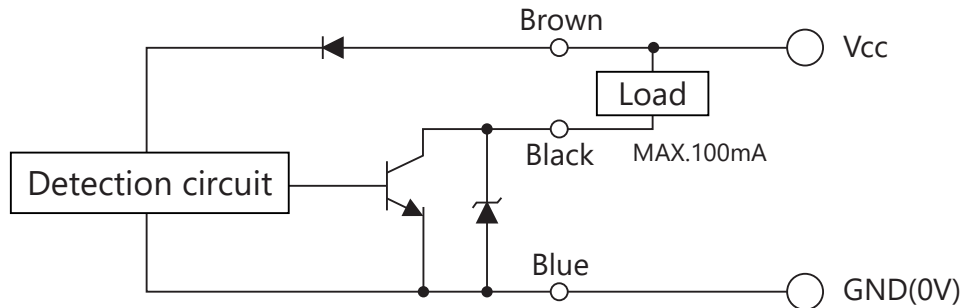
Detection range in the right left direction



Detection range in the up down direction



## Output Circuit

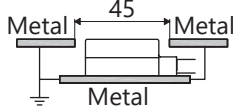


## Precautions During Use

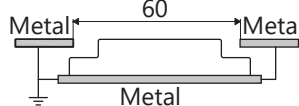
### Influence of surrounding metal

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

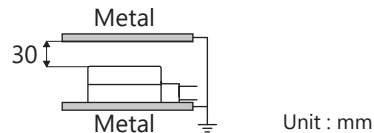
#### CCS-F10-5V



[When metal objects are on the side]

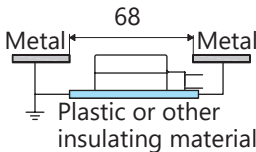


[When metal objects are on the top]

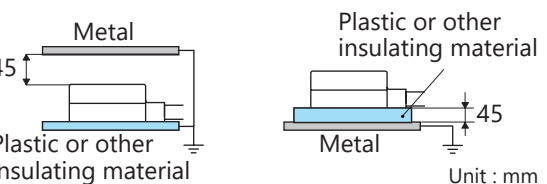
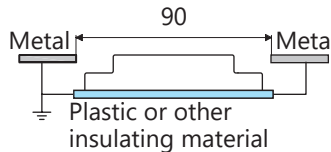


Unit : mm

#### CCS-F15-5V



[When metal objects are on the side]

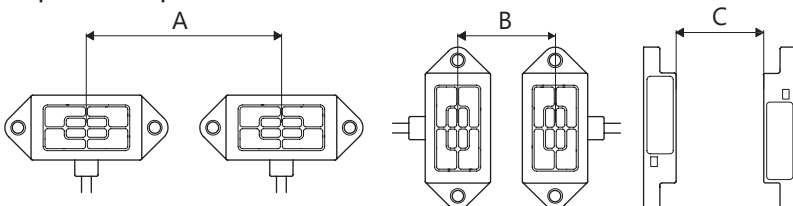


[When metal objects are on the top]

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.



Symbols	CCS-F10-5V	CCS-F15-5V
A	50 mm	75 mm
B	40 mm	60 mm
C	50 mm	75 mm

## Installation

- Always use plain washers to tighten the case and use a torque of 0.5 N.m or less.
- \* For other precautions, refer to "General Precautions" for proximity sensors.