LJ Series Proximity Sensor Manual

Product Overview

This product is suitable for various control functions, including machine tool limit detection, object sensing, counting, speed measurement, liquid level monitoring, and providing positioning signals in automated production lines. Widely utilized across industries such as machinery, mining, metallurgy, plastics, textiles, tobacco, electric power, railways, and the defense sector.

For your safety, please read the following information before use.

Safety Precautions

※ "Safety Precautions" are provided to ensure the safe and proper use of the product, as well as to prevent accidents and hazards. Please strictly adhere to these guidelines.

※ The terms "Warning" and "Caution" within the "Safety Precautions" section are defined as follows:

⚠ **Warning**: Failure to operate according to these instructions may result in serious injury or death.

⚠ **Caution**: Failure to operate according to these instructions may result in minor injury or damage to the product.

※ The symbols used on the product and within this instruction manual are explained below:

⚠ Indicates a potential hazard under specific conditions.

⚠ Warning

1. When using this product in critical applications involving significant risks to human life or property (e.g., nuclear control systems, medical equipment, vehicles, railways, aviation, flammable material handling systems, amusement park facilities, or safety devices), **dual safety measures must be implemented.

Failure to do so may result in fire, personal injury, or property damage.

⚠ Caution

1. Strictly prohibit using this product in environments containing flammable or explosive gases, chemical substances, strong acids, or strong bases.

Failure to observe this may result in fire or explosion.

2. Strictly prohibit stamping this product.

Failure to observe this may result in product damage or malfunction.

3. Strictly prohibit operating this product outside its specified voltage range or using an AC power supply.

Failure to observe this may result in product damage or malfunction.

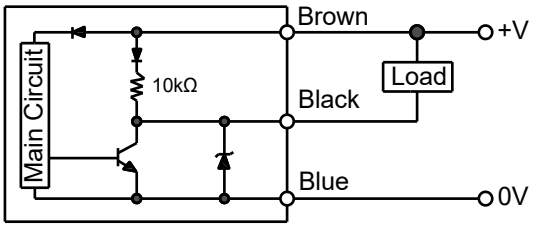
Model description

LJ □ □ - □ - □

- LJ: Cylinder Proximity Sensors
- □ Shell Diameter
  - 6: 6mm or M6
  - 8: M8
  - 12: M12
  - 18: M18
  - 30: M30
- □ Shell Material
  - A3: Metal
  - A4: Plastic
- □ Detection Distance
  - 1: 1mm
  - ...
- □ Operating Form And Supply Voltage
  - Z/BX: NPN NO 6-36VDC
  - Z/BX-5V: NPN NO 5VDC
  - Z/AX: NPN NC 6-36VDC
  - Z/CX: NPN NO+NC 6-36VDC
  - Z/BY: PNP NO 6-36VDC
  - Z/AY: PNP NC 6-36VDC
  - Z/CY: PNP NO+NC 6-36VDC
  - Z/EX: Two wires NO 6-36VDC
  - Z/DX: Two wires NC 6-36VDC
  - J/EZ: Two wires NO 90-250VAC
  - J/EZ-380V: Two wires NO 380VAC
  - J/EZ-36V: Two wires NO 36VAC
  - J/DZ: Two wires NC 90-250VAC

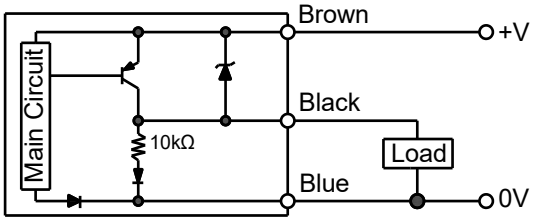
Control output circuit diagram and load action

NPN



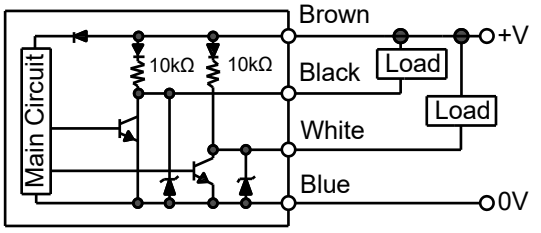
	NO	NC
Detected Object	Yes / No	Yes / No
Load (Brown-Black)	Action / Reset	Action / Reset
Output voltage (Black-Blue)	H / L	H / L
Indicator (LED)	ON / OFF	ON / OFF

PNP



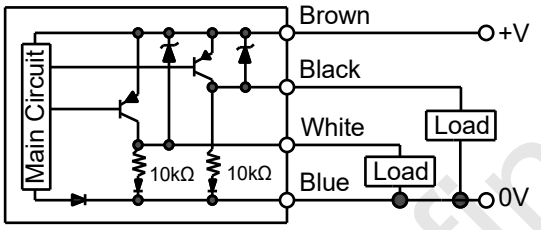
	NO	NC
Detected Object	Yes / No	Yes / No
Load (Black-Blue)	Action / Reset	Action / Reset
Output voltage (Brown-Black)	H / L	H / L
Indicator (LED)	ON / OFF	ON / OFF

NPN NO+NC



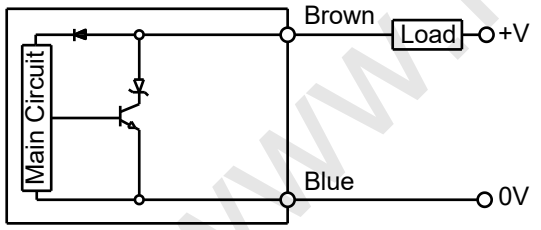
	NO+NC	
Detected Object	Yes / No	Yes / No
Load (Brown-Black) (White-Black)	Action / Reset	Action / Reset
Output voltage (Black-Blue)	H / L	H / L
Indicator (LED)	ON / OFF	ON / OFF

PNP NO+NC



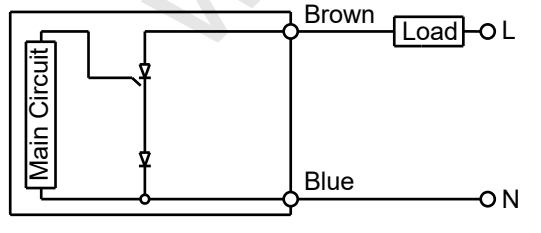
	NO+NC	
Detected Object	Yes / No	Yes / No
Load (Brown-Black) (White-Black)	Action / Reset	Action / Reset
Output voltage (Black-Blue)	H / L	H / L
Indicator (LED)	ON / OFF	ON / OFF

DC Two wires



	NO	NC
Detected Object	Yes / No	Yes / No
Load	Action / Reset	Action / Reset
Output voltage	H / L	H / L
Indicator (LED)	ON / OFF	ON / OFF

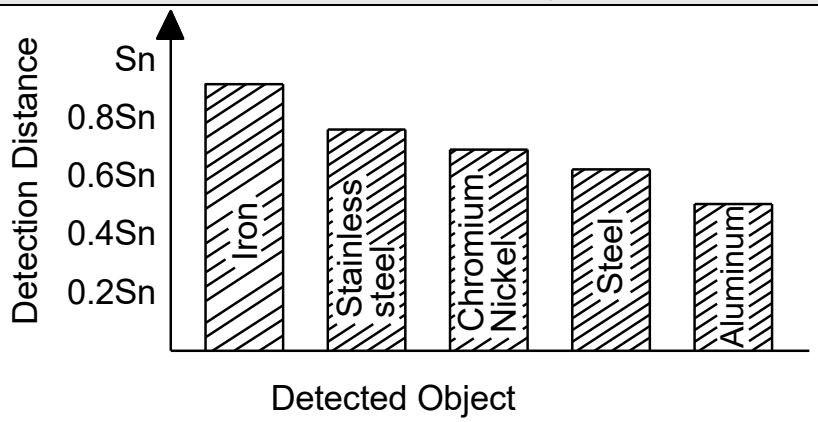
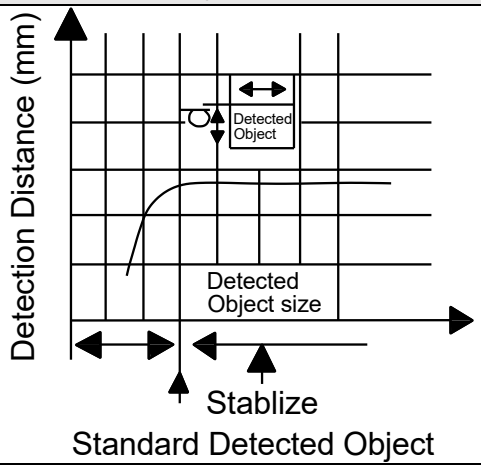
AC Two wires



	NO	NC
Detected Object	Yes / No	Yes / No
Load	Action / Reset	Action / Reset
Output voltage	H / L	H / L
Indicator (LED)	ON / OFF	ON / OFF

Setting the Sensing Distance (Sa)

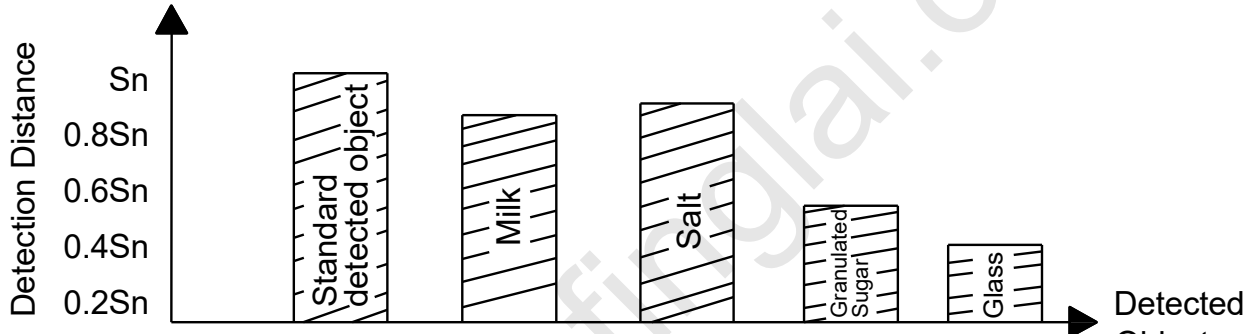
1. Please set the sensor's actual sensing distance (Sa) to within 80% of its standard sensing distance (Sn) to ensure stable operation and minimize the influence of factors such as temperature and voltage fluctuations.
2. When detecting metals other than the standard target material, the sensor's actual sensing distance may vary.
3. When using the sensor for high-speed applications or for measuring operating frequency, please set the sensing distance to a position beyond 1/2 of the standard sensing distance (Sn). This setting allows the sensor to achieve its maximum operating frequency.
4. For instructions on setting the sensing distance for capacitive proximity sensors, please refer to the specific instruction manual for capacitive sensors.

Correction Factors for Different Detected Objects	The Effect of Object Size on Detection Distance
	

Capacitive Proximity Sensor User Instructions

1. Capacitive proximity sensors are capable of detecting not only metals but also substances such as plastics, glass, water, and oil. Since the conductivity, dielectric constant, water absorption rate, and volume vary among different target objects, the corresponding detection distances will also vary; the maximum detection distance is achieved when detecting grounded metals.

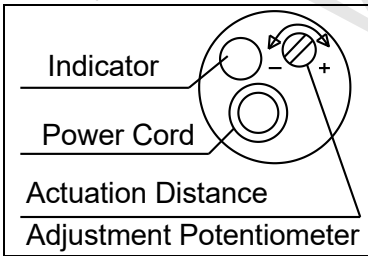
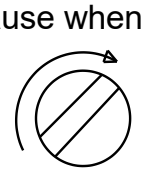
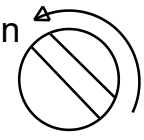
2. Detection Targets and Corresponding Distances



(Sn denotes the rated detection distance)

3. Capacitive proximity sensors should not be installed in the vicinity of high-frequency electric fields—such as those generated by high-frequency welders or ultrasonic generators—to prevent malfunctions.

The operating distance of a capacitive proximity sensor is generally adjustable to accommodate the detection of various target objects; therefore, adjustment is required during installation. Please follow the steps below to perform the adjustment.

			
1). Turning the potentiometer to the right increases the detection distance, while turning it to the left decreases it. The adjustment range allows for up to 10 full turns.	2). With no detection target present, slowly turn the potentiometer to the right until the proximity sensor switches to the "ON" state, then stop.	3). Next, with the detection target present, slowly turn the potentiometer to the left until the proximity sensor switches to the "OFF" state, then stop.	4). Set the potentiometer to a position midway between the "ON" and "OFF" points; the adjustment of the operating distance is now complete.