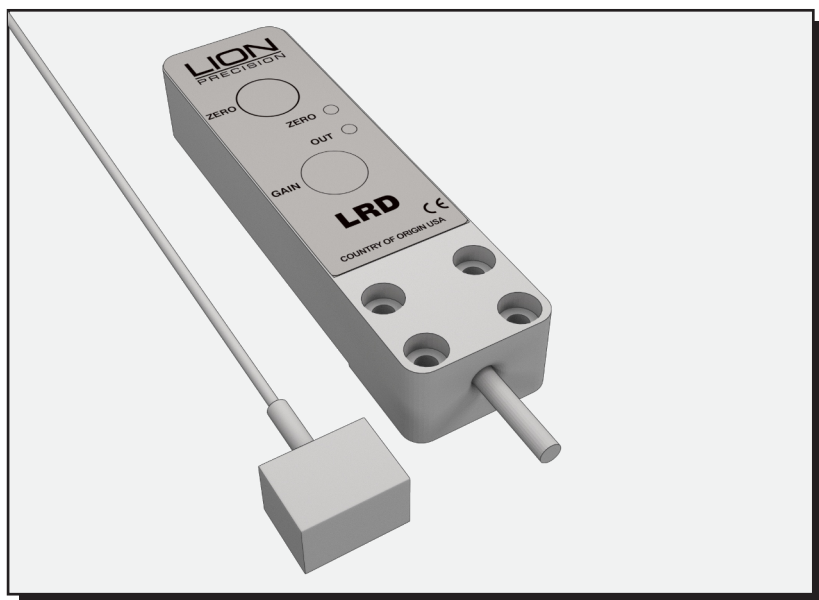


# LION

---

# PRECISION



## USER'S GUIDE

for the

## LRD3120 with Remote Sensing Head

**Capacitive Label Sensor**

## Description

The LION PRECISION LRD3120 is an electronic, capacitive sensor used to monitor label registration and/or count labels. The outputs indicate the edges of labels as the pass through the sensor.

## Connecting to the Sensor

## Warnings

Sensor body is connected to Ground.

Sensors must not be attached to voltages in excess of 30VRMS or 60VDC.

All external connections must be SELV (Safety Extra Low Voltage).

All power must be off when installing the sensor.

Brown wire must be connected to +V or Ground for reliable operation

Use of the equipment in any other manner may impair the safety and EMI protections of the equipment.

## LRD3100 Wiring

| Wire Color | Connection                             | Notes                           |
|------------|--|---------------------------------|
| Red        | Vin (24V $\overline{\text{---}}$ )     | 50mA max.                       |
| Black      | Ground                                 | Connected to sensor body        |
| Green      | NPN Output                             | 150mA max.                      |
| Blue       | PNP Output                             | 150mA max.                      |
| Brown      | Output Polarity (light/dark switching) | +V or Ground See detail on back |

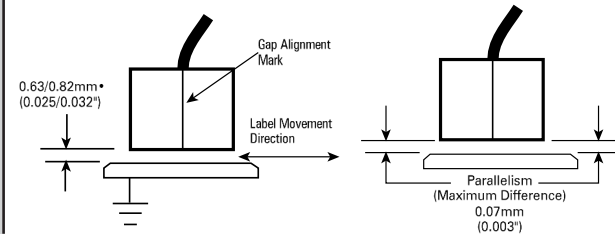
Warning: Brown wire must be connected to +V or Ground for reliable operation.

## Specifications

|                      |                                      |  |
|----------------------|--------------------------------------|--|
| <b>Power Supply</b>  | Voltage                              | 24V $\overline{\text{---}}$ (reverse polarity protected) |
|                      | Current                              | 50mA   |
| <b>Response Time</b> | on or off                            | 20 $\mu$ s max   |
|                      | Switching Frequency                  | 10kHz max  |
| <b>Output</b>        | Output Current (sinking or sourcing) | 150mA max (overload protected)                           |
|                      | Switching Output                     | PNP (sourcing) or NPN (sinking), Dark or light switching |
| <b>Temperature</b>   | Operating Range                      | 40°F to 140°F (4°C to 60°C)                              |
| <b>Protections</b>   | Supply                               | Inverse Polarity Protection                              |
|                      | Switching Output                     | Short Circuit and Overload Protection                    |

## Remote Head Mounting

The remote head must be mounted above a stable, grounded, conductive reference surface. The labels must remain in contact with the reference surface. The remote head must be mounted such that the spacing and parallelism with the reference surface is stable throughout all operating conditions (vibration and temperature). The gap between the remote head and the reference surface must meet the specifications below at all times.



## Setup Procedure

- Remove all material from sensor.
- Center GAIN ADJUST  
Turn GAIN ADJUST to 50
- Set ZERO ADJUST  
Set ZERO ADJUST to the point where the ZERO light just begins to come on. It is not important whether the light is on or off. What is important is that the light is very near the point where it changes from off to on.
- Set GAIN ADJUST  
For most labels, GAIN will need no further adjustment. If the sensors performs erratically, use this GAIN adjustment procedure. Insert material into sensor. While moving labels through the sensor, Set GAIN ADJUST to the point where the OUTPUT light (EDGE on some models) starts to flash. Then continue turning 1/2 turn clockwise.
- Sensor is now ready.

## Lights During Operation

The OUT light indicates the sensor output. It will be in one state (on or off) during the label and the other state during the gap depending on the direction of the label movement and the connection of the Polarity Invert Wire (see next page for details).

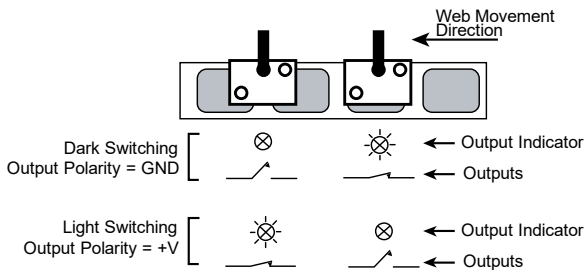
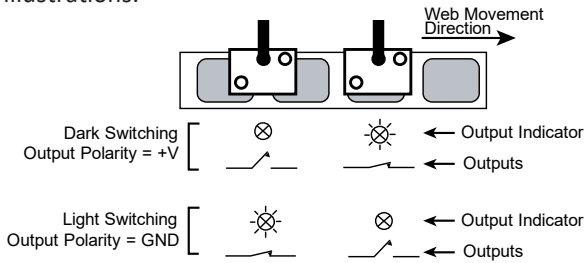
The ZERO light is for setup only and is meaningless during operation.

## Notes

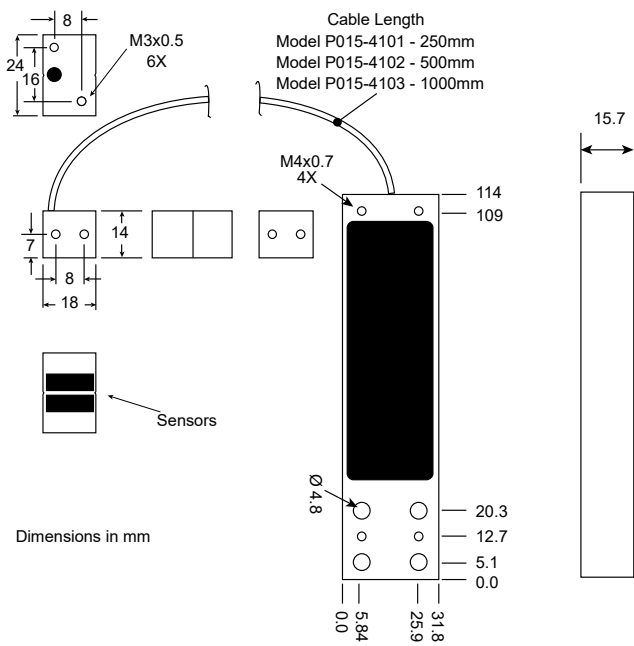
- Some inks, usually black, have high carbon content. These inks behave like metal and may not work reliably with the LRD3120.
- The LRD3120 remote head has very stringent mounting requirements for reliable operation. See instructions above.

# Output

Light/Dark switching is affected by the direction of label movement and the Light/Dark Switching connection. Output descriptions below are for web directions as indicated in the illustrations.



# Mechanical Detail



Be confident when you do **business with Lion Precision.**