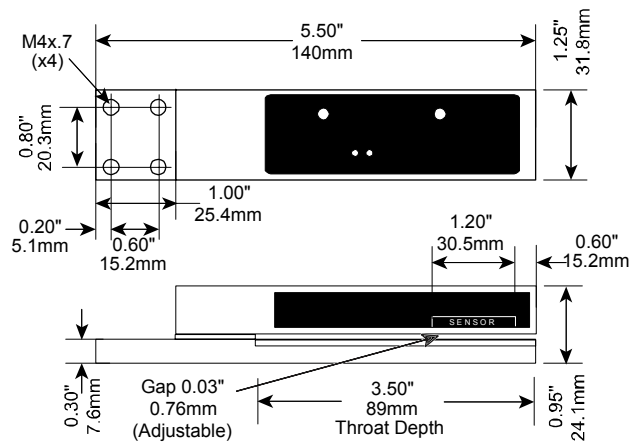
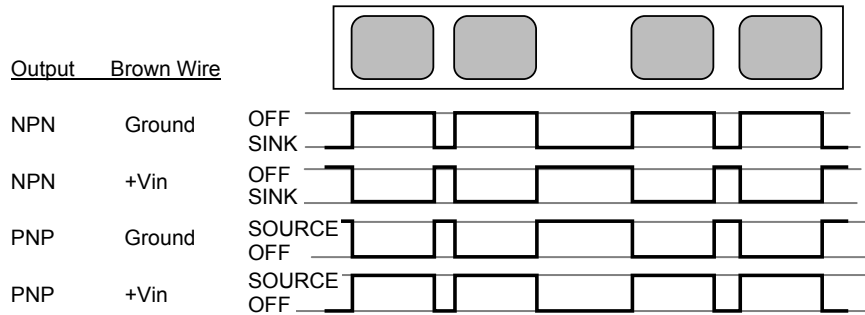
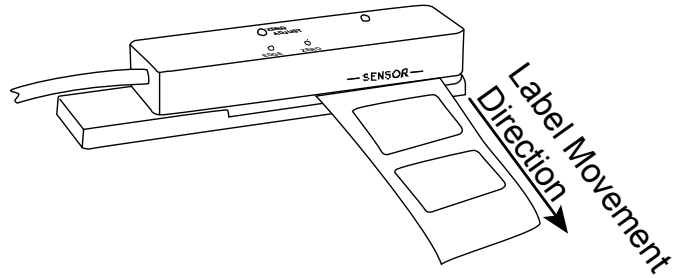
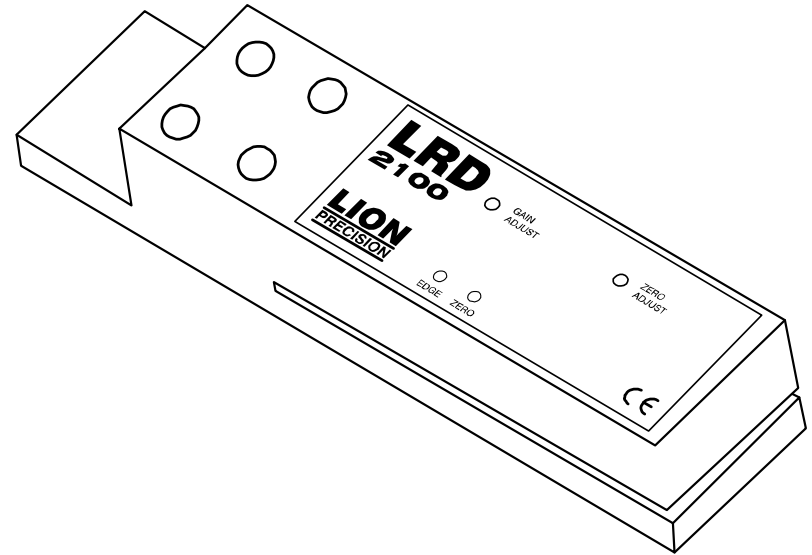


## Output and Mechanical Detail

Output polarity is affected by the direction of label movement. Waveforms below are for direction indicated in the drawing below. Waveforms invert if direction is reversed.



## User's Guide for the LRD2100 Label Sensor from Lion Precision



**Lion Precision**  
**563 Shoreview Park Road**  
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**651-484-6544**  
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 Document Number: M014-4660.022

**LION**  
**PRECISION**

## Description

The LION PRECISION LRD2100 is an electronic, capacitive sensor used to monitor label registration and/or count labels. The sensor's NPN and PNP outputs indicate the leading or trailing edge of the label as it passes through the sensor.

Use LRD6110 or UltraLRD V2 for metallic labels, metallic inks, or hot stamp.

## Connecting to the Sensor

### Warnings:

Sensor body is connected to Ground.

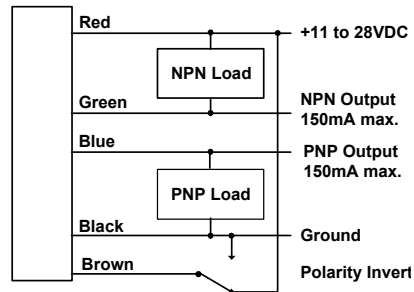
Unused wires must be insulated from contact with other objects.

All power must be off when installing the sensor.

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

Wire Color	Connection	Notes
Red	+Vin (11-28VDC)	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	11-28 VDC (reverse polarity protected)
	Current	50mA
<b>Response time</b>	on or off	20µs 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

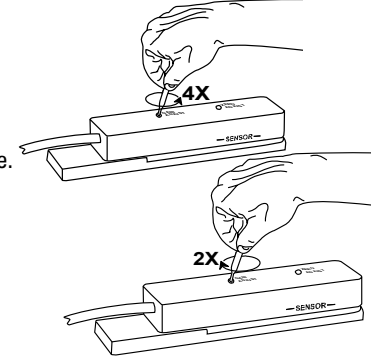
## Setup Procedure

These sensors are extremely stable and should not require re-adjustment after the initial setup. Re-adjustment will only be required for significant changes in label shape or thickness, or changes in power supply voltage.

1. Remove all material from sensor.

2. Center GAIN ADJUST

Turn GAIN ADJUST four (4) turns counter clockwise.  
Turn GAIN ADJUST two (2) turns clockwise.



3. Set ZERO ADJUST

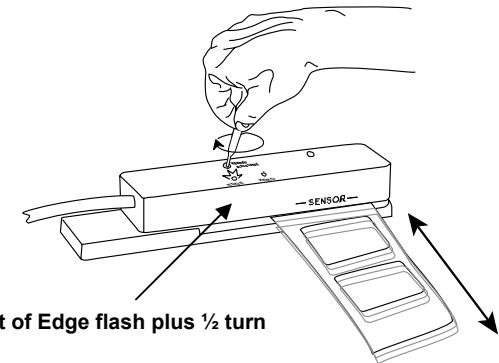
Set ZERO ADJUST to the point where the ZERO light just begins to come on.

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.

4. Set GAIN ADJUST

Insert material into sensor.

While moving labels through the sensor, Set GAIN ADJUST to the point where the EDGE light starts to flash. Then continue turning ½ turn clockwise.



5. Sensor is now ready.

### Lights During Operation:

The Edge light indicates the sensor output. It will be in one state (on or off) during the label and the other state during the gap. Whether it is on or off during a label depends on the direction of the label movement and the connection of the Polarity Invert wire.

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

### Notes:

- 1) For best results, web should ride against sensor baseplate, not "float" in the gap.
- 2) Some inks, usually black, have a high carbon content. These inks behave like metal and may not work reliably with the LRD2100. Use the LRD6110 instead.