

Label Sensor Solutions



Choosing a Banner Label Sensor



SLE5

Voltage	10 to 30 V dc
Response Time	40 µs
Slot	Width: 5 mm Depth: 50 mm
Technology	Photoelectric
Clear Label Detection	No
Opaque Label on Opaque Liner	✓
Opaque Label on Clear Liner	✓
Clear Label on Opaque Liner	✗
Clear Label on Clear Liner	✗
Display	No
Output	PNP or NPN
Housing	Metal
Connection	1.8 m 5-wire cable, 5-pin M12, or 4-pin M8



SLE3

Voltage	4.75 to 30 V dc
Response Time	35 µs
Slot	Width: 3 mm Depth: 50 mm
Technology	Photoelectric
Clear Label Detection	No
Opaque Label on Opaque Liner	✓
Opaque Label on Clear Liner	✓
Clear Label on Opaque Liner	✗
Clear Label on Clear Liner	✗
Display	No
Output	PNP or NPN (protected against output short-circuit)
Housing	Plastic
Connection	1.8 m 4-wire cable or 4-pin M8



SLU4

Voltage	12 to 30 V dc
Response Time	200 µs
Slot	Width: 4 mm Depth: 79 mm
Technology	Ultrasonic
Clear Label Detection	Yes
Opaque Label on Opaque Liner	✓
Opaque Label on Clear Liner	✓
Clear Label on Opaque Liner	✓
Clear Label on Clear Liner	✓
Display	Yes
Output	Bipolar NPN/PNP (protected against output short-circuit)
Housing	Metal
Connection	1.8 m 5-wire cable, 5-pin M12, or 4-pin M8

*Visit [bannerengineering.com](https://www.bannerengineering.com) for more solutions
**See manual for details



SLE5 Series

High Speed Optical Label Sensor

- Single-layer and multilayer label detection with 5 mm slot width and 50 mm slot depth
- Sensor can be configured to detect the label or the backing paper
- Infrared LED can detect a label on translucent backing paper
- 0.5 mm minimum label size or gap width for a wide variety of products
- LED Indicators display output or TEACH status for visual monitoring and troubleshooting
- Push button or remote TEACH for easy configuration

40 µs
response speed

12 kHz
switching frequency

IP65
rated

Voltage	Output	Connection	Model
10 to 30 V dc	PNP	2 m (6.5 ft.) unterminated 5-wire PVC cable	SLE5-PIR-2M
	PNP	Integral 4-pin M8 male quick-disconnect connector	SLE5-PIR-Q7
	NPN	2 m (6.5 ft.) unterminated 5-wire PVC cable	SLE5-NIR-2M
	NPN	Integral 4-pin M8 male quick-disconnect connector	SLE5-NIR-Q7



SLE3 Series

Optical Label Slot Sensor for Labels

- Optimized to sense adhesive labels adhered to a roll of backing paper
- High intensity infrared LED reduces sensitivity to web flutter
- A faster response time allows the SLE3 sensor to keep up with even the fastest high speed rewinders
- Quick setup with the one-press (Set) button
- Oversized indicator allows you to know the sensor's performance, even from a few feet away

35 µs
response speed

4.75 to 30 V dc
supply voltage

10 mm
slot width

Voltage	Output	Connection	Model
4.75 to 30 V dc	PNP	Integral 4-pin M8 male quick-disconnect connector	SLE3-PIR-Q7
		1.8 m (6 ft.) unterminated 4-wire PVC cable	SLE3-PIR-2M
	NPN	Integral 4-pin M8 male quick-disconnect connector	SLE3-NIR-Q7
		1.8 m (6 ft.) unterminated 4-wire PVC cable	SLE3-NIR-2M



Self-Adhesive Label Detection

To ensure consistent placement, it is important that label alignment is reliably detected from one package to the next.

Challenge

Facilities require label sensors that offer quick and reliable label detection. It can be difficult for sensors to detect label position when self-adhesive labels are placed on different packages. These labels are often applied extremely quickly, thereby increasing the level of inaccuracy.

Solution

The SLE5 High Speed Optical Label Sensor offers single-layer and multilayer label detection. The SLE5 can be configured to detect an opaque label or translucent backing paper. The sensor detects package label position to assist in determining machine cycles and trigger functions for cutting, applying, or counting labels, and be taught-in to properly apply the label to the correct spot. LED indicators display output status or TEACH status for visual monitoring and troubleshooting.



Detecting Adhesive Product Labels at High Speed

When automated labeling is part of industrialized production, it's crucial to incorporate sensors that work as quickly as products move through machinery.

Challenge

To meet high demand, a chocolate company needs to produce a large volume of items and label product boxes at high speeds. The labels to be used are printed on a roll with a removable paper backing. A sensor is needed to accurately detect labels and alert operators when a roll is nearly depleted.

Solution

A cost-effective SLE3 sensor is placed early in the labeling process, at the point where labels are pulled from the roll. Using high-powered infrared light, the SLE3 detects each label, signaling its position so that the next machines can peel off the backing and adhere it at the precise instant that a box of chocolate arrives. When the sensor is connected to a PLC or similar device, the labels can be counted, and alerts can be sent to replenish rolls. With a 35-microsecond response time, the SLE3 ensures that labeling keeps up with the fastest production speeds.



SLU4 Series

Ultrasonic Clear Label Sensor

- Ultrasonic label sensor for reliable detection of clear and opaque labels
- Rugged anodized aluminum housing with removable stainless steel gap plate
- Fast, highly accurate label detection
- OLED Alphanumeric display for easy configuration and monitoring

200 µs
response speed

21.6 mm
slot width

clear
label detection

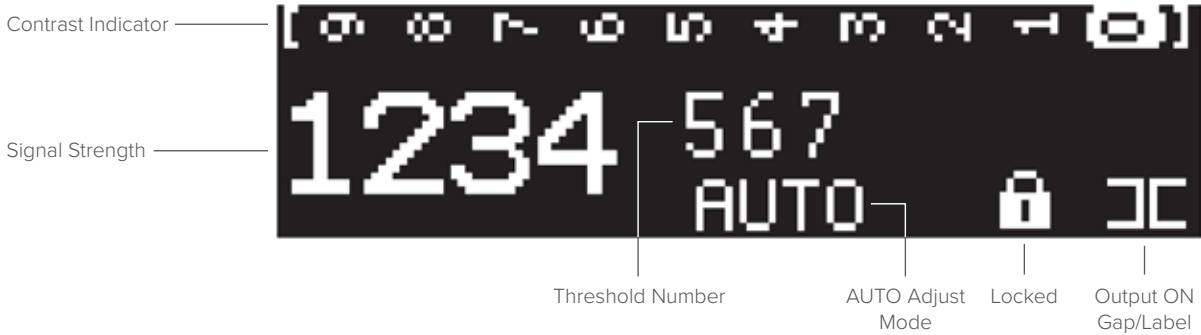
Voltage	Output	Connection	Model
12 to 30 V dc	Bipolar NPN/PNP	1.8 m (6 ft.) unterminated 5-wire PVC cable	SLU4-PN-2M
		Integral 5-pin M12 male quick-disconnect connector	SLU4-PN-Q8
	Selectable NPN or PNP	Integral 4-pin M8 male quick-disconnect connector	SLU4-PN-Q7
			SLU4-BM-Q7

Advanced Diagnostics

A dual numerical OLED display provides feedback of current signal strength, threshold value, option status during normal operation. Sensor parameters, options, and program modes are displayed during setup. You can even monitor performance with our unique Sensor Scope or view the quick reference.



Display



Detecting Transparent Labels at High Speed

When a line needs to change over to a new product, automated labeling systems must be able to quickly switch from recognizing opaque labels to clear labels.

Challenge

A contract beverage manufacturer fills and packages products for multiple clients, with each brand using a different label. Some labels are transparent, others opaque, and they come in different thicknesses. To fulfill orders on time, the line runs at very high speeds, and any extra time spent changing equipment is time not being used to fulfill orders. A sensor that can quickly and accurately detect different thicknesses and colors of labels is needed to minimize changeover time.

Solution

Before being placed on bottles, labels run through a high-speed SLU4 ultrasonic sensor. The ultrasonic sensor detects each label or webbing no matter if it is clear or colored. The sensor instantly lets the bottling equipment know the labels are properly aligned so they can be affixed and the line can continue operating smoothly.

As one product ends its run on the bottling line, an operator can reconfigure the sensor for the next product using the SLU4's OLED display, eliminating the need for a separate HMI or SCADA. The ability to switch sensor configuration at the source helps reduce the time needed to change the line from packaging one product to another.



Banner Engineering manufactures industrial automation products that include sensors, LED lights and indicators, machine safety components, and industrial wireless devices. These products help produce the cars we drive, the food we eat, the medicine we take, and many of the things we touch every day. Headquartered in Minneapolis since 1966, Banner is an industry leader with more than 10,000 active products, operations on six continents, and over 5,500 employees, factory and field representatives, and application engineers. Every 3.5 seconds a Banner product is installed somewhere in the world.

