Installation Instructions
PHOTOSWITCH® Bulletin 45LPT Optical Label Sensor
45LPT–1LEB1–P4

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Description

The 45LPT is an optical label sensor designed exclusively for the detection of standard or opaque labels on a high speed web. The 45LPT provides a solution for the packaging industry. Applications include label counting, web detection, “double sheet” detection, and mark detection on a translucent film.

Using transmitted beam technology the 45LPT senses the leading edge of a label sending a discrete NPN or PNP output within 50 microseconds which is compatible with most control circuits found in factory automation systems. Other features include “One Touch” teachable capabilities using either the teach button on the sensor or remotely with a pushbutton switch. For easy installation and versatility this sensor is equipped with a 4-pin pico connector.

The 45LPT label sensor maintains all ratings that are necessary for all applicable industries today: IP65, CE, cULus.

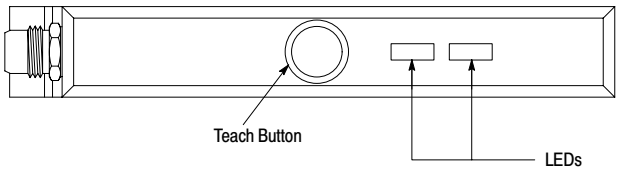
Features

- “One Touch” local and remote teach capability
- 10 to 30V DC operation
- Fast 50µsec response time
- NPN/PNP output
- User interface lockout feature
- IP65 Housing
- Industrial anodized aluminum housing
- cULus listed and CE marked for all applicable directives

Specifications

Approvals	UL and cUL and CE marked for all applicable directives
Sensing Beam	Nonpulsed IR
Sensing Gap	3mm (0.12in)
Supply Voltage	10–30V DC
Current Consumption	40mA maximum
Circuitry Protection	Reverse polarity, transient, overload, short circuit protection
Output Configuration	NPN (current sinking) or PNP (current sourcing) Light Operate: Normally open circuits that conduct with target present Dark Operate: Normally closed circuits that conduct with target absent
User Configuration	Local and remote teach
Output Rating	100mA (NPN or PNP)
Response Time	50 microseconds
Adjustments	Sensitivity (teach button)
Housing Material	Anodized aluminum
Environmental Ratings	IP65
Connections	4-pin DC pico (M8) connector
Operating Temperature	–20°C to +60°C (–4°F to 140°F)
Leakage Current	12V Supply: 0.78mA @ 10mA load, 6.9mA @ 100mA load 24V Supply: 0.30mA @ 10mA load, 3.0mA @ 100mA load
Power–on Delay	350ms

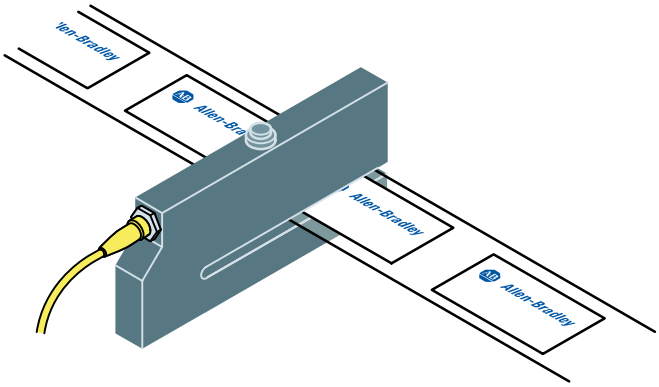
User Interface



Red LED = Interface Lockout
Green LED = Power ON / Free light path
Red LED blinks = Standard label teach
Green LED blinks = Fine teach – translucent label teach
Red & Green LED blink = Short circuit mode or label too translucent or web too opaque

Teaching Sensor and Setup

Initial setup includes mounting the sensor securely and then providing power through a 4-pin pico cordset. The initial factory settings have the threshold on the sensor preset so that most opaque labels may be sensed on a translucent web.



Teaching Most Opaque Labels (on translucent web):

To teach the sensor insert the material to be sensed into the fork so that it enters the beam path.

Position the material so that the translucent web is in the beam path in the fork.

Press and release the teach button once. The red LED on the user interface will begin to blink.

While the red LED is blinking quickly insert and remove the opaque label into and out of the sensors beam path until the red LED stops blinking.

Test your setup by ensuring the green LED on the user interface blinks when the label is inserted and removed.

To lock out user interface hold down teach button for six seconds until red LED blinks once.

Release button and notice that both red and green LEDs are illuminated on the user interface.

To unlock user interface hold down teach button for six seconds until red LED turns off.

Release button and notice that only green LED is illuminated.

For remote teach follow the instructions in the wiring section using a momentary pushbutton switch.

Teaching Translucent Labels:

To teach the sensor insert the material to be sensed into the fork so that it enters the beam path.

Position the material so that the translucent web is in the beam path in the fork.

Press and release the teach button *twice*. The green LED on the user interface will begin to blink.

While the green LED is blinking quickly insert and remove the translucent label into and out of the sensors beam path until the green LED stops blinking.

Test your setup by ensuring the green LED on the user interface blinks when the label is inserted and removed.

To lock out user interface hold down teach button for six seconds until red LED blinks once.

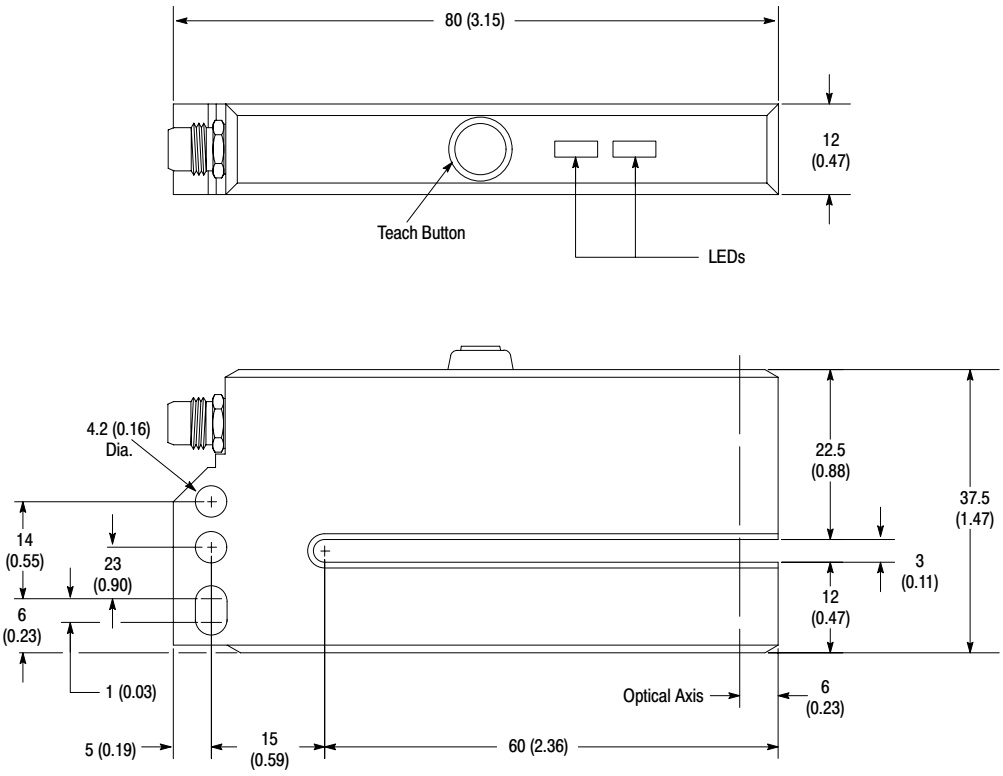
Release button and notice that both red and green LEDs are illuminated on the user interface.

To unlock user interface hold down teach button for six seconds until red LED turns off.

Release button and notice that only green LED is illuminated.

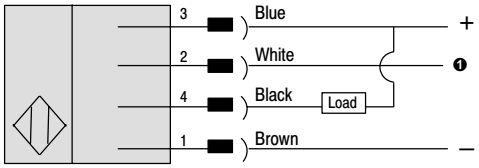
For remote teach follow the instructions in the wiring section using a momentary pushbutton switch.

Important: For Label detection use Dark operate.
For Web detection use Light operate.

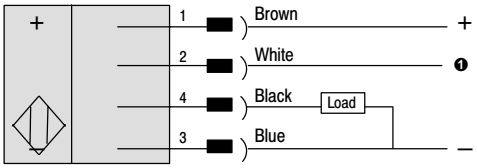


Wiring Diagrams

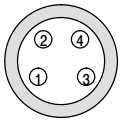
NPN (Light Operate)



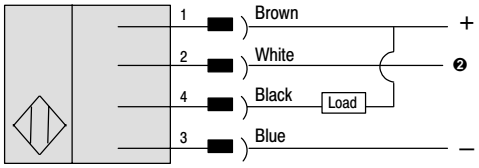
PNP (Light Operate)



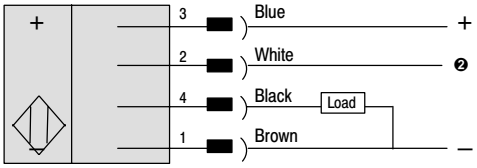
Pico



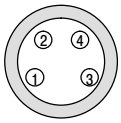
NPN (Dark Operate)



PNP (Dark Operate)



Pico

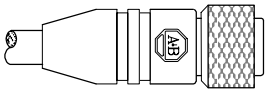


❶ Remote teach = Tie **White Wire** to (+) positive terminal.
❷ Remote teach = Tie **White Wire** to (–) negative terminal.

Note: If remote teach (white wire) is not used, tie it to (–) negative terminal.

Note: In the event of power failure, the sensor remembers the last threshold taught-in.

Accessories

Description	Catalog Number	
2m (6.5ft) pico QD Cordset	**889P–F4AB–2**	

Publication 75009–194–01(A)
January 2003
Printed in USA