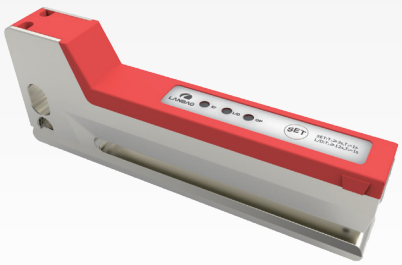
LANBAO

Photoelectric Label Sensor LAP Series

Operation manual



www.lanbaosensor.com

Precautions

- Please make sure that the power supply voltage is within the rated voltage range before powering on
- The sensor can be detected normally after 100ms of power charged on
- When using different power sources for the sensor and load, be sure to turn on the power of the sensor first
- When the sensor is not used, it is recommended to cut off the power of the load first and then turn off the power of the sensor
- Do not subject the sensor to severe external forces (such as hammer hits,etc.) during installation, so as not to damage the sensor performance
- Avoid using thinner, alcohol or other organic solvents when cleaning

Safety Warning

- Do not use in an environment with flammable, explosive or corrosive gases
- Do not use in oil or chemical environments
- Do not use in a high humidity environment
- Do not use in direct sunlight
- Do not use in other environmental conditions that exceed the rated value
- Do not disassemble, repair or modify this product without authorization

Scrap Treatment

- When the product is scrapped, please dispose of it as industrial waste

LAP-Ver.2.0 Z0218

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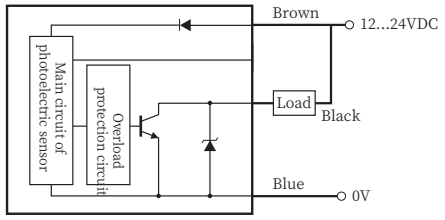
Technical specifications

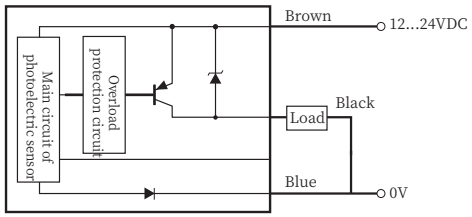
Model	NPN	LAP-TR03TNB	LAP-TR03TNB-F3
	PNP	LAP-TR03TPB	LAP-TR03TPB-F3
Slot width		3mm	
Slot depth		60mm	
Label minimum spacing		⩾2mm	
Light source		Infrared light(940nm)	
Response frequency		Max 10kHz	
Label passing speed		⩽20m/min(0.3m/s)	
Response time		⩽50μs	
Delay after startup		⩽300ms	
Supply voltage high/low		12...24VDC(Ripple⩽15%)	
Current consumption		⩽30mA	
Warning output		Red indicator light on	
Switch output function		Light on/ dark on (Switchable)	
Voltage drop		⩽2.5V	
Output current		⩽50mA	
Indicator		Red light: Calibration error / operation error; Green light: NO NC; Blue light: detect label switch output signal	
Operation temperature		-20...60℃(No icing, no condensation)	
Storage temperature		-30...70℃	
Protection degree		IP65	
VDE safety level		III	
Weight		Approximately 55g (100g with wire)	
Material		Zinc die casting; surface electroless nickel plating (Silver); PC plastic	
Connection		2m 3 pins cable	25cm cable+ M8 connector

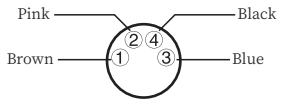
Wiring diagram

NPN



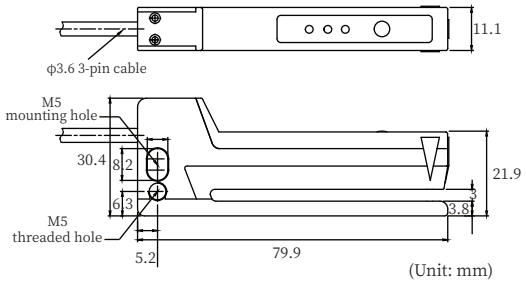
PNP





M8 connector

Dimensions



(Unit: mm)

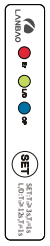
Calibration Settings

1.NO mode (Green light on)
Move one or more labels from the substrate and push the blank area towards the sensor.
・When the blank area enters into the detection center, the blue output indicator lights up.
・When the label enters into the detection center, the blue output indicator is off.
・If set correctly, the LED lights up normally between the label and the gap. Operation is complete.

2.NC mode (Green light off)
Move one or more labels from the substrate and push the blank area towards the sensor.
・When the blank area enters into the detection center, the blue output indicator lights off.
・When the label enters into the detection center, the blue output indicator is on.
・If set correctly, the LED lights up normally between the label and the gap. Operation is complete.

3.Adjust the output method of the switch output signal
(Output a switch signal at the label gap/ Output a switch signal at the label)
In the operation process, the sensor is usually used this standard function.This product can accurately detect the label and its gap at high speed. Mainly observe the blue output indicator and switch output.

Indicator (Take NO as an example):



Error Indicator Red light	If there is no operation error, the red light does not turn on.If the set upper limit is reached or the last calibration is improperly calibrated, the red light turns on.
NO NC Indicator Green light	When the sensor is in operation, the green light is always on.
Output Indicator Blue light	Display switch output signal. If a label gap is detected, the LED turns on.

4.Calibration teaching
The label sensor has the sensitivity to correctly detect various labels at high speed.

4.1 Dynamic calibration preparation
・Insert the label conveyor into the sensor.

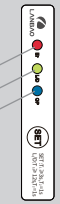
4.2 Static calibration preparation
・Move the label out of the sensor substrate and push the blank area into the sensor.
・Press and hold the calibration button for 3 seconds until both the green and blue lights flash simultaneously.
・Release the calibration button.

4.3 Dynamic indication
・Push a label conveyor with a maximum speed of 20m/min and pass through the sensor, with at least 3 to 7 labels passing through the sensor.
・Press the calibration button briefly to end the calibration operation, and the sensor enters standard mode.

4.4 Static teaching
・Blank area is maintained in the detection area of the sensor.
・Press the calibration button briefly to end the calibration operation, and the sensor enters standard mode.
・If the calibration operation is wrong (e.g., the detected label is transparent or uneven), the red light will turn on, the green light and the blue light will flash quickly, and the error output signal will also be generated.
・When an error occurs, the operation must be re-calibrated . After re-calibration, if the error cannot be corrected, then this type of labels does not apply to the product.

Operation process:
The calibration button must be pressed for at least 3 seconds to operate the product.

Basic operation in standard mode



Press (SET) ⩾12s — Return

Calibration "NO and NC mode"

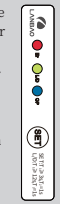
Set switch output: Output switch signal in gap/tag

Green light is always on. Press the SET key again to normally use the current instruction for signal output and switch off behavior (The blue output indicator lights up normally and the ON/OFF signal output switches normally), then the setting is terminated.

Blue light: on= signal output in gap; off= signal output in label

【NC settings】Press and hold SET key for 12 seconds, the green and blue lights flash simultaneously. After 12 seconds, the green light off .Press the button again to normally use the current instruction for signal output and off switching behavior (The blue output indicator lights up normally and the ON/OFF signal output switches normally), then the setting is terminated.

Blue light: on= signal output in label; off= signal output in gap



(SET) ⩾3s — Press (SET) Return

Calibration of "Setting object"(Take NO as an example)

For non-transparent label detection (Static or mobile operation)

【NO settings】Press the SET key for 12 seconds and the green and blue lights flash simultaneously. After 12 seconds, place the gap or blank area of the label to be detected under the detection area, press the SET key for 3 seconds, and the green and blue lights flash simultaneously.

Place the label to be tested under the inspection area, press the SET key to stop the calibration, the blue light is off and the green light is always on.Freely switch between the label and the gap in the sensor, the blue output indicator lights up normally, then set correctly.

Error indicator - Red light: If there is no error in the calibration, the red light is off.

*Normal closed mode, detection is the opposite of normal open mode.