

Installation Instructions

PHOTOSWITCH® Bulletin 45MLD Laser Diffuse Sensor 45MLD-8LEA1-P4

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

Description

The 45MLD Class 2 Laser Diffuse Sensor introduces a whole new perspective for today's sensing solutions. Extreme versatility allows the 45MLD sensor to meet most application requirements and be a major asset in the packaging, material handling, and semiconductor industry today.

The 45MLD laser diffuse sensor includes a 300mm (11.8in) adjustable sensing range via the triangulation method which implements the background suppression feature.

For sensing small targets a rotatable lens allows the user to adjust the focal point of the laser beam down to 0.5mm (0.01in).

Target presence status is provided through a discrete NPN or PNP output within 200 microseconds which is compatible with most control circuits found in factory automation systems.

This small, versatile sensor maintains all the ratings that are necessary for all applicable industries today, IP65, CE, and UL.

Features

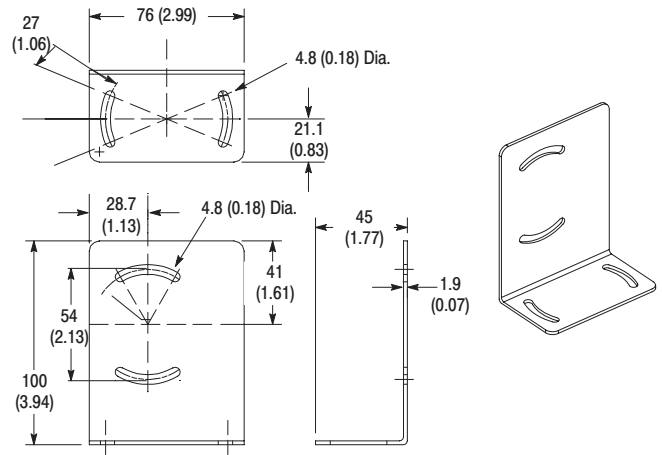
- Adjustable beam spot size down to 0.5mm for precision sensing
- Adjustable focal point from 50mm to 300mm
- Fast 200 microsecond response time for high-speed sensing or counting
- Ideal sensing solution for semiconductor wafer mapping
- Timer option—40ms off delay (pulse stretcher)
—Activated with wiring change
- 10 to 30V DC operation
- NPN/PNP output
- IP65 housing
- UL and cUL listed and CE marked for all applicable directives

Specifications

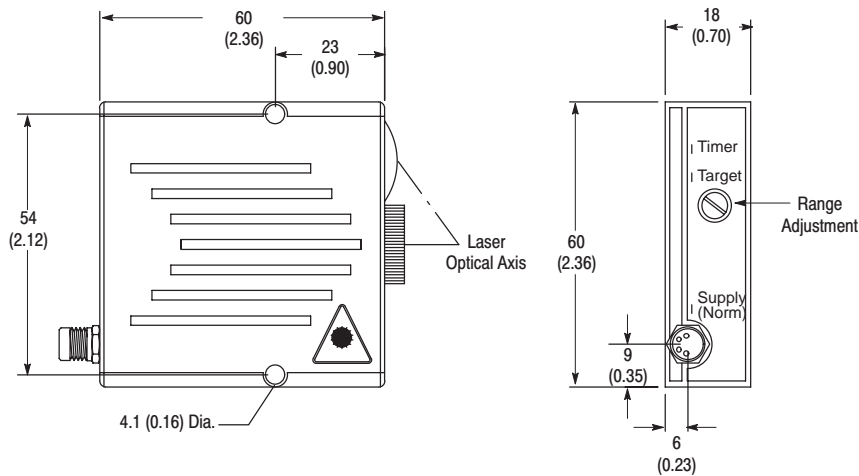
Approvals	UL and cUL and CE marked for all applicable directives
Sensing Beam	Visible red Class 2 Laser, 675nm
Sensing Range	50 to 300mm (2 to 12in)
Supply Voltage	10–30V DC
Current Consumption	35mA maximum
Circuitry Protection	Reverse polarity, transient, overload, short circuit protection
Output Configuration	NPN (current sinking) or PNP (current sourcing) Light Operate: Normally open contacts that conduct with target present Dark Operate: Normally closed contacts that conduct with target absent
User Configuration (optional)	40ms off delay
Output Rating	100mA (NPN or PNP)
Response Time	200 microseconds (0.2 milliseconds)
Adjustments	Range: (adjustment screw) Spot size (rotatable lens)
Housing Material	Polyamide
Lens Material	PMMA
Environmental Ratings	IP65
Connections	4-pin DC pico (M8) connector
Operating Temperature	0°C to +50°C (32°F to 122°F)
Leakage Current	12V Supply: 0.92mA @ 10mA load, 9.3mA @ 100mA load 24V Supply: 0.73mA @ 10mA load, 6.7mA @ 100mA load

Installation

The 45MLD-8LEA1-P4 must be mounted to a firm stable surface or support. A mounting, which is subject to excessive vibrating or shifting may cause intermittent operation. For installation convenience, we offer the following mounting bracket (Catalog Number 60-2677).

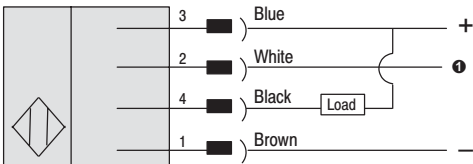


Dimensions—mm (inches)

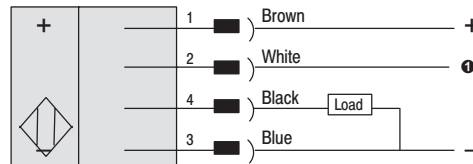


Wiring Diagrams

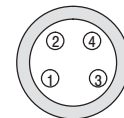
NPN (Light Operate)



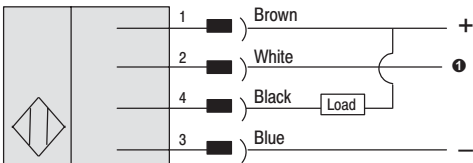
PNP (Light Operate)



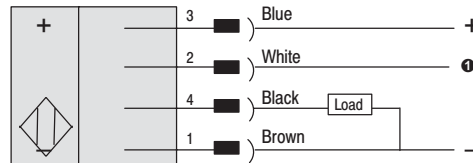
Pico



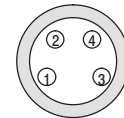
NPN (Dark Operate)



PNP (Dark Operate)



Pico

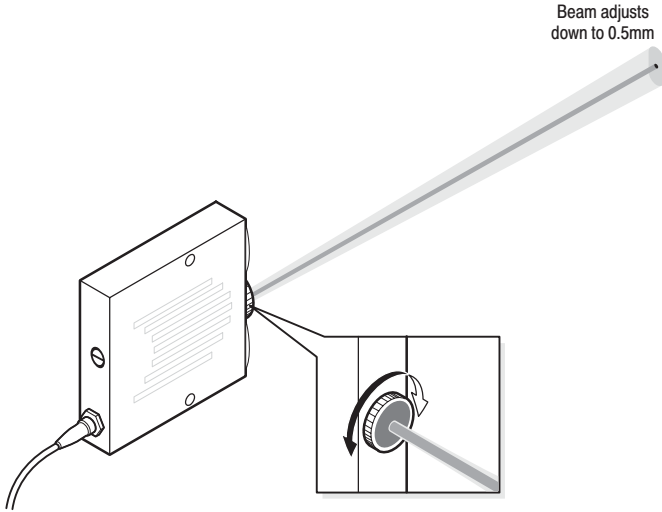


- ① 40ms off delay timer "Active" = Tie **White Wire** to (+) positive terminal.
- 40ms off delay timer "Inactive" = Open circuit or tie **White Wire** to (-) negative terminal.

Adjusting Laser Spot Size

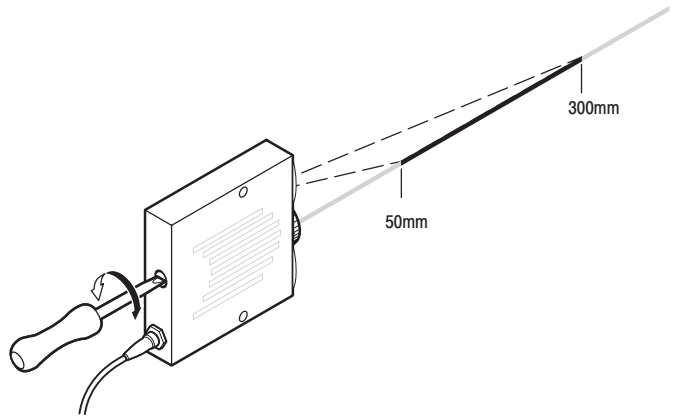
The 45MLD allows the user to adjust the diameter of the laser beam in order to sense targets as small as 0.5mm in dimension.

To adjust the spot size turn the “adjustable lens” clockwise or counterclockwise until suitable spot size is acquired (see illustration below).

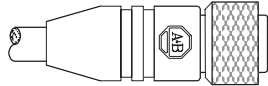
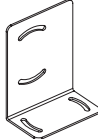


Adjusting Sensing Distance

The optical principle is based on triangulation. To adjust the sensing distance simply turn the adjustment screw clockwise to increase or counterclockwise to decrease the sensing distance. The sensing range for this sensor is 50mm to 300mm (see below).



Accessories

Description	Catalog Number	
2m (6.5ft) pico QD Cordset	889P-F4AB-2	
Mounting Bracket	60-2677	



PHOTOSWITCH® is a registered trademark of
Rockwell Automation.

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