

45PLA Polarized Light Array Photoelectric Sensors



Wide Area Sensing for Material Handling and Packaging Applications

Features and Benefits

- 69 mm (2.7 in.) wide sensing area
- 6 mm (0.25 in.) smallest detectable object
- 4.5 m (14.76 ft) maximum sensing range
- Highly visible 360 degree indication LEDs help ensure reliable operation and simplify sensor troubleshooting
- Embedded IO-Link enables diagnostics and advanced functions
 - LEDs can be sequenced for use in bin picking applications
 - Beam blanking allows user to enable/disable specific beams to suit the application
- User Interface LEDs can be programmed to operate in Bin Picking mode where the operators can individually control the LED operation
- IP67 rated enclosure

What is IO-Link?

IO-Link is a worldwide open-standard peer-to-peer serial communication protocol (IEC 61131-9) that allows sensors to easily integrate into The Connected Enterprise.

Benefits of IO-Link technology include:

- Reduced inventory and operating costs
- Increased uptime/productivity
- Simplified design, installation, setup and maintenance
- Enhanced flexibility and scalability



Traditional photoelectric transmitted beam sensors detect in a single line from the emitter to the receiver. Light array sensors combine multiple emitter or receiver elements into a single housing to create a “sensing field” instead of a single “sensing beam”. Therefore, light arrays are capable of detecting targets over a wider area. This makes them ideal for detecting oddly shaped parts, products with gaps or spaces, or inconsistently positioned targets, at a fraction of the cost of using multiple sensor pairs. Some types of arrays can use the multiple beam pairs to detect product height, width, or position. The Allen-Bradley® family of light arrays offers a range of functions and sensing heights to solve a wide variety of application challenges.

Rockwell Automation® announces a new sensor in our industry-leading line of PHOTOSWITCH® photoelectric sensors. The new Allen-Bradley® 45PLA Polarized Light Array is a compact retroreflective array designed to detect irregularly shaped objects in a wide range of industries and applications, notably in the material handling, packaging, food and beverage and lumber industries. The 4.5 m (14.76 ft) sensing range and wide 69 mm (2.7 in.) sensing area allow the 45PLA to sense objects of varying sizes, down to as small as 6 mm (0.25 in.). The 45PLA can also address challenging applications including bin picking processes and those involving clear or highly reflective materials.

The 45PLA is also a smart sensing solution with embedded IO-Link functionality that easily integrates into The Connected Enterprise. That means the 45PLA can deliver sensor health and application data directly into a control system to help minimize downtime and increase productivity.

45PLA Polarized Light Array IO-Link Features and Benefits

- **Triggered (output status):** indicates when the target is detected
- **Margin Low Alarm:** indicates when the target signal is marginal and about to fail
- **Proximity Alarm:** indicates if there is a target in the background that may be in close proximity to the threshold
- **Signal Strength:** provides the raw signal strength value received from the reflector
- **Location Indication:** helps distinguish sensors in applications where you may need to identify in a large machine
- **Alignment Mode:** assists in alignment of sensor with the reflector
- **Beam Status:** provides the status of the beams that have been blocked by the target under detection
- **Bin Picking Mode:** enables operators to individually control the state of the green and red LED on the User Interface. This feature can expand the sensor functionality to operate as a 'pick to light' or 'put to light'
- **Internal Temperature:** provides the sensor's internal temperature which helps you determine if the sensor is operating close to its minimum or maximum temperature range
- **User Interface Locks:** prevents undesired or unauthorized changes of the sensor settings

Product Selection

Sensing Mode	Light Source	Sensing Distance	Smallest Detection Object	Sensitivity Adjustment	Output Type	Catalog Number
Polarized Retroreflective	Visible red LED	0.15 ... 4.5 m with 92-125 reflector (included)	6 mm	One Push Button	PNP and NPN	45PLA-P2LPT1-F4

Product Specifications

Specifications	
Certifications	cULus and CE marked for all Applicable Directives
User Interface	
Status indicators	Green, orange, and red LED
Electrical	
Adjustments	Push button
Operating voltage	12 ... 30V DC
Output mode	Programmable Light Operate or Dark Operate
Output type	PNP or NPN Programmable
Response time	2.5 ms
IO-Link	
Communications mode	COM2
Cycle time, min	4 ms
Process data bit length	32 bits
Specifications	IO-Link 1.1
Mechanical	
Enclosure Rating	IP67
Operating Temperature	-10...+55 °C (14...131 °F)

Required Cordset & Accessories

Description	Catalog Number
4-pin DC Micro (M12) Cordset, 5 m length	889D-F4AC-5
Mounting Kit, with T-shaped insert with four M5 screws	60-BPLA-LS
Mounting Bracket, 45PLA, Kit of 4 vibration-damping supports	60-BPLA-4V
Retro Reflector, PMMA/ABS, 42.1 x 182 mm	92-135

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