

# Installation Instructions

## PHOTOSWITCH® Bulletin 45AST Area Array

**IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.**

### Description

The Allen-Bradley 45AST Area Array is a compact, easy-to-use nonsafety light screen for small part detection and assembly applications. This transmitted beam array is ideal for use in a variety of applications from counting to process initiation.

The 45AST introduces “Two-Dimensional Array Scanning Technology” which allows the user to sense an object as it passes through the pair of arrays regardless of orientation provided that one axial dimension meets the minimum resolution requirements.

### Features/Benefits

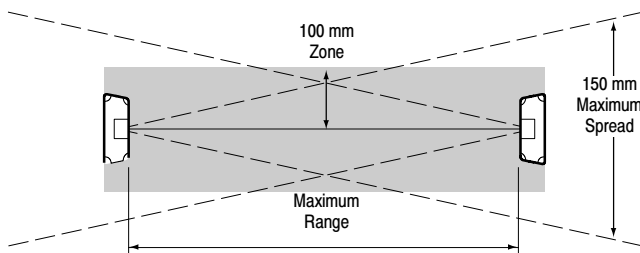
- Two dimensional array scanning technology
- Minimum object resolution (from 11...17 mm (0.43...0.66 in.))
- Sensing ranges up to 2.5 m (8.2 ft)
- Highly visible alignment LEDs
- Easy bracket-free mounting
- IP67 rated enclosure

### Sensor Alignment

1. Visually align the emitter and receiver units until the orange output LED turns ON.
2. To ensure that the beam is centered, it is recommended to sweep the emitter or receiver in the horizontal and vertical plane and determine at what position the output indicator turns ON and then turns OFF. Set the sensor midway between both positions.

### Interference Protection

To minimize interference and false triggering from highly reflective objects, keep object within a minimum distance of 100 mm (4 in.), parallel to the effective beam center line.



### Specifications

Certifications	cULus and CE marked for all applicable directives
<b>Environmental</b>	
Operating Environment	IP67
Operating Temperature [C (F)]	-5...+55° (23...131°)
Vibration	10...55Hz, 1 mm amplitude; meets or exceeds IEC 60947-5-2
Shock	30 g with 11 ms pulse duration, meets or exceeds IEC 60947-5-2
Relative Humidity	35...85%
Ambient Light Immunity	5000 lux (incandescent light)

<b>Optical [mm (in.)]</b>				
Models	Range②	Sensing Height③	Resolution④	Optical Axis
45AST-1J①B1-②	0.5...2 (1.6...6.5)	50 (1.9)	15 (0.59)	5
45AST-1J①B2-②	0.15...0.8 (0.5...2.6)	100 (3.9)	11 (0.43)	10
45AST-1J①B3-②	0.5...2.5 (1.6...8.2)	100 (3.9)	13 (0.51)	10
45AST-1J①B4-②	0.5...2.5 (1.6...8.2)	150 (5.9)	17 (0.66)	10
Light Source	Infrared (860 nm)			

<b>Electrical</b>	
Voltage	12...24V DC
Current Consumption	Emitter (80 mA max.), Receiver (110 mA max.)
Sensor Protection	Short circuit, reverse polarity

<b>Outputs</b>	
Response Time	8 ms max.
Output Type	PNP or NPN
Output Mode	Light operate
Output Current	100 mA @ 24V DC

<b>Mechanical</b>	
Housing Material	Aluminum
Lens Material	Acrylic
Connection Types	2 m cable, 4-pin DC micro (M12) pigtail
Supplied Accessories	None
Connector Material	Mounting brackets, cordsets

- ① Insert N for NPN models or P for PNP models.
- ② Use the suffix -A2 for 2 m (6.5 ft) cable models or -F4 for 300 mm (12 in.) Micro (M12) QD on pigtail.
- ③ Range shown in m (ft)
- ④ Values shown in mm (in.)

<b>IMPORTANT</b>	Avoid installation near high frequency fluorescent lights and inverters.
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## Mounting the Sensor

### ATTENTION



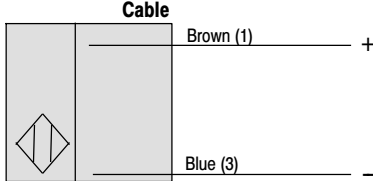
To avoid intermittent operation, do not mount the sensors to surfaces that may shift or be exposed to excessive vibration.

Securely mount the sensor on a firm, stable surface or support. Once securely mounted, the sensor may be wired as indicated in the wiring diagrams.

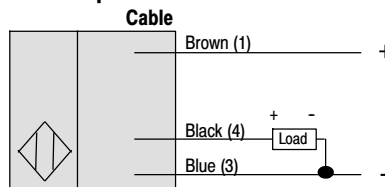
## Wiring Diagrams

Quick disconnect connection is shown in the following diagrams. Pin numbers correspond to male connectors on the sensor.

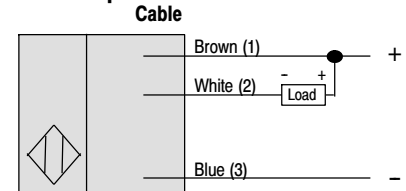
### Emitter



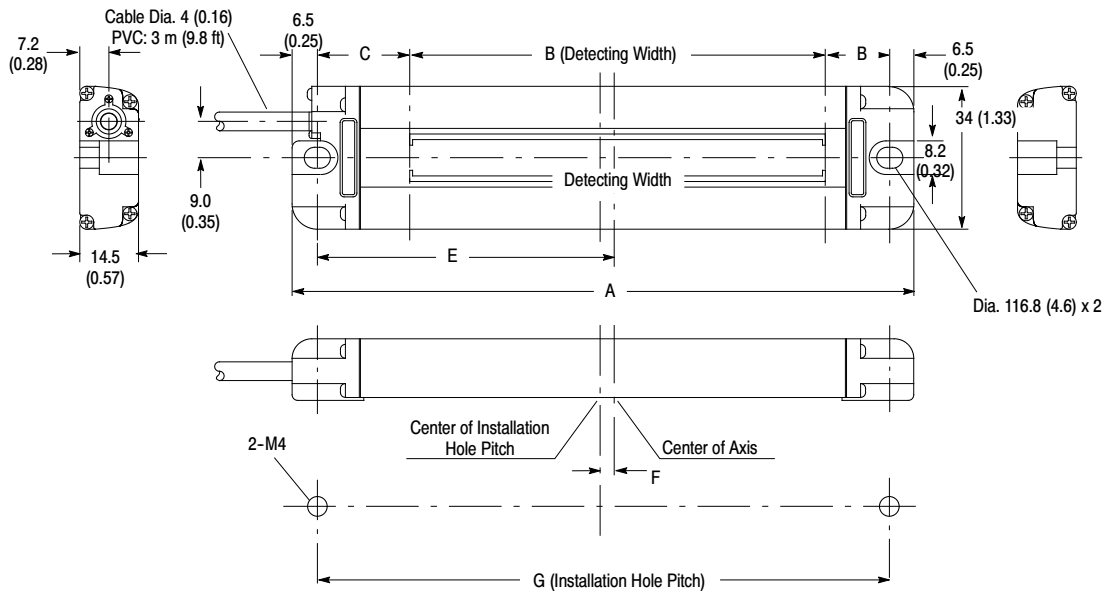
### PNP Output



### NPN Output



## Approximate Dimensions [mm in.]



Model	[mm (in.)]						
	A	B	C	D	E	F	G
45AST-1J $\text{\textcircled{B}}$ 1- $\text{\textcircled{e}}$	100 (3.93)	50 (1.96)	22.5 (0.88)	14.5 (0.57)	47.5 (1.87)	4 (0.15)	87 (3.42)
45AST-1J $\text{\textcircled{B}}$ 2- $\text{\textcircled{e}}$	150 (5.9)	100 (3.93)	22 (0.86)	15 (0.59)	72 (2.83)	3.5 (0.13)	137 (5.39)
45AST-1J $\text{\textcircled{B}}$ 3- $\text{\textcircled{e}}$							137 (5.39)
45AST-1J $\text{\textcircled{B}}$ 4- $\text{\textcircled{e}}$	200 (7.87)	150 (5.9)	22 (0.86)	15 (0.59)	97 (3.81)	3.5 (0.13)	187 (7.36)

① N = NPN and P = PNP.

② Use the suffix -A2 for 2 m (6.5 ft) cable models or -F4 for 300 mm (12 in.) micro (M12) quick disconnect on pigtail.

## Maintenance

### ATTENTION



When cleaning the face of the sensor, do not use aggressive or abrasive materials which could reduce the operating range and accuracy.

Use a dry, soft cloth for cleaning the lens area.