**PHOTOSWITCH® Bulletin 45AST Area Array**

**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**

<table>
<thead>
<tr>
<th>Models</th>
<th>Range</th>
<th>Sensing Height</th>
<th>Resolution</th>
<th>Optical Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>45AST-1JØ81-4</td>
<td>0.5…2 (1.6…6.5)</td>
<td>50 (1.9)</td>
<td>15 (0.59)</td>
<td>5</td>
</tr>
<tr>
<td>45AST-1JØ82-4</td>
<td>0.15…0.8 (0.5…2.6)</td>
<td>100 (3.9)</td>
<td>11 (0.43)</td>
<td>10</td>
</tr>
<tr>
<td>45AST-1JØ83-4</td>
<td>0.5…2.5 (1.6…8.2)</td>
<td>100 (3.9)</td>
<td>13 (0.51)</td>
<td>10</td>
</tr>
<tr>
<td>45AST-1JØ84-4</td>
<td>0.15…0.8 (0.5…2.6)</td>
<td>150 (5.9)</td>
<td>17 (0.66)</td>
<td>10</td>
</tr>
</tbody>
</table>

**Light Source**

Infrared (860 nm)

**Electrical**

- Voltage: 12…24V DC
- Current Consumption: Emitter (80 mA max.), Receiver (110 mA max.)
- Sensor Protection: Short circuit, reverse polarity

**Outputs**

- Response Time: 8 ms max.
- Output Type: PNP or NPN
- Output Mode: Light operate
- Output Current: 100 mA @ 24V DC

**Mechanical**

- Housing Material: Aluminum
- Lens Material: Acrylic
- Connection Types: 4-pin DC micro (M12) pigtail
- Supplied Accessories: None
- Connector Material: Mounting brackets, cordsets

- Insert N for NPN models or P for PNP models.
- Range shown in m (ft)
- Values shown in mm (in.)

**IMPORTANT**

Avoid installation near high frequency fluorescent lights and inverters.
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.

**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.

Approximate Dimensions [mm in.]

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>45AST-1J B1-4</td>
<td>100</td>
<td>50</td>
<td>22.5</td>
<td>14.5</td>
<td>47.5</td>
<td>4</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>(3.93)</td>
<td>(1.96)</td>
<td>(0.88)</td>
<td>(0.57)</td>
<td>(1.87)</td>
<td>(0.15)</td>
<td>(3.42)</td>
</tr>
<tr>
<td>45AST-1J B2-4</td>
<td>150</td>
<td>100</td>
<td>22</td>
<td>15</td>
<td>72</td>
<td>3.5</td>
<td>137</td>
</tr>
<tr>
<td></td>
<td>(5.9)</td>
<td>(3.93)</td>
<td>(0.86)</td>
<td>(0.59)</td>
<td>(2.83)</td>
<td>(0.13)</td>
<td>(5.39)</td>
</tr>
<tr>
<td>45AST-1J B3-4</td>
<td>200</td>
<td>150</td>
<td>22</td>
<td>15</td>
<td>97</td>
<td>3.5</td>
<td>187</td>
</tr>
<tr>
<td></td>
<td>(7.87)</td>
<td>(5.9)</td>
<td>(0.86)</td>
<td>(0.59)</td>
<td>(3.81)</td>
<td>(0.13)</td>
<td>(7.36)</td>
</tr>
</tbody>
</table>

* N = NPN and P = PNP.

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