**AlignX14 (AlignX7) sensor Specifications:**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detection Method</strong></td>
<td>Laser through-beam with CCD element</td>
</tr>
<tr>
<td><strong>Light Source</strong></td>
<td>780 nm Class I Laser Diode</td>
</tr>
<tr>
<td><strong>Measurement Range</strong></td>
<td>140 microns (0.006 in) up to 28 mm (1.10 in)</td>
</tr>
<tr>
<td><strong>Resolution</strong></td>
<td>14 (7) microns</td>
</tr>
<tr>
<td><strong>Repeatability</strong></td>
<td>28 microns</td>
</tr>
<tr>
<td><strong>Response Time</strong></td>
<td>0.417 ms</td>
</tr>
<tr>
<td><strong>Non-Linearity</strong></td>
<td>0.3% of full range</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>12 to 24 VDC / 170mA</td>
</tr>
<tr>
<td><strong>Connections</strong></td>
<td>2 x 10 pin double–row header</td>
</tr>
<tr>
<td><strong>Interface (Input and Output)</strong></td>
<td>Parallel binary (TTL)</td>
</tr>
<tr>
<td><strong>Indicators</strong></td>
<td>Green LED = Sensor ON ; Blue LED = Object Present</td>
</tr>
<tr>
<td><strong>Data Format</strong></td>
<td>11 (12) bit parallel</td>
</tr>
<tr>
<td><strong>Data Range</strong></td>
<td>0 up to 2000 (4000) pixels</td>
</tr>
<tr>
<td><strong>Overall Dimension</strong></td>
<td>97.8 mm x 71.1 mm x 21.6 mm (3.85 in x 2.80 in x 0.85 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>170g (5.9oz)</td>
</tr>
</tbody>
</table>

- Designed for accurate detection of solid and transparent wafers
- Compact size (3.85in x 2.80in x 0.85in)
- NON-Contact measurement device
- No External Controllers required to run
- Uses Solid State Class 1 Laser Diode
- Custom Designed optics for high performance
- Max. resolution of 7 microns
- 2,400 measurements per second
- Cancellation of ambient light
- Parallel (TTL) Interface
The AlignX sensor is a self contained photoelectric sensor. It’s primary designed to be used in wafer Prealigners (to detect notch/flat and center of wafer), but can be used in other applications too. Output is in a 11(12) bit parallel binary data format. 11(12)bit data output represents position in pixels. Pixel size is 14(7)µm.

The AlignX is capable of real time data acquisition and processing, and is specifically designed for fast and accurate measurements. Standard MODES can be set for SOLID or TRANSPARENT (solid wafer - detect first solid edge, ignoring all other edges, transparent detect last edge, ignoring any edges before). MODE changes during measurement will not take effect until the next measurement cycle.

The AlignX sensor uses standard two 10 pin headers (0.100” spacing)
Timing Diagram

The timing diagram shows, that a HIGH to LOW signal on the TRIGGER, commences a data output at the end of the current measurement cycle. The HIGH to LOW signal on the DATA_READY confirms a Valid Data event. The maximum response time between the TRIGGER input and the DATA_READY output is 417 µs. This DATA is presented to the output pins and retained until the next TRIGGER event. In the absence of a TRIGGER event, the previous data will be held indefinitely. This process allows slow processing computers to by-pass several measurement cycles between measurement readings.

See Flowchart on next page for typical operation.

### Accessories, Software, Cables

METRALIGHT, Inc. provides an available PCKit package option (i.e. Parallel PCI bus I/O card or USB conversion cable, PCKit Terminal, a Windows based SW, Source codes in VB and VB.NET) for collection, processing and display of data.

Various custom cables (e.g. Sensor to DB25) are also available. Please call if you have any other specific requirements.
*MODE changes during measurement will not take effect until the next measurement cycle.

Fig. 3: Operation Flowchart
Installation Notes

- **USE APPROPRIATE MOUNTING SCREWS (SEE MECHANICAL DRAWING)**
- **!!! AVOID DIRECT SUNLIGHT !!!** AND OTHER NON VISIBLE LIGHT SOURCES. RX SENSORS USES RG9 FILTERS TO FILTER OUT VISIBLE LIGHT (SEE CHARTS BELOW)
- **ALWAYS KEEP OPTICAL WINDOWS CLEAN, FREE FROM DUST AND FINGERPRINTS, AVOID SCRATCHES ON THE OPTICAL WINDOWS.**
- **APPLY CORRECT VOLTAGE - SEE ELECTRICAL SPECIFICATION**

![Fig. 4: Transmittance of optical (RG9) filter](image)

**Warranty**

METRALIGHT provides a **ONE YEAR** manufacturer’s limited warranty against defective materials and workmanship. Please do not attempt to open the unit, as this will void all warranties.

**Contacts**

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