At Kasalis, we design cutting-edge systems for the alignment and assembly of optics; our outstanding active alignment algorithms produce the best quality optics for both compact camera modules and projection systems.

**CAMERA SYSTEMS**

We want customers to realize both the highest possible image quality and the most cost-effective solution for producing a higher yield of modules. Our system’s excellent range of capabilities includes: assembling and testing array cameras, wafer level cameras, automotive cameras, smartphone cameras, 360 degree cameras, dual cams, and wide-angle cameras.

Given our rich history and a team whose expertise in the field is unparalleled, we know our work will move customers closer to business goals and advance their products’ technical standing. We aim to lead the industry in value and camera module optical performance.

**USE CASES INCLUDE:**

- Mobile Phone
- PC/Laptop
- Automotive

Infrared
- Security & Surveillance
- Medical

Action/Sports
- Drone
- 360

**PROJECTION SYSTEMS**

**AUGMENTED & VIRTUAL REALITY PROJECTION SYSTEMS**

Compact projectors for augmented and virtual reality (AR and VR), including in-eye projectors, require accuracy and clarity to enhance the visual experience. Our powerful active alignment system will be key for AR and VR companies looking to differentiate themselves in the competitive world of consumer electronics.

**GESTURE RECOGNITION SYSTEMS**

Kasalis works closely with developers of gesture recognition technology to create cutting edge optics for devices that will be effective in detecting and analyzing the physical cues of its end users. Our active alignment technology is used to align the optics to the laser source, producing, with high precision, the structured light patterns required to enable this technology. These solutions enable technologies such as depth sensing and facial recognition for security applications.

**USE CASES INCLUDE:**

- Gesture Control
- 3D Sensing
- 3D Imaging

Virtual Reality
- Augmented Reality
- Gaming

Security
- LiDAR
Pixid alignment systems stack up well to competition and work with the best in the business. Here are the basic specifications of our Pixid platforms.

<table>
<thead>
<tr>
<th></th>
<th>PIXID 300 / PIXID 500S</th>
<th>PIXID 500D (DUAL HEAD)</th>
<th>PIXID 700</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNITS PER HOUR</td>
<td>240*</td>
<td>450*</td>
<td>60 - 240*</td>
</tr>
<tr>
<td>FIELD OF VIEW</td>
<td>Wide, Narrow</td>
<td>Narrow</td>
<td>Wide</td>
</tr>
<tr>
<td>RESOLUTION (LINEAR)</td>
<td>&lt;0.2μm</td>
<td>&lt;0.2μm</td>
<td>1 nm</td>
</tr>
<tr>
<td>RESOLUTION (ANGULAR)</td>
<td>&lt;0.01 deg</td>
<td>&lt;0.01 deg</td>
<td>1μrad</td>
</tr>
<tr>
<td>FOOTPRINT OF SYSTEM</td>
<td>1100 x 850 mm / 1.35 x 1.4 m</td>
<td>1400 x 1050 mm</td>
<td>Varies</td>
</tr>
<tr>
<td>COMMUNICATION</td>
<td>I²C, SPI, MIPI, HiSpi, Sub-LVDS, SLVS Parallel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPERATING SYSTEM</td>
<td>VxWorks (RT), Windows Embedded Standard 7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISPENSE TECHNOLOGY</td>
<td>Positive Displacement, Micro-Jetting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* UPH numbers are typical but vary according to application

TURNKEY PROCESS

- Machines delivered with fully qualified process to optimize UPH and yield
- Library of state-of-the-art algorithms with customization available
- Local sustaining support
- Precision mechanics and custom interface electronics
PROVEN RESULTS

In a capability analysis using statistically significant real alignment data, a competitor’s screw-in alignment was compared to Kasalis’ active alignment. Here are the results.

<table>
<thead>
<tr>
<th></th>
<th>YIELD LOSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCREW-IN ALIGNMENT</td>
<td>36.2% loss</td>
</tr>
<tr>
<td>KASALIS ACTIVE ALIGNMENT</td>
<td>6.1% loss</td>
</tr>
</tbody>
</table>

BENEFITS

Realize Cost Savings
- Lower operator costs due to simpler user interface
- Low cost per unit from high speed alignment

Realize Greater Efficiency
- Streamlined modular design
- Reduced lead times

Improve Optical Focus Quality
- Active alignment in five or six degrees of freedom
- Advanced optics for high resolution images and projection capabilities

Benefit from Continuous Feedback
- Improved process control from adaptive intelligence technology
- Identify trends in products
- Improved algorithms for alignment speed

Hold Advantage Over Competitors
- Best-in-class assembly equipment
- Access to Jabil design and manufacturing capabilities