Kasalis is a global supplier of advanced manufacturing systems for optoelectronics, offering the next generation of active alignment equipment for the precision assembly of optics and optical devices. Our mission is to promote the widespread use of active alignment technologies that surpass the competition in performance, quality, and cost. Through our innovative product line and fast turnaround time, our systems enable customers to bring new cutting-edge technology products to market with speed and confidence. Kasalis prides itself on building products with customer-inspired features and strong technical design.

In optical alignment, our primary areas of focus are in the assembly of camera modules, micro projection modules, and other optoelectronic devices. Should customers be interested in a wider range of services, Kasalis is part of Jabil Optics, a division of Jabil Circuit (NYSE: JBL), and can offer customers access to the many design, manufacturing, and industrialization capabilities available through our extended Jabil team.

The Pixid™ Series: Active Alignment Assembly Systems

Kasalis has developed the ground-breaking Pixid series for the alignment, assembly, and test of optical components used in consumer electronics, automotive applications, virtual reality, and gesture recognition. These systems are powerful and built tough for industrial high volume production.

Pixid systems are modular; each module is designed with an independent mechanical and electrical subassembly, and is operated using distributed controls from a centralized computer. Modules are easy to upgrade and customize, so the systems can be updated to new technologies and new products, keeping your production line investment current and competitive.
MARKETS: Compact Camera Modules and Projection Modules

Our markets are expanding as new applications emerge that are dependent upon having precision imaging or projecting in a compact application. Following the same trend as Moore’s law, which states that computing power generally doubles about every two years, optoelectronic devices have consistently improved in quality, and therefore need on-par technology assembling them to meet the quality standards and goals of manufacturers. Our primary markets are those that utilize compact camera modules and projection modules.

APPLICATION AREA:
Compact Camera Modules

APPLICATION AREA:
Projection Modules
Kasalis offers a standard set of optical tests that is included in every Pixid test system as well as optional test packages that allow customers to choose the best packages for their needs. Packages available are:

**Standard Camera Tests**
- MTF
- Focus Symmetry
- Field Curvature
- Image Contrast
- Centration

**Advanced Lens Tests**
- Chromatic Abberation
- Astigmatism
- Field of View

**Advanced Camera Tests**
- Color Reproduction
- Dynamic Range

**Advanced Sensor Tests**
- Hot/Dead Pixels
- Dark Signal
- Dark Signal Non-Uniformity
- Temporal Noise

**Advanced Particle Testing**
- Particle Detection

**Active Alignment**
- In 5 or 6 DOF
- Automated Alignment
- Maximum Precision

**Adaptive Intelligence**
- Real Time Data
- Statistical Process Control
- Continuous Improvement

**Automated Adhesive & UV**
- Consistent Dispense
- Automated UV Cure
- Higher Yields
Pixid Series Specifications

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>PIXID 300 LINE</th>
<th>PIXID 500 LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UPH</td>
<td>240</td>
<td>360-450*</td>
</tr>
<tr>
<td>FOV</td>
<td>Wide, Narrow</td>
<td>Narrow</td>
</tr>
<tr>
<td>RESOLUTION (LINEAR)</td>
<td>&lt; 0.1 µm</td>
<td></td>
</tr>
<tr>
<td>RESOLUTION (ANGULAR)</td>
<td>&lt; 0.01deg</td>
<td></td>
</tr>
<tr>
<td>FOOTPRINT</td>
<td>1100 x 850 mm</td>
<td>1400 x 1050 mm</td>
</tr>
<tr>
<td>COMMUNICATION</td>
<td>LIN, I2C, CAN</td>
<td></td>
</tr>
<tr>
<td>OPERATING SYSTEM</td>
<td>VxWorks (RT), Embedded Windows 7</td>
<td></td>
</tr>
<tr>
<td>DISPENSE TECHNOLOGY</td>
<td>Positive Displacement, Micro-Jetting</td>
<td></td>
</tr>
</tbody>
</table>

Production Capabilities

Pixid 300 and 500 system capabilities include automated particle test, adhesive dispense, and active alignment in up to six degrees of freedom, followed by a customized array of standard or advanced tests chosen by the customer. After final testing, the camera modules are complete. Our smart systems use proprietary software, Adaptive Intelligence, to improve alignment algorithms, thereby increasing accuracy and units per hour, and raising yield. Should customers require prototyping services or further manufacturing expertise, our Jabil Optics counterparts are available for consultation at any time.
DATA: Pixid Technology in Action

Before Active Alignment

Most camera modules allow for focus adjustment in only one degree of freedom (Z) by moving the lens up or down in a lens barrel by screwing the lens in or out. Since it is not possible to adjust for tip or tilt, it is impossible to align the lens to a position that yields optimal focus for both the center and four corners of the image. Loose manufacturing tolerances exacerbate the problem.

After Active Alignment

Kasalis Pixid systems use active alignment in 5 degrees of freedom to correct for tip and tilt in order to optimize the focus performance of the cameras in both the center and the corners of the image. The alignment process may be configured to optimize focus for (1) on-axis performance, (2) off-axis performance, or (3) overall performance (as shown).

The Kasalis Pixid 100 R&D generated this data on June 8, 2012 using an Aptina Demo Board (MT9D131).
**BENEFITS: Pixid Solutions for Customer Challenges**

Our mission is to produce active alignment technologies that surpass traditional alignment methods in performance, quality, and cost. Active alignment has become increasingly important in the evolving market for electronics with camera and projection modules, and our unique innovative approach differentiates Kasalis.

**Active Alignment**

As optical technology advances, the position of the lens relative to the sensor is more critical to the overall system performance. Kasalis’ active alignment process uses real-time data to optimize the lens position to yield the highest performance in every device.

**Advanced Technology**

Through our Adaptive Intelligence™ software, Kasalis systems fine tune the manufacturing process parameters in real time and adjust for longer-term trends in statistical data. This results in a far higher optical device performance and yield than any other manufacturing system on the market today.

**Low Cost Per Module**

By reducing the active alignment time to single digit seconds and providing per-module costs that are competitive with more traditional, passive alignment methods, we have developed products that provide our customers with a competitive edge through both superior technology and lower manufacturing costs.

**Quantifiable Customer Benefits**

Our world-class manufacturing systems allow customers to meet their goals of:

- Reduced Lead Times
- Cutting Operations Costs
- Less Time to Market for New Products
- Access to Jabil capabilities

**Contact Us**

**Headquarters:**
11 North Ave
Burlington, MA 01803
t +1 781 273 6200
t +1 781 273 6260
info@kasalis.com

**Europe:**
Bernd Neusigl
3-EDGE GmbH
Marsstrasse 3
D-85609 Aschheim
Germany
t +49 8806 923 910
ben@3-edge.de

**Taiwan:**
Angela Chung
Kingyoup Enterprises Co.
4F-16 Chongxin Road
Sanchong District
New Taipei City 24159
Taiwan (R.O.C.)
t +886 2 2999 1750 x169
sales@kasalis.tw

**China:**
James Kung
Kingyoup Enterprises Co.
East Block No. 88
Beijing East Road
Taicang City, Jiangsu Province
China
t +86 512 5386 2000
sales@kasalis.cn