Industrial White-Light Interferometer

The heliInspect™ H6 has been engineered to meet the specifications of the most demanding 3D in-line inspection tasks such as measuring

- step heights, angles, shape
- roughness, ripple, waviness
- defects, scratches, wear off
- flatness, coplanarity, deformations
- film thickness (tomographic mode)

Benefitting from Heliotis’ long experience with 3D sensors for industrial applications, the H6 combines interferometric precision with robustness and high throughput.

For System Integrators

System integrators benefit from ease of integration, a rugged design and designed-in reliability. The H6 is applicable to a wide range of inspection tasks and produces repeatable results on difficult targets such as hybrid metal/polymer objects.

For Equipment Manufactures

Equipment manufacturers benefit from the modular architecture of the H6 platform, access to sophisticated firmware features, software development kits and Heliotis’ design-in expertise. The standard capabilities may be extended by custom features (e.g. optics, CMOS image sensor, electronics, FPGA, software, mechanics).
H6 / WLI6

Specifications

**heliInspect™ H6**

- **measurement head**: industrial White-Light Interferometer compatible with exchangeable heliOptics™ WLI6 interferometer modules
- **acquisition device**: custom high-speed CMOS sensor with in-pixel signal processing
- **light source**: integrated high power LED (standard) or SLED (optional)
- **dimensions (L x W x H)**: 147 mm x 75 mm x 45 mm
- **weight**: 800 g (excluding WLI6)
- **software**: software development kits (SDK) for Halcon, LabView, C++, Python

**heliOptics™ WLI6**

<table>
<thead>
<tr>
<th>Interferometer</th>
<th>Mirau</th>
<th>Mirau</th>
<th>Mirau</th>
<th>Michelson</th>
<th>Michelson</th>
<th>Michelson</th>
</tr>
</thead>
<tbody>
<tr>
<td>field of view</td>
<td>232 x 222 µm²</td>
<td>580 x 556 µm²</td>
<td>1.16 x 1.11 mm²</td>
<td>1.47 x 1.41 mm²</td>
<td>2.93 x 2.81 mm²</td>
<td>5.86 x 5.62 mm²</td>
</tr>
<tr>
<td>working distance</td>
<td>2.52 mm</td>
<td>3.57 mm</td>
<td>3.57 mm</td>
<td>14.1 mm</td>
<td>55.8 mm</td>
<td>56.6 mm</td>
</tr>
<tr>
<td>WLI module</td>
<td>MIRAU-X50</td>
<td>MIRAU-X20</td>
<td>MIRAU-X10</td>
<td>TG-R5</td>
<td>TG-R10</td>
<td>TG-R20</td>
</tr>
<tr>
<td>numerical aperture</td>
<td>0.5</td>
<td>0.4</td>
<td>0.3</td>
<td>0.17</td>
<td>0.11</td>
<td>0.07</td>
</tr>
<tr>
<td>lateral resolution</td>
<td>0.8 µm</td>
<td>2 µm</td>
<td>4 µm</td>
<td>5 µm</td>
<td>10 µm</td>
<td>20 µm</td>
</tr>
<tr>
<td>resolution RMS (phase mode)</td>
<td>50 nm (1 nm)</td>
<td>70 nm (1 nm)</td>
<td>100 nm (1 nm)</td>
<td>100 nm (2 nm)</td>
<td>100 nm (2 nm)</td>
<td>100 nm (2 nm)</td>
</tr>
<tr>
<td>repeatability</td>
<td>100 nm (2 nm in phase mode)</td>
<td>100 nm (5 nm in phase mode)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reflectivity of sample</td>
<td>&lt; 0.1% to 100%</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

heliOptics™ WLI6 White-Light Interferometer modules:
- Mirau configurations (left) and Michelson configurations (right)