3-Axis Motorized Dynamic Focusing Laser Scanning System

3Dscanhead-300-15D-A, an integral scanning system, consisted of a scan head housing, a dynamic focusing module, a group of dynamic focusing mirrors, XY-axis deflection module and a protection window, is designed to meet the requirement of laser scanning in large area with extreme small beam size and high flexibility. It is applicable to YAG, CO2 and Fiber laser. There are 6 standard scanning fields (300x300, 400x400, 450x450, 500x500, 600x600, 750x750). For special scanning fields from 100x100 to 1000x1000, Century Sunny provides customized solutions and products. Each scanning field can be automatically adjusted by CSMark_3D Software which is very flexible and user friendly.

3Dscanhead-300-15D-A takes digital signal and supports XY-100 standard protocol. The optimum input aperture designed is 15mm.

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Typical Fields of Application:
Large Scale Laser Marking, Laser Cutting, Laser Welding, Laser Drilling, Micro Machining, Surface Treatment, 3D Applications, Laser Rapid Prototyping, etc.
**Control**

Dynamic focusing scanning system 3D scanhead-300-15D-A is an automatic-adjusting scanning fields system equipped with CSC-USB control board developed by Century Sunny. Users can either use the standard software CSMark_3D matched with the scanning system, or develop their own software adapted for different applications and operation styles based on DLL files of CSC-USB control board.

**Specifications**

(All angles are in mechanical degree, and all parameters apply after 1-minute warm up period)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage Requirement</td>
<td>±24VDC @ 4A Max RMS</td>
</tr>
<tr>
<td>Settling time (30mm Y mirror, moving 0.1°/step)</td>
<td>≤0.9ms</td>
</tr>
<tr>
<td>Effective Scan Angle</td>
<td>±12°</td>
</tr>
<tr>
<td>Position Signal Input Scale Factor</td>
<td>0.5V/a</td>
</tr>
<tr>
<td>Position Signal Output Scale Factor</td>
<td>0.5V/a</td>
</tr>
<tr>
<td>Analog Position Signal input range</td>
<td>±5V(max.)</td>
</tr>
<tr>
<td>Linearity</td>
<td>99.9%</td>
</tr>
<tr>
<td>Scale Drift</td>
<td>&lt;40PPM/°C</td>
</tr>
<tr>
<td>Zero Drift</td>
<td>&lt;15μRad/°C</td>
</tr>
<tr>
<td>Repeatability</td>
<td>&lt;8μRad</td>
</tr>
<tr>
<td>Long Time Drift Over 8 Hours</td>
<td>&lt;0.3μRad</td>
</tr>
<tr>
<td>Average Current</td>
<td>4A(MAX.)</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>25°C ±10°C</td>
</tr>
<tr>
<td>With or without water cooling</td>
<td>With</td>
</tr>
</tbody>
</table>

**Working Distance:** distance from beam output hole to the marking object on work table.

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**Scanning fields available:**

- **Field Size (unit: mm):**
  - 300x300
  - 400x400
  - 450x450
  - 500x500
  - 600x600
  - 750x750

- **Working Distance (unit: mm):**
  - 350
  - 450
  - 500
  - 550
  - 660
  - 820

- **Average Focusing Spot Diameter (unit: μm):**
  - 200
  - 260
  - 285
  - 330
  - 380
  - 470

- **Response time:**
  - <4ms
  - <4ms
  - <4ms
  - <4ms
  - <4ms
  - <4ms