Axon femtosecond lasers are a family of discrete wavelength, ultrafast sources. Compact design at a breakthrough price point enable a range of life sciences and instrumentation applications.

Multiphoton excitation microscopy applications are served by key wavelengths at 920 nm and 1064 nm, with dispersion pre-compensation included to optimize short pulses at the sample plane. Built-in modulation is optional for fast power control and flyback blanking.

Integrators benefit from a common, plug-and-play interface with the same form factor for each wavelength. Systems are completely air-cooled with no maintenance requirements, enabling a low cost of ownership and long lifetimes.

**APPLICATIONS**
- Multiphoton Excitation (MPE) Microscopy
- Second Harmonic Generation (SHG) Microscopy
- Two Photon Polymerization
- Nano-Processing
- Semiconductor Metrology
- Supercontinuum Generation
- Terahertz Generation

**FEATURES & BENEFITS**
- Compact and cost-effective
- Maintenance-free for low cost of ownership
- Air-cooled for flexible system integration
- Plug-and-play common interface
- Dispersion precompensation for optimal non-linear excitation
- Total Power Control (TPC) – optional built-in power control
- HALT-designed for longest lifetimes and high uptime
### SPECIFICATIONS

<table>
<thead>
<tr>
<th></th>
<th>Axon 920</th>
<th>Axon 920 TPC</th>
<th>Axon 1064</th>
<th>Axon 1064 TPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength (nm)</td>
<td>920</td>
<td>1064</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Power (mW)</td>
<td>1000</td>
<td>800</td>
<td>1000</td>
<td>800</td>
</tr>
<tr>
<td>Pulse Duration (fs)</td>
<td>&lt;150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repetition Rate (MHz)</td>
<td>80 ±1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Beam Mode</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beam Asymmetry</td>
<td>M² &lt; 1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beam Diameter (mm)</td>
<td>1.2 ±0.2</td>
<td></td>
<td></td>
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<tr>
<td>Astigmatism (%)</td>
<td>&lt;0.8-1.2</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Power Stability (%)</td>
<td>&lt;0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise (%)</td>
<td>&lt;0.25</td>
<td></td>
<td></td>
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<tr>
<td>Polarization</td>
<td>&gt;100:1 Vertical</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Dispersion Precompensation (fs²)</td>
<td>0 to -30,000</td>
<td>0 to -22,000</td>
<td>0 to -20,000</td>
<td>0 to -13,000</td>
</tr>
<tr>
<td>Modulation Rise/Fall Time (ns)</td>
<td>NA</td>
<td>&lt;1000</td>
<td>NA</td>
<td>&lt;1000</td>
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<tr>
<td>Contrast Ratio (%)</td>
<td>&gt;1000:1</td>
<td></td>
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</tr>
</tbody>
</table>

### MECHANICAL AND ENVIRONMENTAL SPECIFICATIONS

- Laser Head Dimensions: 212 x 318 x 62 mm (8.35 x 12.528 x 2.44 in.)
- Umbilical Length: 7 m (22.97 ft.)
- Laser Power Supply Dimensions: 3U, 19" rack mount unit
- Laser Head Mass: 4.5 kg (9.92 lbs)
- Operating Temperature Range: 19 to 26°C (66 to 79°F)
- Non-Operating Temperature: 0 to 40°C (32 to 104°F)
- Relative Humidity (%): <85, Non-Condensing
- Altitude (m ASL): 0 to 2000

### ELECTRICAL AND CONTROL REQUIREMENTS

- Power Requirements: 100-240 VAC (50/60Hz), <700 VA
- Control Interface: RS-232 or USB
- Synch Output: BNC, 50% duty cycle, 3.5 V into 50 Ω
- Analog Power Control (V) (optional): 0 to 5

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1. Center of mass, ±3 nm.
2. Assumes Sech² deconvolution factor.
3. Ratio of waist sizes.
4. Measured at beam waist locations.
5. Over 2 hours, environment stability ±1°C after warm-up.
6. RMS, 10 Hz to 10 MHz.
7. Adjustable via externally accessible fine adjust. Higher values on request.
8. 5% to 95% power level.
9. Measured at one meter from output port.
### Typical Performance Data

**Typical Spectrum: Axon 920**

![Typical Spectrum: Axon 920](image1)

**Typical Spectrum: Axon 1064**

![Typical Spectrum: Axon 1064](image2)

**Typical Autocorrelation: Axon 920**

![Typical Autocorrelation: Axon 920](image3)

**Typical Autocorrelation: Axon 1064**

![Typical Autocorrelation: Axon 1064](image4)

**Axon 100 Hour Power Stability**

![Axon 100 Hour Power Stability](image5)

**Far Field Beam Profile: Axon**

![Far Field Beam Profile: Axon](image6)
MECHANICAL SPECIFICATIONS

Axon Laser Source

Top View

Side View

Bottom View

Front View

Axon Datasheet
MECHANICAL SPECIFICATIONS

Axon Controller

![Axon Controller Diagram](image-url)

**Front View**
- Dimensions: 483.0 mm (19.02 in.)
- 132.5 mm (5.22 in.)

**Top View**
- Dimensions: 46.0 mm (1.81 in.)
- 417.50 mm (16.44 in.)

**Side View**
- Dimensions: 446.0 mm (17.56 in.)
- 46.0 mm (1.81 in.)

**Rear View**
- Dimensions: 417.50 mm (16.44 in.)
- 446.0 mm (17.56 in.)