Mira HP
High-Power Ultrafast Ti:Sapphire Oscillators

Features
- High-power modelocked output
- Optima™ control & diagnostics package
  - Fast photodiode
  - Autoranging power monitor detector
  - CW detector
  - Automatic modelocking starter
  - $\beta$-Lock™ automatic GTI control
- Integrated pump beam steering optics
- Multiple pump port options
- Integrated CW alignment cavity

Mechanical Specifications

Laser Head

Top View
- 1111.3 mm (43.75 in.)
- 381 mm (15.00 in.)
- 79.5 mm (3.13 in.)
- 150.4 mm (5.92 in.)
- 877.4 mm (34.15 in.)
- 150.4 mm (5.92 in.)
- 300.7 mm (11.84 in.)
- 308.4 mm (11.84 in.)

Front View
- 128.5 mm (5.06 in.)
- 196.9 mm (7.75 in.)
- 308.4 mm (11.84 in.)

Side View
- 19.1 mm (0.75 in.)
- 40.1 mm (1.58 in.)

Rear View
- 111.3 mm (4.38 in.)
- 269.7 mm (10.62 in.)

Superior Reliability & Performance
# Mira™ HP
## High-Power Ultrafast Ti:Sapphire Oscillators

### System Specifications\(^1\)

<table>
<thead>
<tr>
<th></th>
<th>Mira HP-F</th>
<th>Mira HP-P</th>
<th>Mira HP-D</th>
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</thead>
<tbody>
<tr>
<td>Output Power(^2) (W)</td>
<td>3.5 (&gt;4 typ.)</td>
<td>2.8 (&gt;3.2 typ.)</td>
<td>Dual platform contains all hardware necessary for both femtosecond (-F) and picosecond (-P) operation.</td>
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<tr>
<td>Pulse Width(^3,4)</td>
<td>&lt;150 fs</td>
<td>&lt;2 ps</td>
<td></td>
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<tr>
<td>Tuning Range (nm)(X-Wave™ Optics)</td>
<td>700 to 980 (700 to 1000 typ.)</td>
<td>760 to 980</td>
<td>700 to 1000 typ.</td>
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<tr>
<td>Repetition Rate (MHz)(nominal)</td>
<td>76</td>
<td>76</td>
<td></td>
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<tr>
<td>Noise(^5) (%)</td>
<td>&lt;0.1</td>
<td></td>
<td></td>
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<tr>
<td>Stability(^6) (%)</td>
<td>&lt;3</td>
<td></td>
<td></td>
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<tr>
<td>Beam Diameter(^7) (mm)</td>
<td>0.8</td>
<td></td>
<td></td>
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<tr>
<td>Beam Divergence(^8) (mrad)</td>
<td>1.7</td>
<td></td>
<td></td>
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<tr>
<td>Spatial Mode(^9)</td>
<td>TEM(_{00})</td>
<td></td>
<td></td>
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<tr>
<td>Polarization</td>
<td>Horizontal</td>
<td></td>
<td></td>
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<tr>
<td>Physical Dimensions</td>
<td>111.1 x 38.1 x 19.7 cm (43.75 x 15 x 7.75 in.)</td>
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</tbody>
</table>

### Measurement Tools

<table>
<thead>
<tr>
<th>Meter</th>
<th>FieldMax™ TO power meter (part number 1070873)</th>
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<tbody>
<tr>
<td>Sensor</td>
<td>PM10 power detector (part number 0012-0920)</td>
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</tbody>
</table>

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1. Specifications apply only with Coherent Verdi™-V18 pump lasers.
2. At 830 nm.
3. Based on sech\(^2\) deconvolution of 0.65 times autocorrelation width. Pulse width is <200 fs across specified tuning range in fs mode.
4. In fs mode, the pulses are typically 1.5x the transform limit and so can be further compressed in an external compressor.
5. Measured RMS in a 10 Hz to 20 MHz bandwidth.
6. Power drift in any two-hour period after warm-up when crystal’s cooling water is maintained at ±0.1°C.
7. 1/e\(^2\) diameter (±0.2 mm) at exit port.
8. Full angle divergence (±0.3 mrad) at exit port.
9. Typical measured M\(^2\) value is 1.1.

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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent’s scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all Mira HP lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.