Synchronize your pulsed laser sources with highest accuracy: the Menlo Systems RRE-SYNCRO provides state-of-the art phase lock electronics. The complete, user-friendly system allows for plug & play use. We have developed the Repetition Rate Synchronization for the patented, Nobel Prize awarded Optical Frequency Synthesizer technology. The RRE has been field-tested in this highly demanding environment enabling measurements with precision never reached before.

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**PERFORMANCE DATA**

**Timing Jitter**

- **laser vs RF**
  - Relative Phase Noise between stabilized laser and 10 MHz reference

**Timing Jitter**

- **laser vs laser**
  - Relative Phase Noise between two lasers in master-slave configuration

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**SCHEMATIC SETUP**

- Laser
- Piezo Motor
- RF Reference
- Phase Detector* at laser’s nth harmonic
- Feedback
- Error signal
- RRE-SYNCRO

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**KEY SPECIFICATIONS**

- **RMS Timing Jitter**: <200 fs (0.1 Hz - 500 kHz)

**APPLICATIONS**

- Synchronization and Timing

**FEATURES**

- Synchronization to Fixed or Tunable Repetition Rate
- Two Stage Locking Scheme
  - Fundamental / Harmonic

**OPTIONS**

- Custom Reference Frequencies
- Custom Phase Detectors for low drift
- Adjustable Offset to set the relative time delay between the laser pulses and the reference signal, enabling time-resolved experiments without using a mechanical delay stage
- Tunable Repetition Rate
# RRE-SYNCRO
Repetition Rate Synchronization Electronics

## Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMS Timing Jitter</td>
<td>&lt;200 fs (0.1 Hz - 500 kHz) or same as reference whichever applies first *</td>
</tr>
<tr>
<td>External Reference Input</td>
<td>10 MHz ** (provided by customer), signal level +5 ... +10 dBm</td>
</tr>
<tr>
<td>Stepper Motor Signal Output</td>
<td>Stepper Motor Control, Sub-D, 9 pin</td>
</tr>
<tr>
<td>Piezo Signal Output</td>
<td>Piezo Control, BNO</td>
</tr>
<tr>
<td>Error Signal Output</td>
<td>Error Signal for monitoring, BNC</td>
</tr>
</tbody>
</table>

* Values specified for models of the C-Fiber Femtosecond fiber laser series of Menlo Systems GmbH. Please contact us when stabilizing lasers from other manufacturers to optimize the performance of the RRE locking electronics.

** For custom reference frequencies please contact us.

## Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Voltage</td>
<td>110/220 V</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>0 °C - 40 °C</td>
</tr>
<tr>
<td>Dimensions/Weight</td>
<td>449 x 148 x 317 mm³ / 7 kg</td>
</tr>
<tr>
<td>Remote Control</td>
<td>Unit can be connected to a PC via the USB or RS232 interface</td>
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</tbody>
</table>

## Ordering Information

<table>
<thead>
<tr>
<th>Product Code</th>
<th>RRE-SYNCRO</th>
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</table>

Please call for pricing. Specifications are subject to change without notice. Custom modifications are available, please inquire.