The HARPIA-TB is a third beam delivery module for the HARPIA-TA unit for an additional dimension to time-resolved absorption measurements. It allows multi-pulse time-resolved spectroscopic techniques, in which the ongoing pump-probe photodynamics are perturbed by a delayed third pulse.

In conjunction with a narrow-bandwidth picosecond pulse source, HARPIA-TB can be used to perform femtosecond stimulated Raman scattering (FSRS) measurements. Furthermore, HARPIA-TB supports Z-scan measurements.

**FEATURES**
- Delivery of an additional femtosecond or picosecond beam
- Polarization, intensity, and delay control
- Femtosecond stimulated Raman scattering (FSRS) support
- Z-scan support

**HARPIA optical layout for multi-pulse experiments**

**A** – aperture  
**C** – crystal  
**CF** – spectral filter  
**CH** – chopper  
**F** – filter  
**L** – lens  
**PD** – photodiode  
**PM** – parabolic mirror  
**NDF** – neutral density filter  
**WLSc** – white light supercontinuum  
**Δτ** – delay  
**λ/2** – half-wave plate
**SPECSIFICATIONS**

<table>
<thead>
<tr>
<th>Model</th>
<th>HARPIA-TB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay range</td>
<td>2 ns / 4 ns</td>
</tr>
<tr>
<td>Delay resolution</td>
<td>2.1 fs / 4.2 fs</td>
</tr>
</tbody>
</table>

**DIMENSIONS**

| Physical dimensions (L × W × H) | 670 × 252 × 183 mm |

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**DRAWINGS**

State transitions and pulse timing in multi-pulse time-resolved transient absorption spectroscopy

Femtosecond stimulated Raman scattering (FSRS)

Drawings of HARPIA system with HARPIA-TB and HARPIA-TF modules

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*WARNING:* VISIBLE AND/OR INVISIBLE LASER RADIATION AVOID EYE OR SKIN EXPOSURE TO DIRECT, REFLECTED OR SCATTERED RADIATION. CLASS 4 LASER PRODUCT

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1) 8 ns delay range is available on request; contact sales@lightcon.com for details.