HarmoniXX DFG

The HarmoniXX DFG unit is designed to extend APE’s product line of wavelength converters into the Mid IR range. It mixes Signal and Idler output beams of synchronously pumped OPOs and is available for various pump sources.

The DFG output wavelength can be changed easily by tuning the OPO Signal. It covers a wide wavelength range of 4 ... > 15 μm.

The HarmoniXX DFG unit has an integrated wavelength separation for maximum user-friendliness. The output is very stable benefitting from the fact that the OPO output pulses are intrinsically jitter-free.

The DFG is available for femtosecond and picosecond OPOs of different wavelength ranges.

• High power and conversion efficiency
• Easy wavelength tuning
• Flexible architecture for fs / ps input
Versions and Applications

The HarmoniXX DFG is available in different versions, depending on the pump source and the pulse width.

The picosecond version can be pumped by pulses with 2 ... 6 ps pulse width and is able to reach wavelengths from 4.8 ... 15 μm. It is optimized for high resolution measurements and pulses with narrow bandwidth. Therefore it is perfect for Sum Frequency Mixing Spectroscopy.

The femtosecond version of the HarmoniXX DFG delivers short pulses with broad spectral bandwidth in the MIR. The standard version can be tuned from 4 ... 11 μm. An optionally available Optics Set extends the wavelength range to 10 ... > 15 μm. The HarmoniXX DFG fs is especially suitable for applications that require high time resolution such as fs s-SNOM.

HarmoniXX DFG fs

HarmoniXX DFG fs pumped by OPO Levante IR, pumped with 6 W @ 80 MHz, pulse width < 150 fs - typical data

The crystal used in the HarmoniXX DFG fs is optimized for high output power and best bandwidth conversion.
The narrow line width of the pump is preserved in the DFG process. With a spectral bandwidth of around 10 cm\(^{-1}\) the pulses are ideal for applications that require a high resolution, e.g. spectroscopy.
### Specifications

<table>
<thead>
<tr>
<th></th>
<th>DFG wavelength range</th>
<th>Pulse width</th>
</tr>
</thead>
<tbody>
<tr>
<td>for OPO PP Auto FAN fs / OPO\textsuperscript{Nsp-X} fs</td>
<td>4 ... 11 ( \mu m )</td>
<td>&lt; 100 ... 300 fs</td>
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<tr>
<td></td>
<td>Long wavelength Optics Set</td>
<td>10 ... &gt; 15 ( \mu m )</td>
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</tr>
<tr>
<td>for OPO Levante IR ps</td>
<td>4.8 ... 15 ( \mu m )</td>
<td>2 ... 6 ps</td>
</tr>
</tbody>
</table>

### Weight and dimensions:

- **Weight:** < 15 kg
- **Dimensions (see drawing; in mm):**
  - 118 ... 149
  - 107.2
  - 270.9
  - 195.9

Contact:
APE Angewandte Physik & Elektronik GmbH
Plauener Str. 163-165 | Haus N | 13053 Berlin | Germany
T: +49 30 986 011-30 | E: sales@ape-berlin.de | www.ape-berlin.de

APE America (for the Americas)
45401 Research Avenue | Suite 141 | Fremont, CA 94539 | USA
T: +1 (888) 690 3250 | E: sales@ape-america.com | www.ape-america.com

APE follows a policy of continued product improvement. Therefore, specifications are subject to change without notice.
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