

A P E

# HARMONI



GENERATOR

SHG / THG / FHG



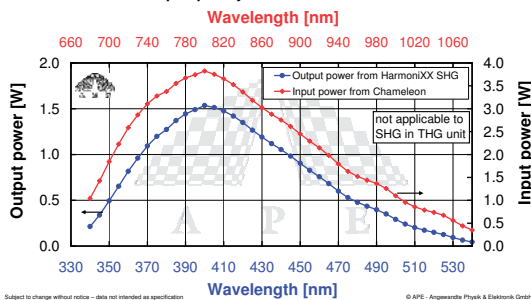
The product line **HarmoniXX** is a series of frequency converters for ultrafast lasers, in particular for Ti: Sapphire lasers, but available for other wavelength ranges as well. The flexible architecture of these devices allows for Second Harmonic Generation (SHG), Third Harmonic Generation (THG) and Fourth Harmonic Generation (FHG) as needed. The modular instrument design focuses on userfriendliness and compactness, with automated wavelength tuning available.

The **HarmoniXX** is equipped with quickly exchangeable optics and works with an extremely wide range of different pulse widths, it can be used with tens of picoseconds as well as with pulses down to 100 fs. Great care has been given to the optimization of the conversion efficiency over this large pulse width range. As result these high conversion efficiencies can now be achieved at various power levels and with minimum pulse broadening.

Unlike conventional triplers, the new **HarmoniXX** THG needs no separation and recombination of the interacting beams. This user friendly feature is due to the use of a common optical beam path of all interacting beams. It is implemented by means of a proprietary delay compensator and provides consistent spatial overlap for optimum efficiency.

- High conversion efficiency
- Easy alignment
- Adaptable to different pulse widths and power levels
- Minimum pulse broadening
- Excellent pointing stability
- Flexible architecture

HarmoniXX SHG only fs - typical data pumped by Chameleon Ultra II



Subject to change without notice - data not intended as specification © APE - Argonwende Physik & Elektronik GmbH

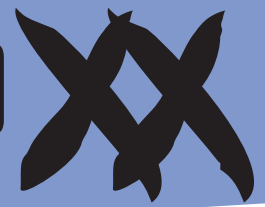
Ultrafast Pulse Diagnostics

Wavelength Conversion

Pulse Management

Acoustooptics

Your Partner in Ultrafast



## VERSIONS

SHG only

THG (includes SHG in THG)

FHG (2 + 2) (includes SHG in THG, THG)

FHG (3+1) <sup>1)</sup> (includes SHG in THG, THG, FHG (2+2)), no Autotracker available

## SPECIFICATIONS

Wavelength ranges <sup>2)</sup>

Input

**Ti:Sapphire**

680 ... 1080 nm

**OPO Signal**

1000 ... 1600 nm

SHG

340 ... 540 nm

500 ... 800 nm

THG

227 ... 360 nm

FHG (2+2) option

210 ... 230 nm

FHG (3+1) version

190 ... 210 nm

Conversion efficiencies

**Mira V10**

@800 nm, 76 MHz

**Chameleon Ultra II**

@800 nm, 80 MHz

Input pulse width

~130 fs

~1.6 ps

~130 fs

Input power for below specifications

1.3 W

1.3 W

3.5 W

Efficiency / Power

Efficiency / Power

Efficiency / Power

SHG (SHG only version)

40% / 520 mW

15% / 195 mW

40% / 1400 mW

SHG (in THG version)

20% / 260 mW

10% / 130 mW

20% / 700 mW

THG

10% / 130 mW

3% / 39 mW

10% / 350 mW

FHG (2+2) option

4% / 40 mW

on request

4% / 85 mW

FHG (3+1) version

0.1% / 1.5 mW

on request

0.2% / 7 mW

## OPTIONS

Autotracker: automatic following and / or setting to an input wavelength. Details depend on laser source. Please ask for details.  
Other wavelength ranges

## DIMENSIONS (in mm)

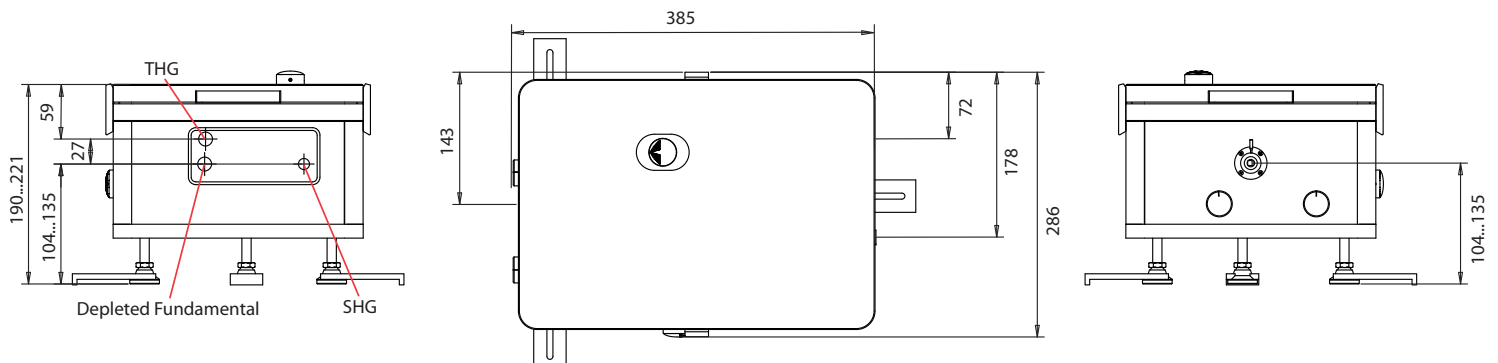
SHG only, THG and FHG (2+2) version 385 x 221 x 286

FHG (3+1) version 580 x 221 x 410

1) FHG (3 + 1) comes in a larger size housing than SHG, THG or FHG (2 + 2)

2) other wavelength ranges on request

Drawings show THG version:



## Distributors

see APE website [www.ape-berlin.com](http://www.ape-berlin.com)