

## HIRO

515 nm, 343 nm, 258 nm



## ORPHEUS | HP

190 nm – 16 μm



## TOPAS

189 nm – 20 μm



Tunable wavelength source

Pump laser source

## PHAROS

190 – 290 fs

up to 1 MHz

1030 nm



## CARBIDE

190 – 290 fs

up to 1 MHz

1030 nm



Probe beam delay configuration

DLC1	DLC2	DLC3
2 ns	4 ns	8 ns

Standard delay stage DL1  
Linear lead screw, 20 mm/s speed

Delay range	Delay resolution
2 ns	2.1 fs
4 ns	4.2 fs
8 ns	8.3 fs

UV/VIS/NIR/SWIR  
Multi-channel InGaAs detector

0.9 – 1.7 μm	DM3
0.9 – 2.6 μm	DM2

Multi-channel Si NMOS detector

0.2 – 1.1 μm	DM1
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MIR  
Single-channel MCT detector

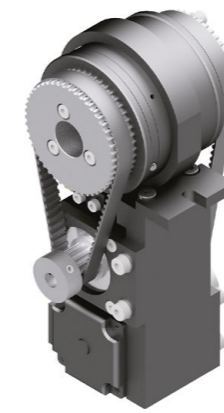
DS3	2 – 13 μm
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Integrated spectrometer  
VIS/NIR, fixed range

SP4

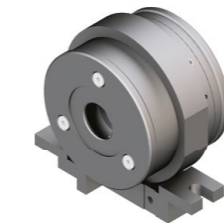
External spectrometers

Andor Kymera 328i	SP5
Andor Shamrock 163i	SP2
Andor Kymera 193i	SP1



BC2

Motorized Berek compensator  
Pump polarization state adjustment



BC1

Manual Berek compensator

## Delay line Configurations

## Spectrometer

## Polarization control

Manual sample holding unit

SH1

Sample mover  
Sample positioning and motion during measurement, XYZ version available

SH2

## Sample translation

## Intensity control

Manual neutral density filters

NDF1

Motorized neutral density filters  
Remote light intensity adjustment and intensity-dependent measurements

NDF2

## Extensions

MM1

## HARPIA | MM

Microscopy module



Pump-probe microspectroscopy in transmission and reflection modes

	Resolution
Spatial	5 μm
Temporal	500 fs

TB1

## HARPIA | TB

Third beam delivery module

Delay range	Delay resolution
2 ns	2.1 fs
4 ns	4.2 fs



Multi-dimensional spectroscopic measurements: pump-dump-probe, pump-repump-probe or prepump-pump-probe, femtosecond stimulated Raman scattering, etc.

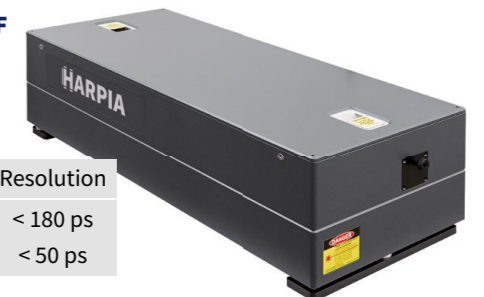
TF1

TF2

## HARPIA | TF

Femtosecond fluorescence upconversion & TCSPC module

Option	Resolution
TF1 Standard	< 180 ps
TF2 High-speed	< 50 ps



## Additional options

AD1 Measurement in reflection mode

AD2 Glan-Taylor polarizer  
Polarization state verification



AD3 Reference photodiode  
Measurement of probe signal level for elimination of long-term signal fluctuations

AD4 Crystal rotator

Movement of low-damage-threshold probe supercontinuum crystal, e.g., CaF<sub>2</sub>.



AD5 Beam profiler

AD6 Motorized pump mirror

AD7 External beam stabilization

AD9 Cryostat adapter



AD10 Sample stirrer

AD11 Flash photolysis extension

PR2 Internal motorized SH generator