OPTICAL PARAMETRIC AMPLIFIERS (OPAs)

QUANTRONIX®

The Palitra-FS Series of Optical Parametric Amplifiers (OPAs) delivers the widest gap-free tuning (230 nm-22 µm) and highest conversion efficiency (>40% at peak) on the market. Built in a compact, thermally stabilized enclosure, Palitra-FS OPAs provide stable, hands-free performance.

The Palitra-FS is a white-light continuum (WLC) seeded, collinear OPA and can be pumped by a femtosecond Ti:Sapphire amplifier, delivering femtosecond pulses over the entire tuning range. Several easily upgradeable extensions and options for Palitra-FS are available, providing a flexible platform to meet the most demanding needs of ultrafast scientific applications. Palitra-Duo FS:FS offers the integration of two Palitra-FS OPAs into one enclosure, sharing the same seed for optimum coherence between the OPA outputs.

Due to the WLC seeding and the good conversion saturation, the Palitra's stability performance remains very close to the pump amplifier stability and is optimized for the Quantronix Integra-C and Integra-HE Series, the Odin-II Series, Thor systems, and Hercules cryo-cooled ultrafast amplifiers. Palitra-FS models can be directly integrated into the amplifier box upon request.

Palitra

FEATURES AND BENEFITS

- **Highest OPA conversion efficiency on the market, >40% at peak**
- **Widest tuning range, 230 nm - 22 µm**
- **Highest OPA output energy on the market**
- **Full automation and hands-free computer control**
- **Most compact OPA on the market**

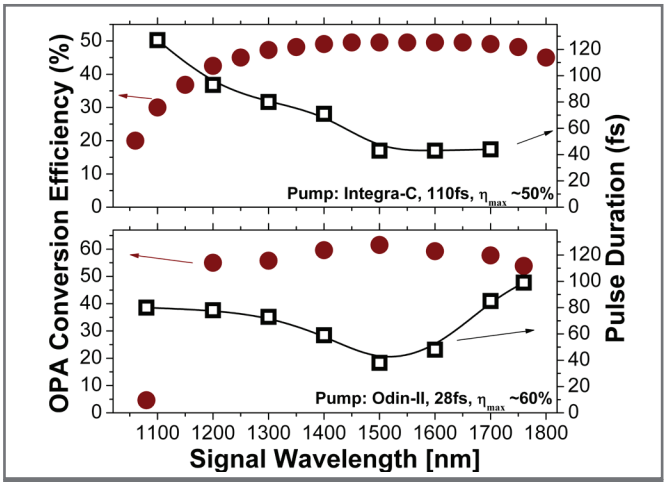
SPECIFICATIONS

	Palitra-FS / Palitra-Duo FS:FS Output Parameters
Pulse Duration	40-130 fs (wavelength dependent over Signal+Idler)
Core Tuning Range	1050-2700 nm
Efficiency at Peak	>40%[1,2]
Output Stability (% RMS)	<2x pump stability[3]

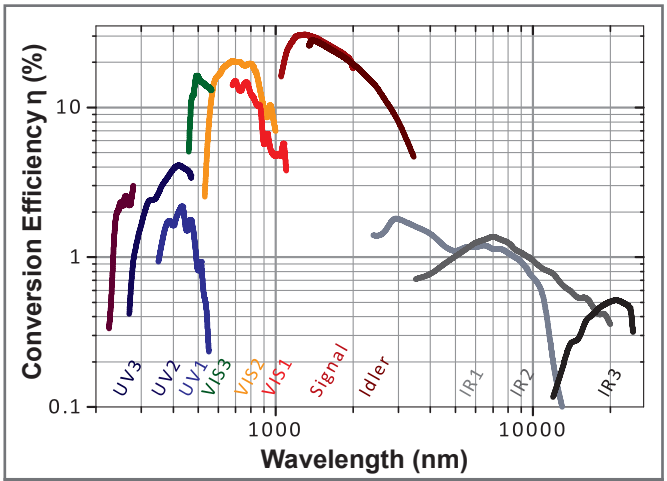
Palitra-FS Output Parameters and Wavelength Extensions[4,5,7]

Extension	Tuning range (λ) (λ_p=800 nm)	Conversion Efficiency (%) at peak (pump τ = 20-70 fs)	Conversion Efficiency (%) at peak (pump τ = 70-200 fs)	Polarization
UV3	230-280 nm	>1	>2	Vertical
UV2	270-470 nm	>1.5	>3	Horizontal
UV1[3]	340-550 nm	>0.7	>1.5	Vertical
VIS3	460-560 nm	>5	>8	Horizontal
VIS2	530-950 nm	>10	>14	Vertical
VIS1	670-1,100 nm	>5	>8	Horizontal
Signal	1,050-1,900 nm	>23	>23	Horizontal
Idler	1,340-2,700 nm	>20	>20	Vertical
IR1	2,600-11,000 nm	>0.7	>1	Vertical
nIR1[6]	2,600-11,000 nm	>0.9	>1.2	Vertical
IR2	3,500-17,000 nm	>0.5	>0.8	Vertical
nIR2[6]	3,500-17,000 nm	>0.7	>1	Vertical
nIR3[6]	13,000-22,000 nm	>0.15	>0.25	Vertical

1. Defined as (Signal+Idler)/Pump energies.
2. With a Quantronix Ti:Sapphire amplifier as the pump. With a non-Quantronix amplifier, efficiencies should be taken at 75% of the specified values in the table.
3. Minimum RMS is 0.7%.
4. The conversion efficiency at peak is defined as the maximum conversion efficiency in the specified tuning range assuming the pump is a Quantronix Ti:Sapphire amplifier. With a non-Quantronix amplifier, the conversion efficiencies should be taken at 75% of the specified values in the table.
5. The UV1 extension will be excluded if another UV extension is ordered.
6. nIR extensions can be combined and integrated inside the Palitra-FS enclosure if no other wavelength extensions are present. Otherwise they will be placed in an external enclosure.
7. Output parameters of each arm of the Palitra-Duo FS:FS are the same as an individual Palitra-FS. Palitra-FS wavelength extensions apply to the Palitra-Duo FS:FS as well.



OPA conversion efficiencies of Palitra-FS
[defined as (Signal+Idler)/Pump energies]



Measured gap-free tuning range of Palitra-FS
and Palitra-Duo FS:FS by wavelength extensions

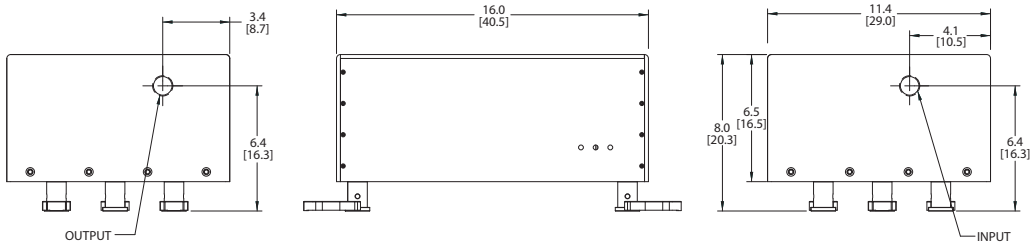
MECHANICAL & UTILITIES

		Palitra-FS	Palitra-Duo FS:FS
Size	Optical Head (L x W x H)	16.0 x 11.40 x 8.0 in (40.5 x 29 x 20.3 cm)	29.0 x 21.4 x 8.9 in (73.7 x 54.3 x 22.7 cm)
Weight		50 lbs (22.7 kg)	130 lbs (59 kg)
Cooling		No cooling required	
Electrical Service		100-240 VAC; 5 A @ 50/60 Hz	
Control Interface	User Interface	Palitra Commander Software	
Environmental	Operating Temperature Range	15-35˚C	
	Relative Humidity	<60%, non-condensing	

LAYOUT

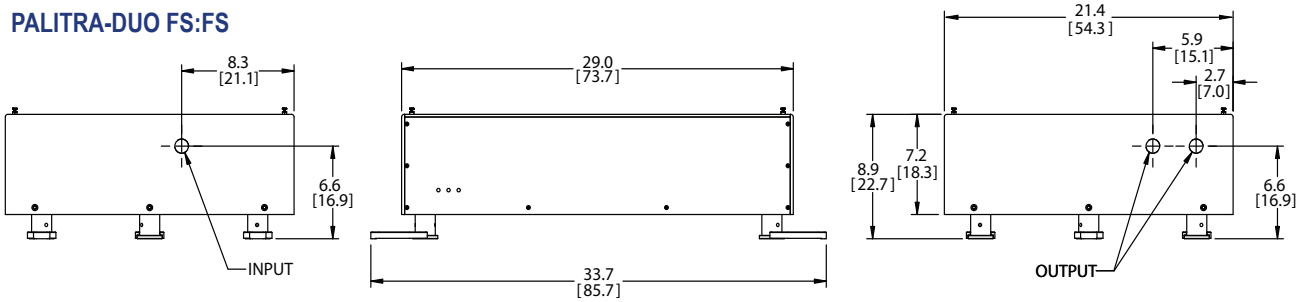
All dimensions are in inches [cm]

PALITRA-FS



OUTPUT VIEW SIDE VIEW INPUT VIEW

PALITRA-DUO FS:FS



INPUT VIEW SIDE VIEW OUTPUT VIEW

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