OPOTEK

MagicPRISM
OPO MODULE

The MagicPRISM is a compact, motorized optical parametric oscillator (OPO) module based on OPOTEK patented ring-cavity oscillator technology. With conversion efficiencies as high as 40%, the MagicPRISM is a cost effective solution for turning a fixed wavelength Nd:YAG laser into a tunable laser with wavelength ranges that cover the visible and near-infrared. Check the pump laser requirements below to see if your Nd:YAG laser qualifies for this incredible upgrade.

PHOTONIC SOLUTIONS
EST • 1999

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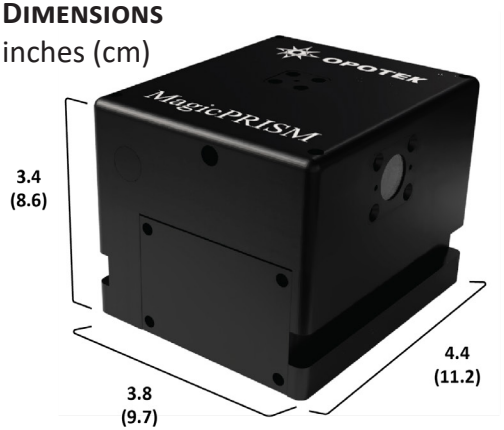
MagicPRISM
OPO MODULE

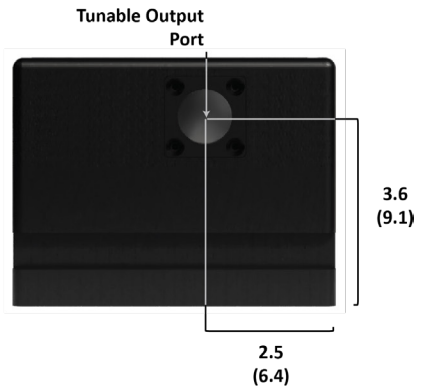
MODULE FEATURES

- Stand-alone OPO module covering VIS and NIR wavelengths
- Compatible with nanosecond Nd:YAG pump lasers (see requirements on last page)
- Computer controlled via a single USB connection
- Control software and software development kit (SDK)
- No factory installation required
- All tunable wavelengths output from a single port
- Requires alignment kit for free space installation
- Quantel Laser by Lumibird Q-smart 450 adapter option available
- Fast tuning option available for NIR 20 and NIR 20ID modules

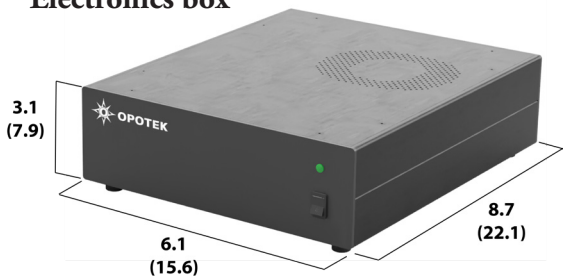
DIMENSIONS

inches (cm)





Electronics box



AVAILABLE OPTIONS AND ACCESSORIES

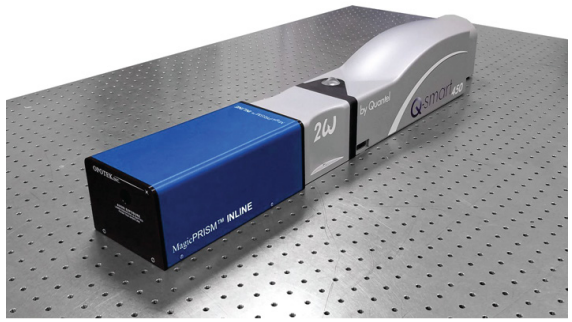
Alignment Kit (AK): MagicPRISM alignment kit for successful pumping by third party pump laser.

Q-smart Adapter (QSA): MagicPRISM adapter assembly for Quantel Laser by Lumibird Q-smart 450

MagicPRISM Inline (INL): Includes Quantel Laser by Lumibird Q-smart 450 10 or 20 Hz with SHG and/or THG and adapter assembly

- End user replaceable flashlamp (100 million shot lifetime) and DI cartridge
- All tunable wavelengths output from a single port
- Harmonic Auto-Optimization
- Access to full power 1064 and 532 nm beams
- Computer controlled tuning via control software/software development kit (SDK)

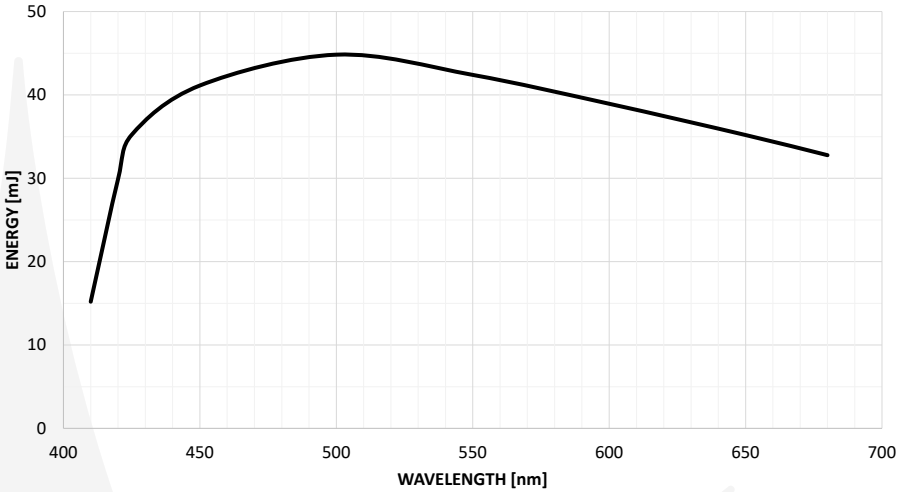
Fast-Tuning (FT): MagicPRISM NIR and NIR ID Fast Tuning. Upgrade from standard tuning to fast tuning where the tunable laser can change to any wavelength in the Signal or Idler range per laser shot up to repetition rates of 20 Hz.



MagicPRISM inside Q-smart Adapter attached to a Q-smart 450 with SHG

MagicPRISM VIS

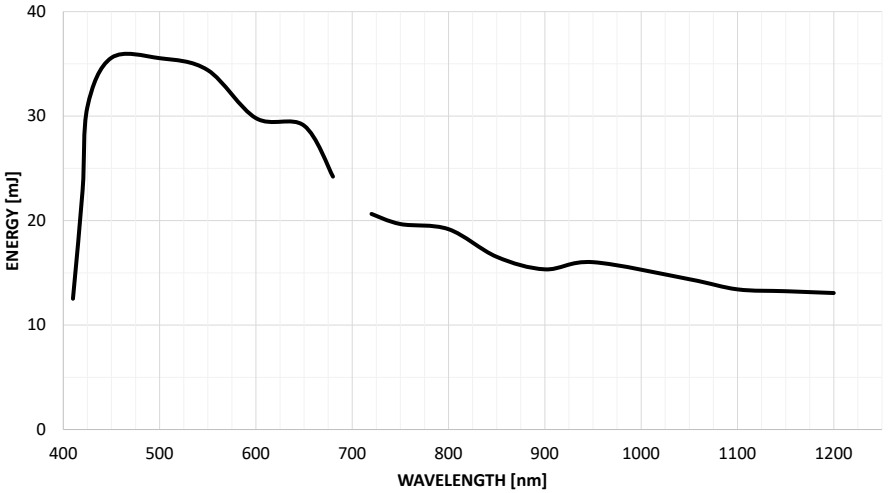
MP 30



Typical performance when pumped with 110 mJ of 355 nm.
Actual results may vary depending on pump laser.

MagicPRISM VIS ID

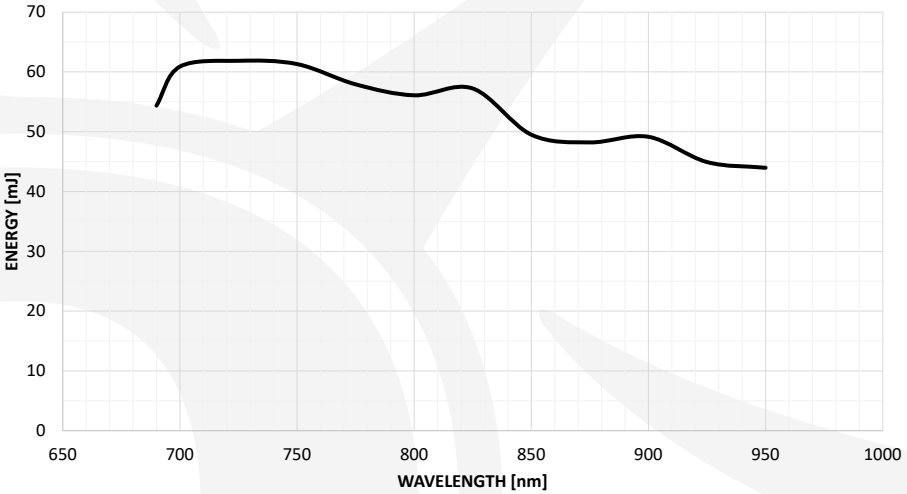
MP 30ID



Typical performance when pumped with 95 mJ of 355 nm.
Actual results may vary depending on pump laser.

MagicPRISM NIR

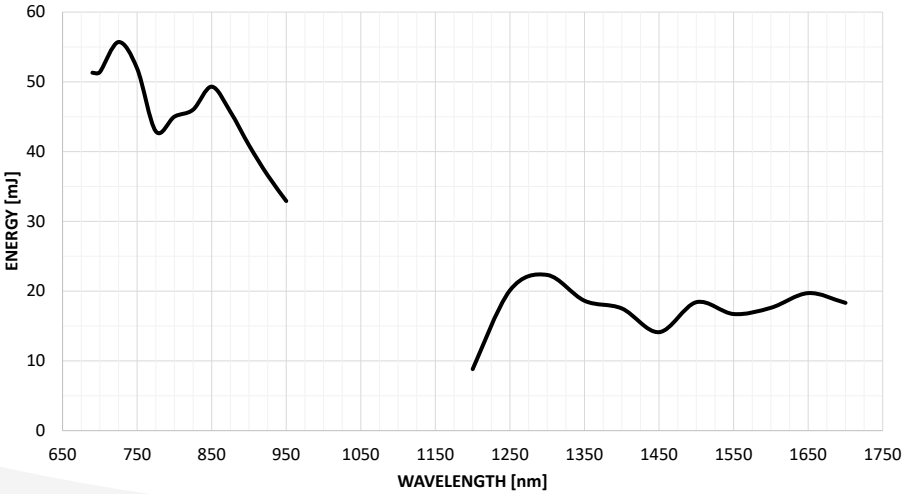
MP 20



Typical performance when pumped with 150 mJ of 532 nm.
Actual results may vary depending on pump laser.

MagicPRISM NIR ID

MP 20ID



Typical performance when pumped with 135 mJ of 532 nm.
Actual results may vary depending on pump laser.

	MagicPRISM VIS series		MagicPRISM NIR series	
OPO SPECIFICATIONS [1]	MP 30	MP 30ID	MP 20	MP 20ID
WAVELENGTH RANGE (nm)	410-680	410-680 & 720-1200	690-950	690-950 & 1200-1700
Peak Conversion Efficiency (%)	40	38	40	
Max OPO Energy (mJ)	Up to 45		Up to 90	
Linewidth (cm^{-1})	5 - 80		30 - 100	
Tuning Resolution	Linewidth limited		Linewidth limited	
Beam Divergence (mrad) [2]	10 - 15		10 - 15	
Signal/Idler Polarization	Vertical		Vertical	

PUMP LASER Requirements		
OPO Pump Wavelength (nm)	355	532
Min/Max OPO Pump Energy (mJ)	90 - 110	130 - 220
Pulse Duration (ns)	5 - 10	
Beam Diameter (mm)	5 - 6	
Beam Divergence (mrad)	< 1	
Polarization [3]	Linear	
Beam Profile [4]	Flat top with no hot spots	

[1] Varies based on pump laser specifications

[2] Full angle, at $1/e^2$ of the peak

[3] Waveplate required if not horizontal

[4] < 1.5:1 pk to avg fluence

DIMENSIONS (all systems)	
OPO Module (L x W x H; inches [cm])	4.4 (11.2) x 3.8 (9.7) x 3.4 (8.6)
Electronics Box (L x W x H; inches [cm])	8.7 (22.1) x 6.1 (15.6) x 3.1 (7.9)
OPO Module Weight (lbs [kg])	3.6 lbs (1.6 kg)
Electronics Box Weight (lbs [kg])	5 lbs (2.3 kg)

OPERATING REQUIREMENTS (all OPO modules)	
Pump Laser	See requirements above
Temperature	64-82°F (18-28 °C)
Power	100-240 VAC, 50/60 Hz, single phase 100 W

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