

OPO Series

High Repetition Rate OPO Optical Parametric Oscillator



OPO Series

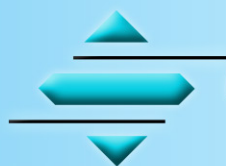
Photronics Industries OPO series of diode-pumped, intra-cavity frequency conversion, Q-switched Optical Parametric Oscillator (OPO) produces stable, high repetition rate pulses in a compact, industry rugged design. An air cooled version is also available.

Applications

- Chemical Detection
- Eye-Safe Illumination
- NIR Spectroscopy
- MID-IR Spectroscopy
- LIDAR
- IR-MALDI
- Rangefinder, Designator
- Material Processing Research & Production

Features

- Diode Pumped Technology
- Wavelength: 1.5 μ m to 2.0 μ m (signal)
2.2 μ m to 3.4 μ m (idler)
 - Fixed Wavelength or Tunable Versions Available
- Pulse Rates from Single Shot to 50kHz
- TEM₀₀ Beam with M² ~ 1.3
- mJ Pulse Energy at kHz Repetition Rates
- Field Replaceable Diode
- Compact, Rugged Design
- Patented OPO Generation Technology
- External TTL Triggering and Gating Input
- Air Cool Version Available



Photronics Industries

International, Inc.

The Pioneer of Intra-Cavity Solid-State Harmonic Lasers

Photonics Industries OPO Advantages

The unique features of Photonics Industries' OPOs come from the patented and patent pending intra-cavity frequency conversion technology. Conventional OPO systems use low repetition rate lasers, limited to 100Hz, to pump the OPO. Photonics Industries integrates our OPOs within the Q-switched Nd based oscillator. This design produces kilohertz repetition rates, nominal 10ns pulse durations and milli-Joule levels of pulse energy in a single, compact, industry reliable package. Depending on the requirement of the repetition rate, the OPO can be based on Nd:YLF, Nd:YAG or Nd:YVO₄ lasers where Nd:YLF is ideal for low kHz repetition rates, and Nd:YVO₄ is for high repetition rates such as 20kHz or higher, and Nd:YAG is approximately 10kHz.

DS Series OPO

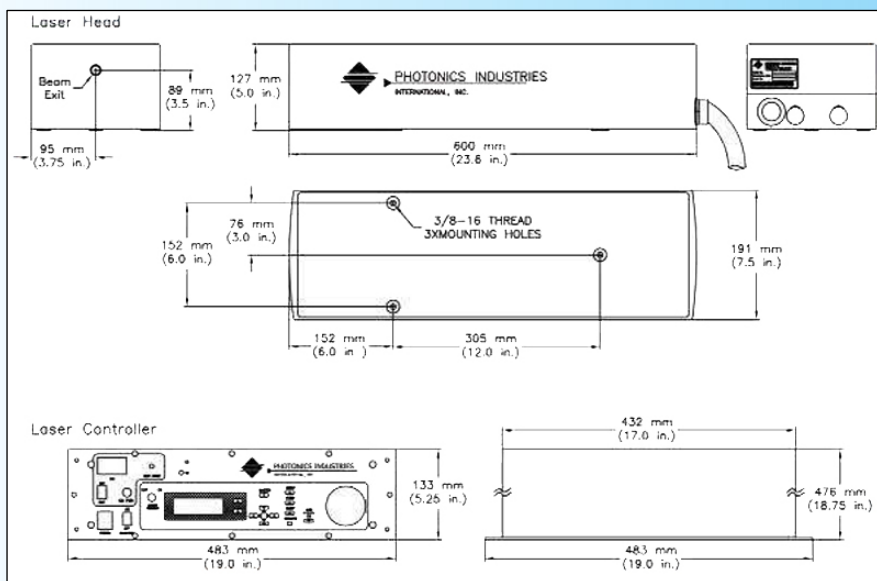
Photonics Industries' DS Series OPOs represent the FIRST commercially available Optical Parametric Oscillator to produce pulse rates at a high repetition of up to 50kHz. The DS OPOs produce ~100kWatts peak power output with milli-Joule levels of energy-per-pulse, at kHz repetition rates, or up to 10Watts average power at approximately 10kHz in repetition rate range. These lasers are produced with either a fixed wavelength, or a continuously tunable wavelength in the region of 1.5µm to 3.4µm.

DS OPO Laser Specifications

	DS10E-OPO		DS20-OPO	
Wavelength	1.5-2.0 µm	2.2-3.4 µm	1.5-2.0 µm	2.2-3.4 µm
Average Power @ 1 kHz	1.0 Watts	0.25 Watts	2.0 Watts	0.5 Watts
Pulse Energy @ 1 kHz	1.0 mJ	0.25 mJ	2.0 mJ	0.5 mJ
Pulse Width @ 1 kHz (nominal)	15 ns nominal			
Beam Mode	TEM ₀₀			
Beam Diameter	0.9 mm			
Pulse-to-Pulse Instability	±3% rms			

DS OPO Common Specifications

	Width	Length	Height	Weight
Laser Head	191 mm	600 mm	127 mm	14 kg
Laser Controller	483 mm	476 mm	133 mm	8 kg
Solid State Chiller	483 mm	438 mm	178 mm	20 kg
Electrical Requirement	110 VAC 20 Amps or 220 VAC 10 Amps @ 50/60 Hz			
Ambient Temperature	15 to 30°C (59 to 86°F) Operating Range			
Umbilical Length	3 meter (10 feet)			



DC Series OPO

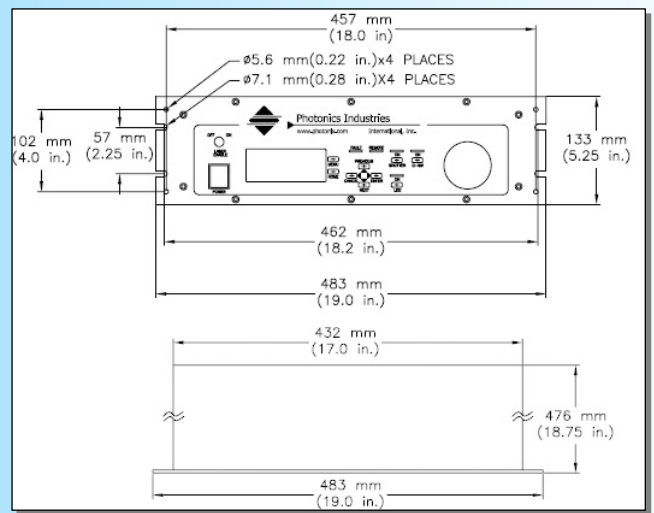
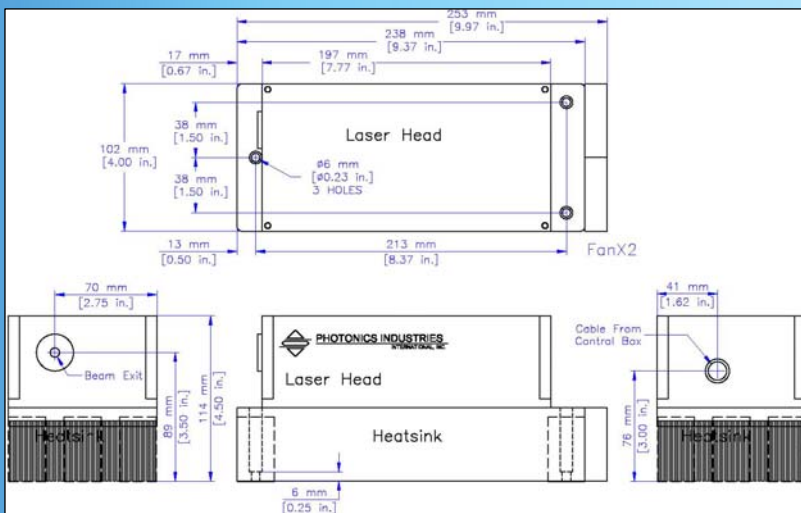
Photonics Industries' DC Series OPO is an air-cooled version of Photonics Industries' Optical Parametric Oscillator which can produce pulse rates at a high repetition of up to 50kHz. The DC OPOs produce peak power output of up to 30kWatts, with milli-Joule levels of energy-per-pulse, at low repetition rates, or up to 0.5Watts average power. These lasers are produced with a fixed wavelength selected in the 1.5µm to 3.4µm wavelength range.

DC OPO Laser Specifications

	DC150-OPO
Average Power @ 1 kHz	300 mW
Pulse Energy @ 1 kHz	300µJ
Pulse Width @ 1 kHz (nominal)	10-15ns nominal
Beam Mode	TEM ₀₀
Beam Diameter	0.7mm
Pulse-to-Pulse Instability	± 3% rms

DC OPO Common Specifications

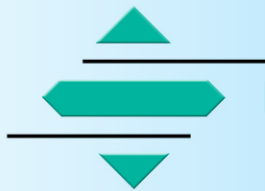
	Width	Length	Height	Weight
Laser Head	102 mm	253 mm	114 mm	4.5 kg
Laser Controller	483 mm	476 mm	133 mm	8 kg
Electrical Requirement	110 VAC 20 Amps or 220 VAC 10 Amps @ 50/60 Hz			
Ambient Temperature	15 to 30°C (59 to 86°F) Operating Range			
Umbilical Length	3 meter (10 feet)			



WARRANTY

Photonics Industries International, Inc. offers a limited warranty for all OPO Series laser systems. All components and assemblies are guaranteed to be free of defects in materials and workmanship for the duration of the warranty period. Please contact our sales office, or visit our website for complete details on our standard and extended warranty coverage.

Due to Photonics Industries' commitment to continuous product improvement, Specifications are subject to change without notice.



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Photonics Industries conforms to provisions of US 21 CFR 1040.10 & 1040.11 and is made under one or more US patents listed below: 7,346,092; 7,082,149; 7,079,557; 6,999,483; 6,980,574; 6,961,355; 6,842,293; 6,762,405; 6,690,692; 6,587,487; 6,584,487; 6,366,596; 6,327,281; 6,356,578; 6,246,707; 6,229,839; 6,108,356; 6,061,370; 6,028,620; 5,936,938; 5,898,717 and Pending Patents

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