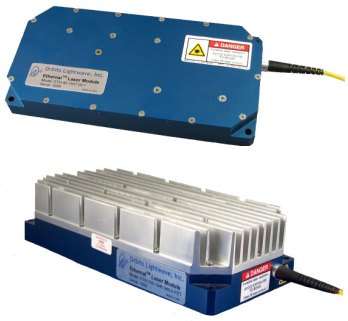
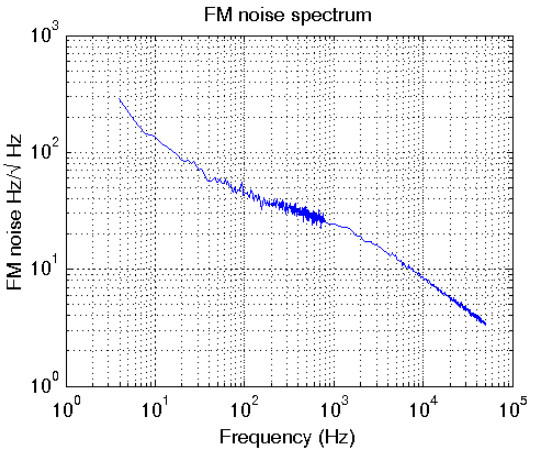
Ethernal™ SlowLight™ Laser Modules
@ Orbits Lightwave, Inc

The **Ethernal™ SlowLight™** laser from Orbits Lightwave is an industry leading ultra-stable, low noise fiber laser. The breakthrough "virtual ring" laser oscillator enables traveling wave and slow light oscillation in a compact, linear, all fiber cavity. Traveling wave oscillation results in higher power, lower noise and a higher side-mode suppression ratio. **SlowLight™** technology effectively increases the cavity lifetime resulting in ultra low FM and AM noise performance.

The **Ethernal™ SlowLight™** fiber laser represents a new benchmark in laser performance. The highly integrated and robust fiber laser utilizes passive stabilization and eliminates the necessity for wavelength and temperature control. **StableLase™** technology greatly reduces the susceptibility to shock and vibration by more than five orders of magnitude. This enables the **Ethernal™ SlowLight™** fiber laser to operate at unprecedented levels of stability and performance for demanding industrial or military applications.



Fiber Laser Modules



Ultra stable & low noise fiber lasers

Features:
- Linewidth < 400Hz
- Optical signal to noise > 80dB
- Sidemode suppression ratio > 75dB
- Lowest amplitude and phase noise in the industry
- Compact all-fiber "virtual ring" architecture
- **StableLase™** reduces sensitivity to shock and vibration by five orders of magnitude
- High power single oscillator > 350mW

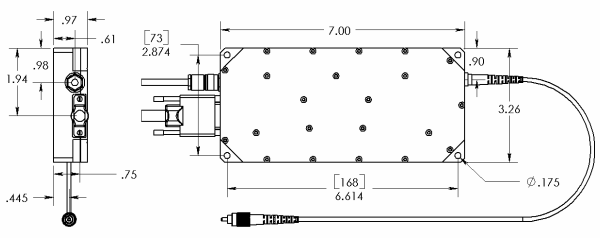
Applications:
- Acoustic sensing, marine and perimeter security
- LIDAR, ALSM or laser altimetry
- Injection seed lasers
- Coherent Communications
- RF and microwave photonics
- Spectroscopy, gas absorption testing
- Pipeline monitoring, leak detection
- Defense, motion & intrusion detection
- Oil and gas exploration systems
- Metrology

Ethernal™ Specifications

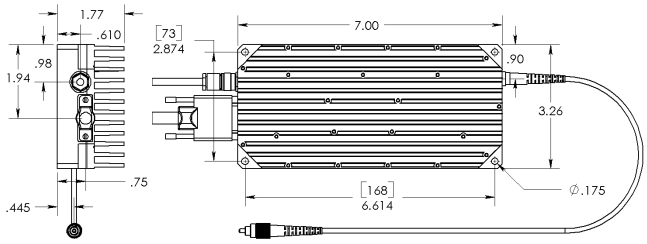
Wavelength range (nm) CW single frequency	1530 to 1565	1047 to 1064
Optional fast PZT tuning range (GHz)	1, 10, 20	1, 10, 20, 30
Absolute wavelength accuracy (0.01 nm)	± 5; (±2 Optional)	
Output power (mW) @ 1064nm & 1550nm	10, 20, 40, 80, 100, 125, 175	
Power stability (%RMS)	± 0.10	
RIN level (dBc/Hz @ 1MHz)	< -120; (<-130* Optional)	
RIN level (dBc/Hz @ 100MHz)	≤ -165 †	
Linewidth (Hz)	< 400; (< 200* Optional)	
Frequency noise (Hz/√Hz)	55 @ 100Hz; (30 @ 100Hz* Optional)	
Optical S/N (dB) (0.05 nm RBW)	> 80	
SMSR (dB) (3MHz RBW)	> 75	
Frequency stability (MHz):	< ±20; (± 0.25 Optional) ǂ	
Polarization extinction ratio (dB)	> 23	
Fiber pigtail (PM FC/APC as standard)	1m, Panda PM (SMF Optional)	
Operating temp (°C)	-10 to 55	
Power consumption (W) (10-175mW Output Power)	5 to 30	

* With **SlowLight™** SL130 option
† Shot noise limited RIN @ frequency > 50MHz
ǂ After initial warm-up at room temperature ±1°C

Specifications subjected to change without notice 01-09 Rev. 5



< 100mW Module Dimensions



> 100mW to 175mW Module Dimensions

Ordering Information:

ETH - 40 - 1552.12 – 2 – PZ20 - SL130 – T – SMF

Product Name:
ETH

Power (mW):
10, 20, 40, 80, 100, 175

Wavelength (nm):
1530 - 1565 • 1047 – 1064 (In Vac)

Abs λ Accuracy (±0.01nm):
5 (±0.05nm), 2 (±0.02nm)

Optional PZT Range (GHz)
PZ1, PZ10, PZ20, PZ30

Optional RIN (dBc/Hz@1 MHz)
SL120, SL130

Optional 1MHz Freq Stability
T

Optional O/P Fiber Type:
SMF

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Orbits Lightwave products are protected by a 1yr warranty. This warranty covers all assemblies and components to be free from defects unconditionally for a 1yr period from the date of shipment.

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