

# LM-DFB LASER MODULE

The PureSpectrum™ - Laser Module is a high-performance semiconductor distributed feedback (DFB) laser source module.



TeraXion's PureSpectrum™ LM is offered in a compact package suitable for integration in embedded designs / OEM instrumentation.

This fully integrated module uses state-of-the-art low noise electronics. This ruggedized OEM laser comprises a semiconductor diode, a low noise laser driver and electronic controls.

## Features

- Linewidth < 1 MHz
- Output power up to 100 mW
- Tunable over 50 GHz
- Built-in low-noise current source and temperature controller
- High reliability
- RoHS compliant

## Applications

- LIDAR / remote sensing
- Laser-based metrology system
- Test and measurement / coherent OTDR
- Perimeter detection in security applications

Parameters <sup>(1)</sup>		Units
Wavelength (In Vacuum)	1525 – 1565 / 1617 (ITU grid)	nm
Linewidth <sup>(2)</sup>	< 1	MHz
Frequency Noise	< 1x10 <sup>11</sup> (5 Hz – 100 Hz) < 1x10 <sup>9</sup> (100 Hz – 1 kHz) < 1x10 <sup>8</sup> (1 kHz – 100 kHz) < 1x10 <sup>6</sup> (100 kHz – 100 MHz)	Hz <sup>2</sup> /Hz
Output Power	1525 – 1565 nm : 40, 80 or 100 1617 nm : 60	mW
Side Mode Suppression Ratio	> 30	dB
Polarization Extinction Ratio	> 17	dB
Relative Intensity Noise	< -130 (1 kHz - 10 kHz) < -140 (10 kHz - 1 MHz) < -150 (1 MHz - 1 GHz)	dBc/Hz
Frequency Stability	< 5x10 <sup>-8</sup> at 1 s, < 5x10 <sup>-8</sup> at 100 s	Allan Std. Dev.
Output Type	CW	

Slow Frequency Tuning (Coarse)		Units
Frequency Tuning Method	Control Via Software Command	
Frequency Tuning Range	± 25	GHz
Frequency Tuning Resolution	5	MHz

Option: Fast Frequency Tuning (Fine)		Units
Frequency Tuning Method	Through External Modulation	
Maximum Frequency Tuning Amplitude	± 700	MHz
Modulation Bandwidth (Tuning Speed)	≤ 0.5	MHz
Tuning Voltage Magnitude	-2.5 to + 2.5	V

Electrical Parameters		Units
Power Supply	+ 9 to + 36	VDC
Power Consumption <sup>(3)</sup>	< 4.5	W

Mechanical Parameters		Units
Operating Temperature	- 5 to + 55	°C
Storage Temperature	- 40 to + 85	°C
Humidity Level	95, Non-Condensing	%
Packaging (H x W x L)	30 x 64 x 90	mm
Fiber Type	PM Panda	
Optical Connector Type	FC / APC (Narrow Key), Key Aligned to Slow Axis	

Computer Interface	
Interface	RS-232
Connector	Hirose DF11-12DP-2DS
PC-Side Software <sup>(4)</sup>	TeraXion's PureSpectrum™ Control and Monitoring Software
Power and Communication Module	TeraXion's 12 V PS-PU (Optional)

Typical specifications may vary depending upon user's requirements

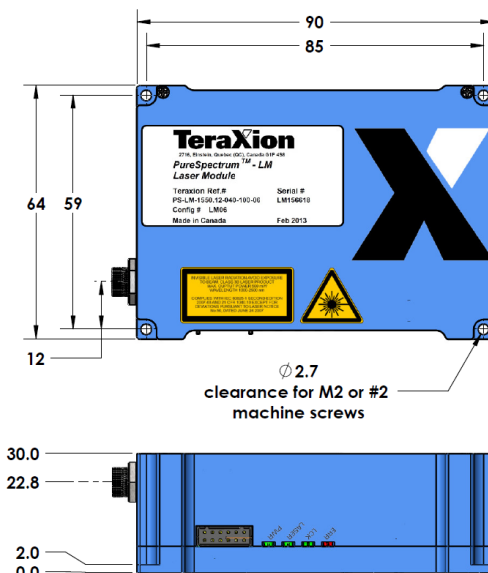
(1) At nominal wavelength

(2) Linewidth measured using a self heterodyne technique (25 km fiber delay). FWHM, Voigt profile

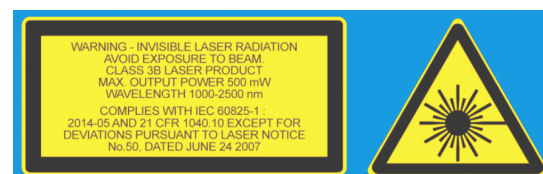
(3) Typical at 25 °C, for 80 mW output power

(4) Windows XP/VISTA/7 compatible

## Outline diagram



## Laser safety information



MKT-FTECH-PS-LM 201805-3.5