ML6601

780 nm single-frequency laser source

This adaptation of Modulight's ML6600 platform is intended to be used for quantum computing and spectroscopy applications.
The platform supports preventive maintenance with predictive analytics and machine learning algorithms, powered by Modulight Cloud.

Applications

The laser system centered at 780 nm is based on Modulight's ML3303 DBR laser diode. The laser properties include single-frequency narrow linewidth operation, low intensity noise, and high beam quality. Fabricated entirely in-house at Modulight, from epitaxial layer growth to system integration, it guarantees exceptional performance. Whether used independently with a PC GUI or seamlessly integrated into OEM systems, its output options as a free-space beam or coupled into a SM/PM fiber provide versatile solutions for your applications. The system is well-suited for Rubidium D2 line absorption spectroscopy.

Electro-optical Characteristics[1]

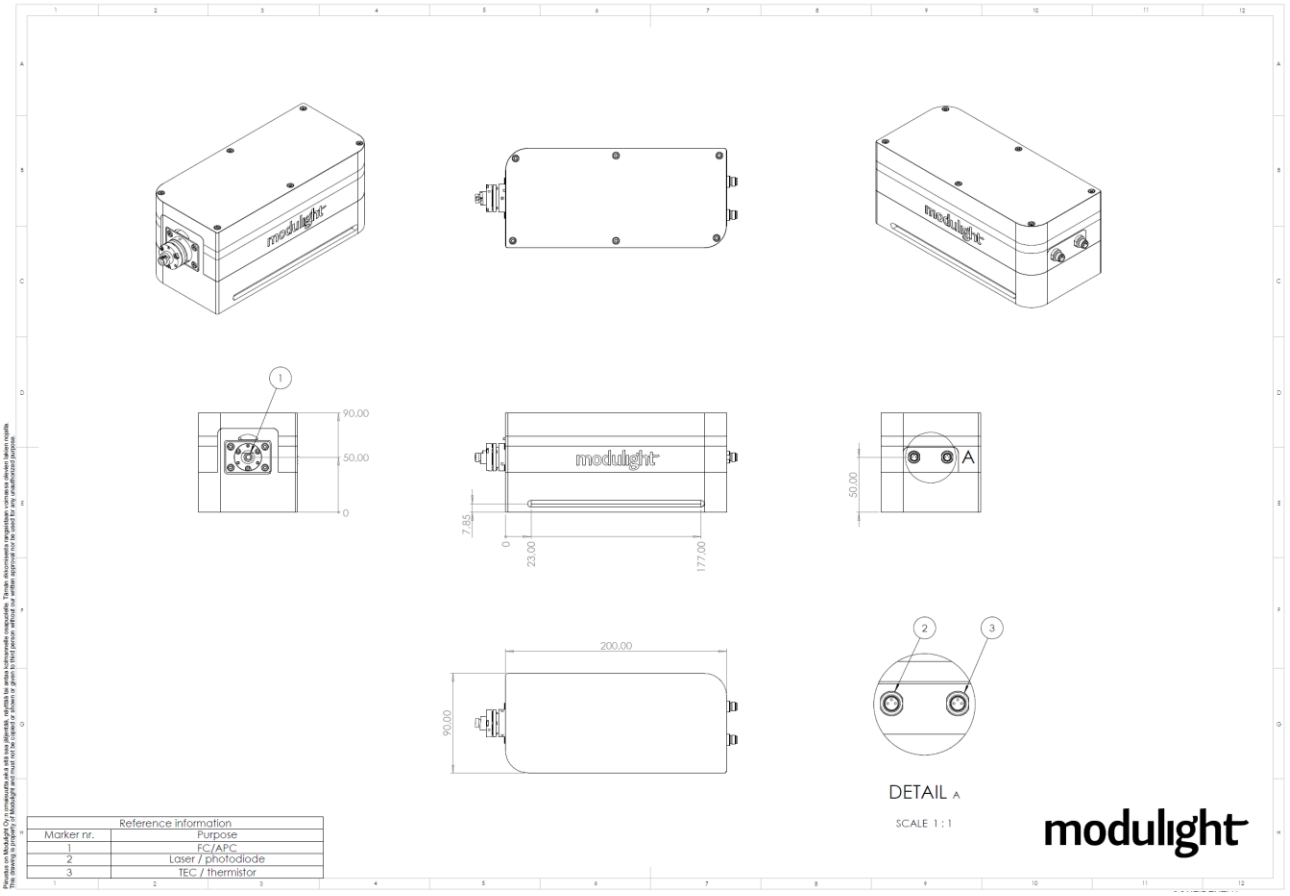
Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Peak Wavelength	λ_P	779.7	780.2	780.7	nm	T_c = 25°C
Laser Linewidth (FWHM)	$\Delta\lambda$	-	400	800	kHz	Range 100-250 mA, T_c = 25°C
Side Mode Suppression Ratio	SMSR	40	45	-	dB	
Wavelength temperature coefficient	$d\lambda/dT$	-	0.05	-	nm/°C	
Wavelength current coefficient	$d\lambda/dI$	-	0.002	-	nm/mA	
Free-space optical output power	P_{OP}	100	120	-	mW	I_{OP}= 250 mA
Fiber-coupled optical output power	$P_{OP\text{-}Fiber}$	70	85	-	mW	I_{OP}= 250 mA
Mode structure	TEM(00)					
Laser polarization	TM					

[1]Tailored configurations available

General characteristics

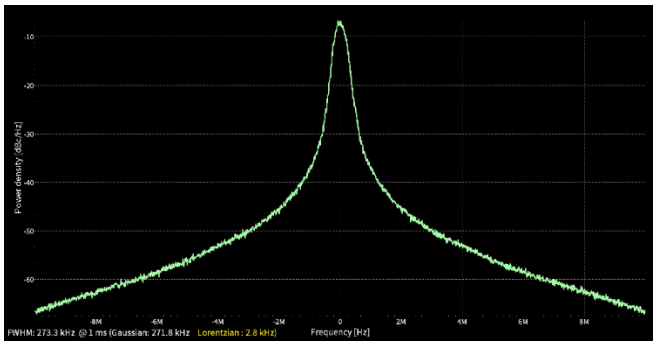
Parameter	Specification	Unit
Dimensions	200 x 90 x 90	nm
Cooling	Passive	
Supply Voltage	24	VDC
Communication Interface	RS232, RS422	
Baseplate Temperature, max.	<40	°C
Ambient Operating Temperature	18-35	°C

Mechanical Specification

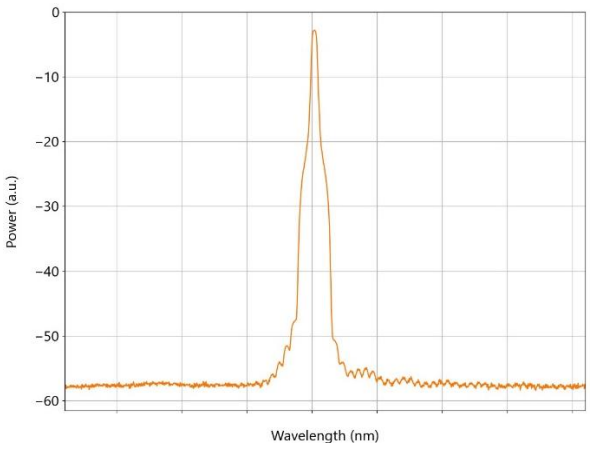


All dimensions are millimeters (mm).

Typical performance



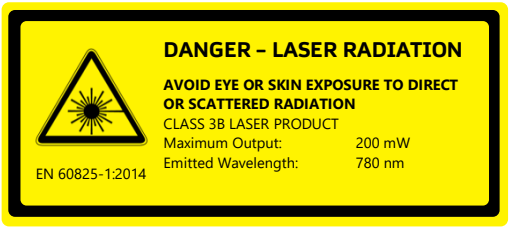
780 nm DBR laser linewidth measurement with <300 kHz FWHM.



Typical spectrum of Modulight's DBR laser centered at 780 nm.

Safety Information

- ❑ The laser light emitted from this laser diode is invisible and potentially harmful to the human eye. Avoid eye and skin exposure to the beam, both direct and reflected.
- ❑ Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload. Please ensure ESD protection prior to handling the products.
- ❑ These Modulight products are not intended for use in systems where product malfunction can reasonably be expected to result in personal injury.



Peak power and wavelength are for safety analysis only, not to present device performance.

Liability note

This document is sole property of Modulight Corp. No part of this document may be copied without written acceptance of Modulight Corp. All statements related to the products herein are believed to be reliable and accurate. However, the accuracy is not guaranteed, and no responsibility is assumed for any inaccuracies or omissions. Modulight Corp. reserves the right to make changes in the specifications at any time without prior notice.

RoHS compliance

The product complies with EU RoHS 2 (Directive 2011/65/EU) and China RoHS II (Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products)