NICHIA

Tunable Laser Module

NUV603E

Engineering Sample

■Outline

NUV603E is 405nm Tunable Laser for Holographic Data Storage, Interferometer and Analysis. The Laser is packaged in small size housing with sensors of mode, wavelength and power.

■Features

- Longitudinal Single Mode Lasing : SMSR >20dB
- Wide Wavelength Tuning : +/-3nm
- Intelligence Cavity
- High Beam Focus Stability
- Collimating Beam and Low WFE
- Athermalization



■Absolute Maximum Ratings (Ta=23°C unless otherwise noted)

Item	Symbol	Absolute Maximum Ratings	Unit
Optical Output Power	P_o	65	mW
Storage Temperature	T_{stg}	-20 ~ 60	deg.C
Operating Temperature	T_a	10 ~ 40	deg.C
Operating Relative Humidity	RH	85 *1	%
AC Adaptor Input Voltage	V_{AC}	100 ~ 240	V

*1: Without dewfall.

■Initial Electrical/Optical Characteristics (Ta=23°C unless otherwise noted)

Item		Condition	Symbol	Min	Typ.	Max	Unit
Optical Output Power		CW over tuning range	P_o	40	-	45	mW
Threshold Current		Peak wavelength	I_{th}	-	40	55	mA
Current at Pmin		CW over tuning range	I_{op}	-	75	110	mA
Spectral Side Modes *2		CW 40 mW	SMSR	20	30	-	dB
Linewidth (Instantaneous) *2		CW 75mA	BW	-	130	-	kHz
Tuning Band Center Wavelength		CW 75mA	λpk	404	405	406	nm
Tuning Range		CW 75mA	TR	λpk±3	-	-	nm
Absolute Wavelength Accuracy		CW 75mA	Δλ	-0.15	-	0.15	nm
Output Beam Dimensions	TE mode	CW 75mA	D_{TE}	1.04	1.47	1.90	mm
	TM mode	CW 75mA	D_{TM}	2.26	2.97	3.67	mm
	Ellipticity	CW 75mA	ASP	1.19	2.36	3.53	-
Wavefront Error [RMS]		CW 75mA	WFE	-	0.05	0.10	λ
Beam Pointing Shift X&Y		CW 75mA 402, 405, 408nm	Δθ	-0.2	-	0.2	mrad

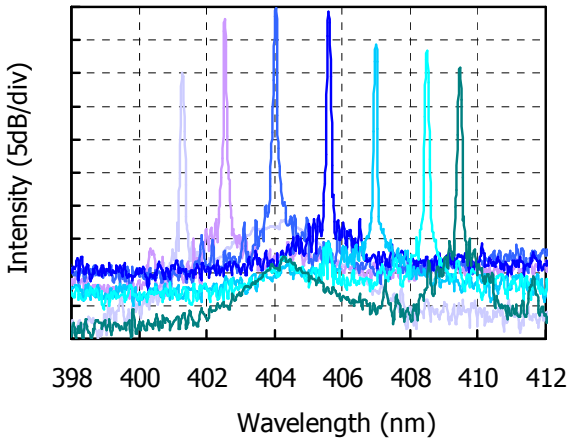
*2: Design assurance

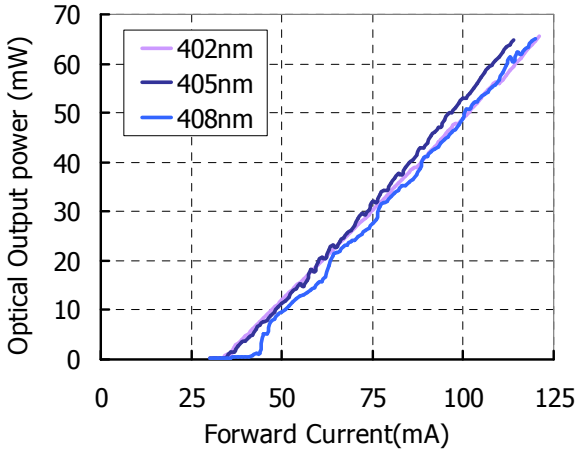
All figures in this specification are measured by Nichia's method and may contain measurement deviations.
This model is Engineering Sample for evaluation or design purpose only. Life time is not guaranteed.
The above specifications are for reference purpose only and subjected to change without prior notice.

NICHIA CORPORATION
http://www.nichia.co.jp

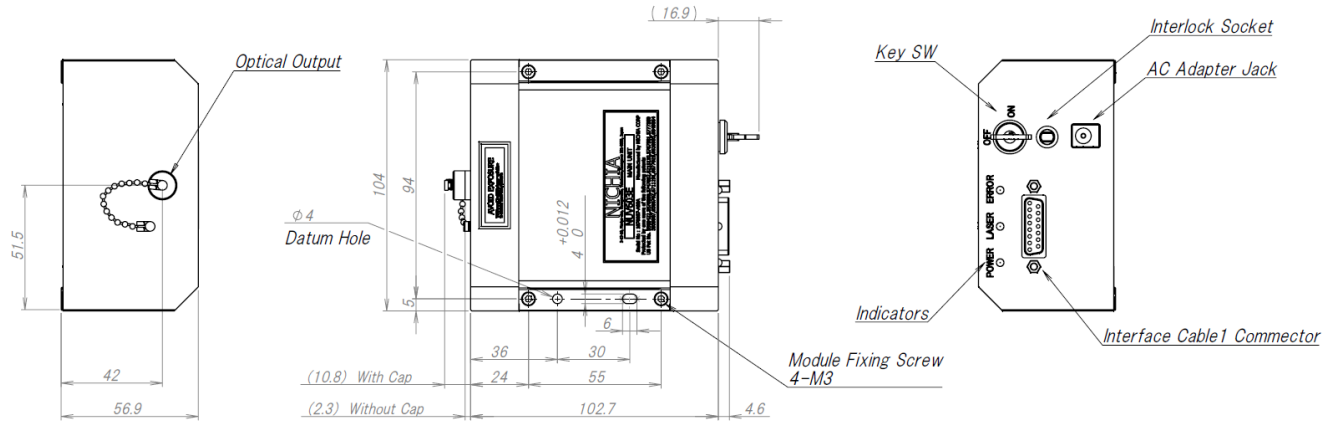
◆ SALES CONTACT
TOKYO SALES OFFICE
13F Tamachi Center Building 34-7, Shiba 5-Chome, Minato-Ku, TOKYO 108-0014, JAPAN
PHONE: +81-3-3456-3108 FAX: +81-3-5440-7330
◆TECHNICAL CONTACT
YOKOHAMA TECHNOLOGY CENTER
13-19, 3-Chome, Moriya-Cho, Kanagawa-Ku, Yokohama-shi, KANAGAWA 221-0022, JAPAN
PHONE: +81-45-444-0030 FAX: +81-45-444-0032

■Typical Initial Electrical/Optical Characteristics

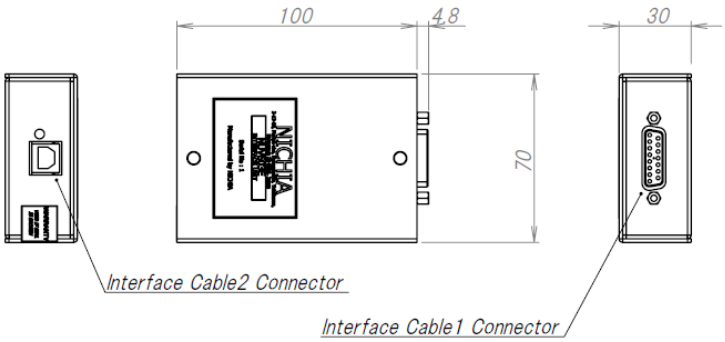




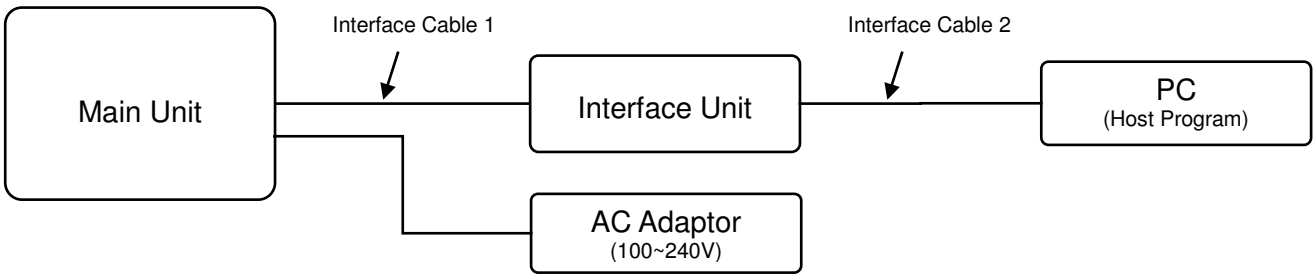
■Outline Dimensions (Optical Unit)



Interface Unit



■System Block Diagram



■Cautions

(1) Safety of Laser light

- **Laser Light can damage the human eyes and skin. Tunable Laser beams are extremely dangerous to human eyes.** Do not expose the eye or skin to any Laser light directly and/or through optical lens. When handling the Tunable Laser Modules, wear appropriate safety glasses to prevent Laser light, even any reflections from entering to the eye. **Focused Laser beam through optical instruments will increase the chance of eye hazard.**





- This Nichia Tunable Laser Module is classified in **Class 3B of IEC60825-1 and Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.** It is absolutely necessary to take overall safety measures against User's equipment and systems into which Nichia Tunable Laser are incorporated and/or integrated.

(2) Operating Method

- Please follow instructions manual for operation; otherwise Tunable Laser will malfunction or characteristics will be degraded.
- Cable connectors must be connected firmly before supplying electrical source. In addition electrical cable must keep connecting during operating the Tunable Laser.
- Tunable Laser characteristics especially Laser longitudinal mode will be degraded by own feed back beam or other reflected beam such as stray light. In order to maintain the Laser characteristics, installing optical Isolator or other substitute optical components are recommended

(3) Static Electricity

- Static electricity or electrical surges will reduce and degrade the reliability of the Tunable Laser. It is recommended to use a wrist strap or anti-electrostatic glove when handling the Product.

(4) Absolute Maximum Rating

- Active layer of Tunable Laser shall have high current density and generate high electric field during its operation. In order to prevent excessive damage, the Tunable Laser must be operated strictly below Absolute Max Rating.

(5) Others

- Nichia Tunable Laser described in this brochure is intended to be used for ordinary electronic equipment (such as Holographic data Storage, Interferometer instruments, Analysis and measurement instruments). Consult Nichia's sales staff in advance for information on the applications in which exceptional quality and reliability are required, particularly when the failure or malfunction of the Tunable Laser may directly jeopardize life or health (such as for airplanes, aerospace, submersible repeaters, nuclear reactor control systems, automobiles, traffic control equipment, life support systems and safety devices).
- The Purchaser must acknowledge that any Tunable Laser can be failed statically and must design its equipments fail safe design. Prior to use of the Tunable Laser, please confirm that the Tunable Laser as described in Nichia's specifications, meets the life expectancy needs of, and provides the features required by the Circuit and any related modules, equipment and/or systems.
- Nichia prohibit Purchaser from reverse engineering, disassembling, or taking any other steps to derive the structure or design of the Tunable Laser.
- The appearance and specifications of the product may be modified for improvement without notice. The formal specifications must be exchanged and signed by both parties before large volume purchase begins.
- No unauthorized transmission or reproduction of this document, either in whole or in part, is permitted.