
Stabilized HeNe Laser



SL 04-Series

Design and Operation

Our SL 04-Series stabilized HeNe lasers employ a dual longitudinal mode stabilization technique providing high frequency and amplitude stabilities, low optical feedback, and extremely rapid warm-up. They consist of a compact cylindrical head incorporating the laser tube, plus a separate table-top housing incorporating a high-voltage supply and control electronics equipped with a front-panel switch for selecting frequency-stabilized or amplitude-stabilized mode of operation. An internal thread at their beam exit provides a rigid mounting for mechanical shutters or various types of optical components. Fiber couplers mating to singlemode or multimode fibers are available as an option.

Technical Data		Model SL 04/1
Wavelength	nm	632.8
Output power	mW	≥ 1.2 (typ. 1.5)
Amplitude noise (30 Hz - 10 MHz)	%	< 0.2
Beam diameter (TEM ₀₀)	mm	0.55
Beam divergence (TEM ₀₀)	mrad	1.5
Beam polarization		linearly polarized longitudinal mode
Warm-up time to achieve stable operation	min	≤ 10
with frequency control: Frequency stability over 1min / 1h / 24h relatively or absolutely after 40 min warm-up	MHz	± 1·10 ⁻⁹ / ± 2·10 ⁻⁹ / ± 5·10 ⁻⁹ ca. ± 0,5 / ± 1 / ± 2,5
Amplitude stability	%	< 5
with amplitude control: Amplitude stability 1min / 24h	%	< 0.2 / < 0.3
Max. thermal frequency drift	MHz/K	< 1
Max. tolerated optical feedback		< 10 ⁻⁵
Operating temperature range / Storage temperature range	°C	+ 15 ... + 30 / - 20 ... + 50
Typical life time	h	30,000
Power consumption in stabilized condition	W	< 20
Line voltage	AC	100 ... 240 V / 47 ... 63 Hz
Dimensions of laser head [Ø x L] / electronic unit [W x H x D]	mm	Ø 45 x 314 / 172 x 60 x 230
Internal thread at beam exit		1.000"-32 (C-Mount)
Length of cable between laser head and electronic unit	m	1 (optional bis 2)
Weights of laser head incl. cable / electronic unit	g	900 / 1,600
Laser safety class according to EN 60825-1 / ANSI Z136.1 (CDRH)		3R / IIIa

Major Features and Benefits

- High frequency or amplitude stability
- Two operation modes: frequency stabilized or amplitude stabilized
- Rapid warm-up
- Compact design
- Internal thread at beam exit for installing items such as fiber couplers
- Bear the CE-symbol certifying compliance with:
EC-Guidelines: 73/23/EEC und 89/336/EEC
Harmonized EN-Standards: EN 61010-1,
EN 60825-1, EN 55011 and EN 50082-1



Options

- Certificate with absolute frequency measured in comparison with an iodine-stabilized HeNe laser
- Marking indicating the beam's plane of polarization
- Adjustable operating temperature range
- Fiber coupler installation and alignment
- Installation and alignment of a Faraday isolator in order to eliminate back reflections
- Longer laser head on request

SIOS Meßtechnik GmbH

Am Vogelherd 46
D-98693 Ilmenau, GERMANY
Phone: +49-3677-64470 E-mail: info@sios.de
Fax: +49-3677-64478 URL: http://www.sios.de

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