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# Stabilized HeNe Laser



## SL 03-Series

## Design and Operation

Our SL 03-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 03/1
Wavelength	nm	632.8
Output power	mW	≥ 0.8 (typ. 1.0)
Amplitude noise (30 Hz - 10 MHz)	%	< 0.2
Beam diameter (TEM <sub>00</sub> )	mm	0.55
Beam divergence (TEM <sub>00</sub> )	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 <sup>-9</sup> / ± 2·10 <sup>-9</sup> / ± 5·10 <sup>-9</sup> approx. ± 0.5 / ± 1 / ± 2.5
Amplitude stability	%	< 5
with Amplitude control: Amplitude stability 1min / 24h	%	< 0.2 / < 0.3
Maximum thermal frequency drift	MHz/K	< 1
Maximum tolerated optical feedback		< 10 <sup>-5</sup>
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 / frequency	AC	100 ... 240 V / 47 ... 63 Hz
Dimensions of laser head [Ø x L] / electronic unit [W x H x D]	mm	Ø 34.9 x 280 / 172 x 60 x 230
Internal thread at beam exit		1.279"-32
Length of cable between laser head and electronic unit	m	1 (optionally up to 2)
Mass of laser head incl. cable / electronic unit	g	600 / 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 reflection

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