

LGN-118-3V LASER

LGN-118-3V model represents helium-neon three-wavelength laser, which can operate either in the mode of separate operation at 0.63 μm , 1.15 μm and 3.39 μm wavelengths or in the mode of simultaneous emission in IR band at 1.15 μm and 3.39 μm wavelengths. The selection of operation mode is performed by means of adjustment screw at the rear face of the laser head or by $10^\circ \div 15^\circ$ turn of the laser head with respect to its longitudinal axis and placing of proper optical filters in the filter unit, which is located on the output face of the laser head. The principle of operation of three-wavelength laser is based on physical phenomenon implying competition of emissions at 0.63 μm and 3.39 μm by usage of three-mirror cavity. In the device mirrors having complex optical properties are used. Optical properties of the mirrors are optimized for generating emission in three-mirror cavity at 0.63 μm , 1.15 μm and 3.39 μm lines with sufficiently high output power.

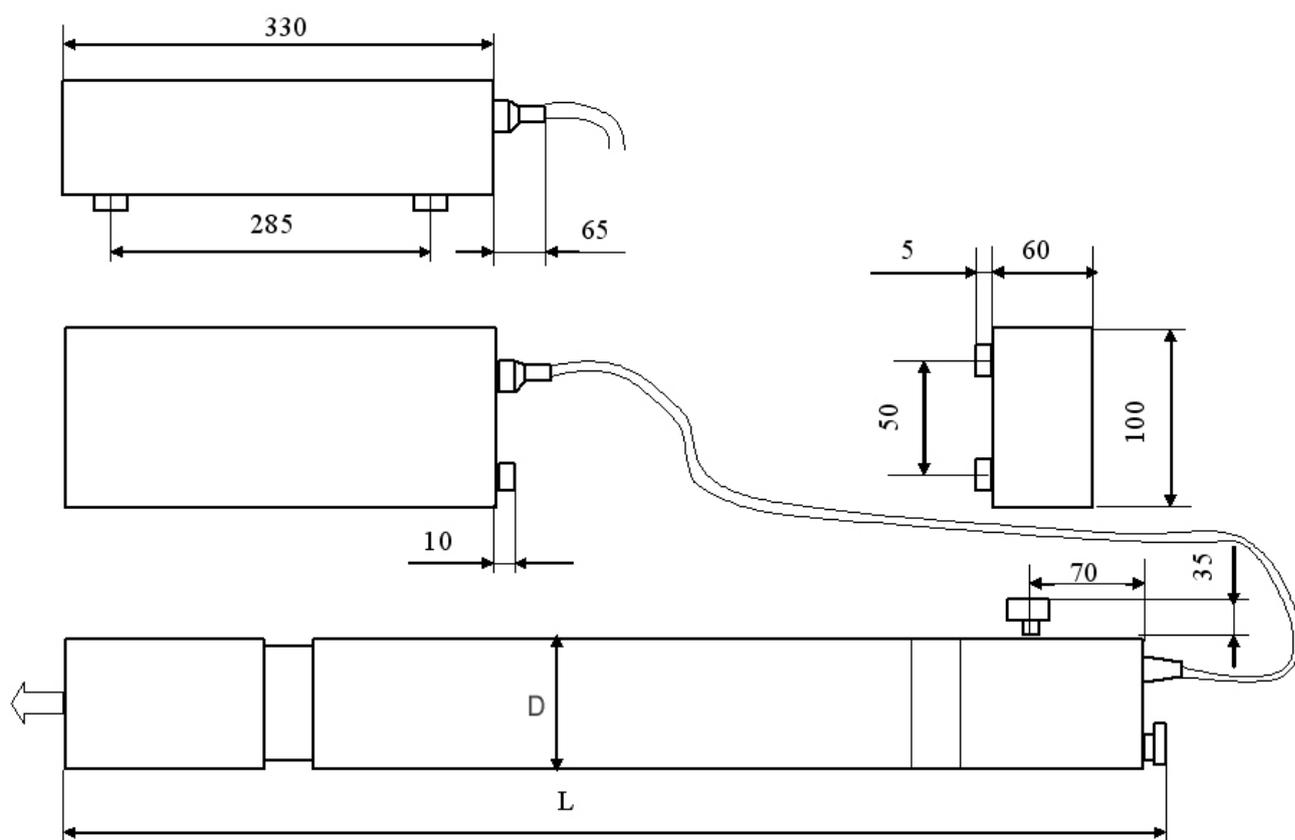


Structurally the laser head consists of coaxial glass-metal tube with cold cathode mounted into cylindrical metal housing. Three mirrors forming two cavities are rigidly fixed on the tube casing through transition flanges and sockets by means of hard sealing. Hard seal of the tube assemblies and mirrors provides stable adjustment of cavity and high laser lifetime. The usage of common mirrors in laser design and their relative immobility during the process of laser switching from one mode to another allows matching and saving the courses of their beams at the laser head output with high accuracy during all its lifetime. This fact is very important, for instance, during the adjustment of different IR optical systems, irradiation of microscopic objects etc.

Three-wavelength LGN-118-3V laser can be applied in various scientific and technical fields connected with IR technology including IR fiber optics, lines of communication, adjustment of radiotelescope antennas etc. The development of covert security systems, remote laser gas detectors of methane leakages and suchlike equipment may also require this kind of device.

Parameters	LGN-118-3V
Wavelength, μm	0.63 / 1.15 / 3.39
Output power, mW, not less	10.0 / 5.0 / 5.0
Spectral structure	TEM _{mn}
Polarization	100:1
Beam diameter, mm, not more	3.0 / 3.5 / 4.0
Beam divergence, mrad, not more	3.5 / 4.0 / 4.0
Supply mains	220V, 50Hz.
Power consumption, W, not more	80
Operating temperature, °C	+10...+40
Warranty lifetime, h	5000
Mean life, h	25000
Dimensions of laser head, mm, not more	Ø56x930
Dimensions of power supply, mm, not more	100x65x330
Mass, kg, not more (laser head/power supply)	3.0 / 2.5

Dimensional drawing



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