

LASERMATE GROUP, INC.

THE FRIEND OF LASERS

LTG85LAR-Y-K8 — A Class 1 850 nm Random-Dot DOE Structured Light Laser Module

Overview

The LTG85LAR-Y-K8 is a Class 1, 850 nm continuous-wave (CW) structured-light laser module integrating a single-mode 850 nm laser diode, a precision Diffractive Optical Element (DOE), an adjustable-focus optical design, and an IEC 60825-compliant Automatic Power Control (APC) circuit driven by a standard 3–5 VDC supply.

The laser module projects either 10,000 or 30,000 random dots over an $80^\circ \times 64.4^\circ$ FOV, with a DOE contrast of ≥ 10 and ≥ 3 , respectively. The adjustable-focus optical design enables optimization of the projected dot pattern for the desired working distance.

CW operation provides continuous, stable illumination during camera exposure for efficient photon collection and consistent dot intensity. The APC circuit maintains controlled optical output for stable and repeatable performance in indoor active-stereo 3D sensing, machine vision, and other optical sensing applications.

Features

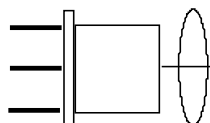
- Class 1 laser module with IEC 60825-compliant APC circuit
- IEC 60825-compliant eye-safety design
- CW operation with 3–5 VDC supply
- 850 nm single-mode laser diode
- Adjustable-focus optical design

Indoor Applications

- Active stereo 3D sensing
- 3D depth sensing
- Machine vision
- Robotics and automation
- Industrial inspection & measurement

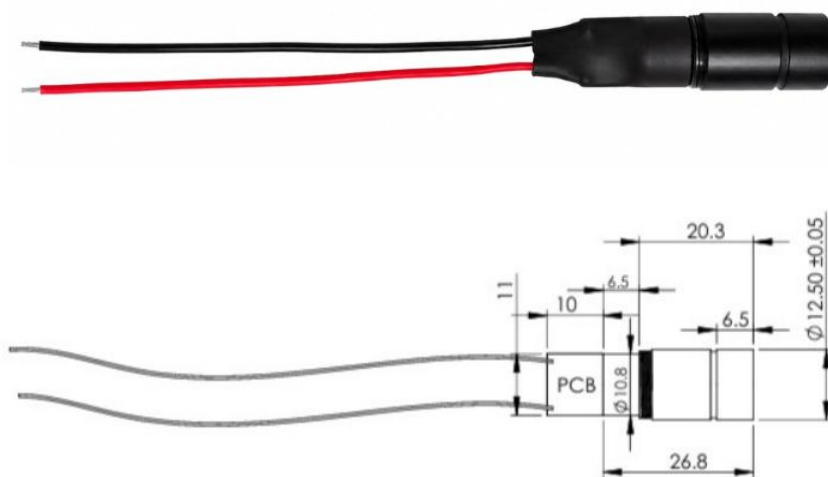
Specifications

Parameter	LTG85LAR-10-K8	LTG85LAR-30-K8
Wavelength @ 25 °C	850nm $\pm$ 10nm	
Laser driver circuit design	IEC 60825 compliant APC circuit	
Optical output power at 10cm*	0.10mW ~ 0.30mW (0.18mW typ.)	
Laser class	Class 1	
Safety margin	$\geq 22.8\%$ Safety margin to AEL for 850nm	
Focus	Adjustable focus	
Number of DOE random dots	10,000	30,000
DOE Contrast*	≥ 10	≥ 3
DOE Field of View (FOV)	$80^\circ \times 64.4^\circ$ (H x V)	
Area of FOV at 100 cm distance	~168 cm x 126 cm	
Operating voltage	3 to 5V DC	
Operation current @ 25 °C	≤ 120 mA	
Operating temperature	-10°C to 60°C	
Storage temperature	-40°C to 85°C	
Wire connection	Red wire: positive; black wire: negative	
Housing	Black housing body: insulated; Brass housing: positive	
Dimensions	Insulated Black Housing: $\varnothing 12.5$ mm x L 20.3mm Positive Brass Housing: $\varnothing 10.8$ mm x L 6.5mm Driver PCB: L. 10 mm x W. 11 mm	



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Mechanical outline (Unit: mm)

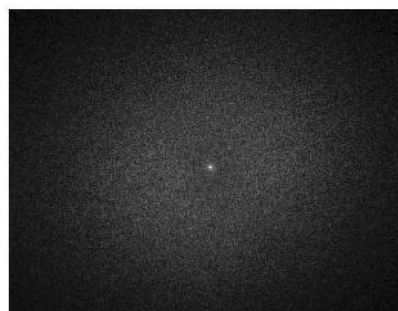


Random dots pattern:

10,000 dots



30,000 dots



Notes:

- * Optical output power includes a zero-order spot measured by a 7mm diameter detector at 10cm distance.
- * DOE Contrast is defined as the ratio of the 95th percentile of the grayscale value over the median grayscale value of the background.
- * Additional heat sink or cooling device may be needed if the laser module is operated continuously for a period of time.
- * The LTG- series DOE laser modules are designated solely as OEM components for incorporation into the customer's end products. Therefore, it is the customer's responsibility to comply with the appropriate requirements of FDA 21CFR, section 1040.10 and 1040.11 for complete laser products. For the code of FDA regulations, please refer to [FDA Performance Standards for Light-Emitting Products](http://www.fda.gov/oc/ohrt/standards.html) for detailed information.
- * Specifications are subject to change without notice.