

GMP94H-XX-R-Y-K7 — A Class 1 940 nm Random-Dot DOE Structured Light Laser Module

Overview

The GMP94H-XX-R-Y-K7 is a Class 1, 940 nm continuous wave (CW) structured-light laser module integrating a single-mode 940 nm laser diode, a precision Diffractive Optical Element (DOE), a customer-specified fixed nominal focus distance, and an Automatic Power Control (APC) circuit driven by a standard 3–5 VDC supply.

The laser module projects either 15,000 or 30,000 random dots across a $70^\circ \times 55.5^\circ$ FOV with a DOE contrast ≥ 10 or ≥ 3 , respectively. The customer-specified fixed nominal focus distance up to 150 cm offers 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

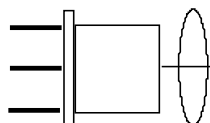
- Class 1 laser with 940nm single-mode laser diode
- CW operation from a 3–5 VDC supply
- Integrated Automatic Power Control (APC) circuit
- Customer-specified nominal focus distance, up to 150 cm
- IEC 60825 eye-safety standards

Indoor Applications

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

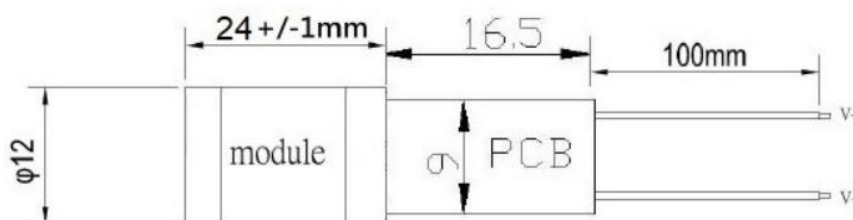
Specifications

Parameter	GMP94H-XX-R15K7	GMP94H-XX-R30K7
Wavelength @ 25 °C	940nm $\pm$ 10nm	
Laser driver circuit design	Automatic Power Control (APC) circuit	
Operation Mode	CW (Continuous Wave)	
Optical output power at 10cm*	0.60mW ~ 0.90mW (0.80mW typ.)	
Laser class & Safety margin	Class 1; $\geq 23.6\%$ Safety margin to AEL for 940nm	
Fixed Nominal Focus Distance	Customer specified, up to 150 cm; application dependent. “XX” denotes the fixed nominal focus distance in cm. Example: XX=65 $\rightarrow$ 65 cm; XX=110 $\rightarrow$ 110 cm.	
Number of DOE random dots	15,000	30,000
DOE Contrast*	≥ 10	≥ 3
DOE Field of View (FOV)	$70^\circ \times 55.5^\circ$ (H x V)	
Area of FOV at 100 cm	~168 cm x 94 cm	
Operating voltage	3 to 5V DC	
Operation current @ 25 °C	≤ 300 mA	
Operating temperature	-10°C to 60°C	
Storage temperature	-40°C to 85°C	
Wire connection	Red wire: positive; black wire: negative	
Housing	Brass housing: positive	
Dimensions	Housing: $\varnothing 12$ mm x L. 24 ± 1 mm; Driver PCB: L. 16.5mm x W. 9 mm	



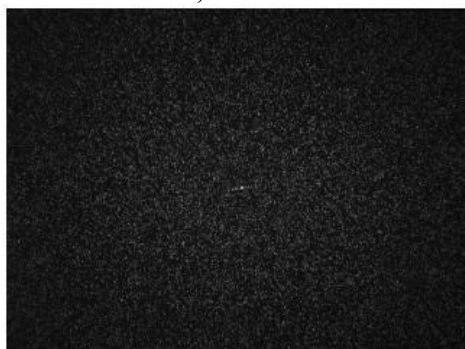
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Mechanical outline (Unit: mm)

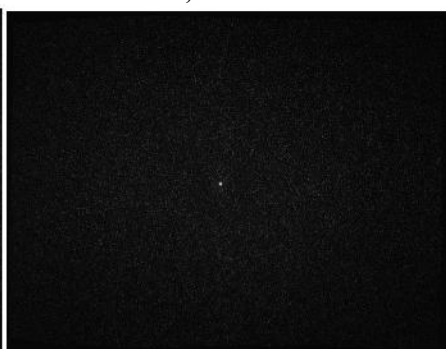


DOE random dots pattern

15,000 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 long period of time.
- * The GMP- 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](#) for detailed information.
- * Specifications are subject to change without notice.