

## **GMP85L-XX-R-Y-K8 — A Class 1 850 nm Random-Dot DOE Structured Light Laser Module**

### **Overview**

The GMP85L-XX-R-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), a customer-specified fixed nominal focus distance, 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  $\geq 10$  and  $\geq 3$ , 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**

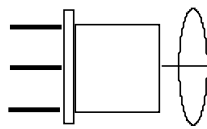
- Class 1 laser module with IEC 60825-compliant APC circuit
- IEC 60825 eye-safety compliant design
- CW operation with 3–5 VDC supply
- 850 nm single-mode laser diode
- Customer-specified nominal focus distance, up to 150 cm

### **Indoor Applications**

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

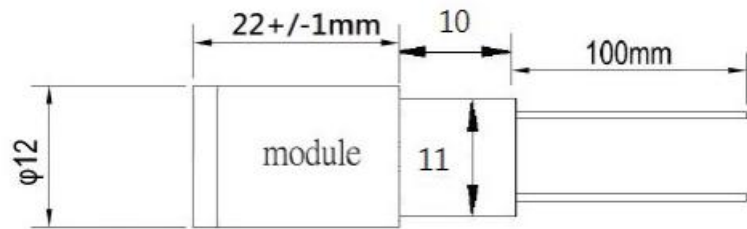
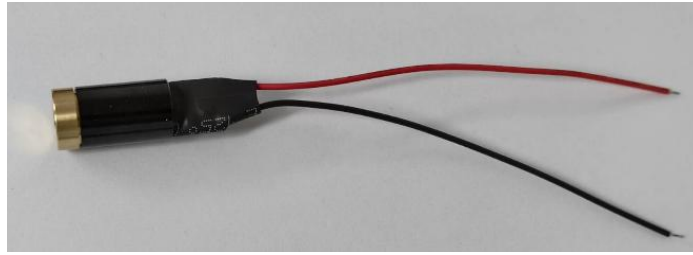
### **Specifications**

| Parameter                     | GMP85L-XX-R-10K8                                                                                                                                                                     | GMP85L-XX-R-30K8 |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Wavelength @ 25 °C            | 850nm $\pm$ 10nm                                                                                                                                                                     |                  |
| Laser driver circuit design   | IEC60825 compliant APC circuit                                                                                                                                                       |                  |
| Operation Mode                | CW (Continuous Wave)                                                                                                                                                                 |                  |
| Optical output power at 10cm* | 0.30mW ~ 0.60mW (0.50mW typ.)                                                                                                                                                        |                  |
| Laser class & Safety margin   | Class 1; $\geq 22.8\%$ Safety margin to AEL for 850nm                                                                                                                                |                  |
| Fixed Nominal Focus Distance  | Customer specified, up to 150 cm; application dependent.<br>“XX” denotes the fixed nominal focus distance in cm.<br>Example: XX=65 $\rightarrow$ 65 cm; XX=110 $\rightarrow$ 110 cm. |                  |
| Number of DOE Random Dots     | 10,000                                                                                                                                                                               | 30,000           |
| DOE Contrast*                 | $\geq 10$                                                                                                                                                                            | $\geq 3$         |
| DOE Field of View (FOV)       | $80^\circ \times 64.4^\circ$ (H x V)                                                                                                                                                 |                  |
| Area of FOV at 100 cm         | ~168 cm x 126 cm                                                                                                                                                                     |                  |
| Operating voltage             | 3 to 5V DC                                                                                                                                                                           |                  |
| Operation current @ 25 °C     | $\leq 120$ mA                                                                                                                                                                        |                  |
| Operating temperature         | $-10^\circ\text{C}$ to $60^\circ\text{C}$                                                                                                                                            |                  |
| Storage temperature           | $-40^\circ\text{C}$ to $85^\circ\text{C}$                                                                                                                                            |                  |
| Wire connection               | Red wire: positive; black wire: negative                                                                                                                                             |                  |
| Housing                       | Black housing body: insulated;<br>Brass front cap: positive                                                                                                                          |                  |
| Dimensions                    | Housing: $\varnothing 12$ mm x L. $22 \pm 1$ mm;<br>Driver PCB: L. 10mm x W. 11mm                                                                                                    |                  |



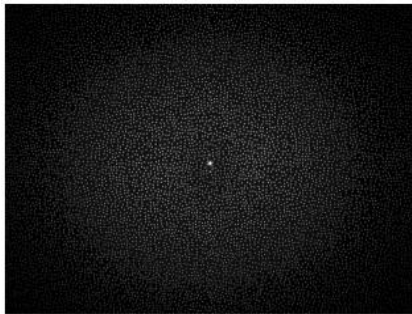
**LASERMATE GROUP, INC.**  
**THE FRIEND OF LASERS**

**Mechanical outline (Unit: mm)**



**DOE 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 cooling device may be needed if the laser module is operated continuously for a 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.