

LED-OM for DMD Discovery™ 1100 / 3000

LED integrated optical module



General

The Digital Light Processing™ of Texas Instruments Inc. represents a proven technology for projection and display applications of the digital micromirror device DMD. In addition, the general purpose chipset DMD Discovery™ is a platform for scientists and engineers to develop new engineering applications using Digital Light Processing™. Meanwhile, a variety of DMD components and accessories can be purchased. The LED-OM optical module is a compact illumination and projection component made available for DMD Discovery™ users to operate the micromirror device instantly. It mounts directly on the DMD spring mount interface and provides visible pattern projection without the need of an optical bench and an additional light source. The LED-OM optics can be used with both the DMD Discovery™1100 and DMD Discovery™3000 0.7" XGA models.

Description

The ultra-compact optical module integrates a 10 W high-power LED light source coupled into a Carl Zeiss projection module. The LED output is homogenized in a mixing rod and illuminates the DMD through a relay system. The Carl Zeiss proprietary field lens design provides high optical efficiency for the projection output. The zoom lens allows for adjusting the desired output angle. The projection output is off-axis. The optical module is designed for the use with visible light and a selection of different LED colors is available.



Specifications

Optical key parameters

Focus range	1.5 – 5 m (overdrive from 1m to 10m)
Zoom ratio	ZR = 1,16
F number	2,6 (wide) ... 2,9 (tele)
Throw ratio (distance to image width)	TR = 1,8 to 2,1
Projection offset	125%
Modulation Transfer Function (MTF)	45% ... 52% @ 36Lp / mm
Light efficiency	48% of light input in acceptance angle
Contrast	1900 :1 Full-On-Full-Off / 420:1 IEC
Uniformity	+25% / -30 % (IEC)
Image distortion	≤ 8 pixel Keystone; ≤ 2 pixel Barrel
Dimensions	65 mm (W) x 115 mm (L) x 44 mm (H)
Weight	300 g

High-power LED Light sources

The customer may select one of the following LED light source for its application. Customized light sources can be integrated on request.

Color	Wavelength	LED output
RED	629 nm	245 lm
GREEN	527 nm	230 lm
BLUE	460 nm	55 lm
WHITE	-	225 lm

Delivery package

- LED-OM integrated optical module
- LED power supply
- 12 V AC/DC adapter and cables

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