

Lens-specific dimmable module



AI Overview

Lens-specific dimmable modules are optical components that can dynamically adjust light transmission or focus, enabling enhanced visual performance in AR/VR, embedded vision, and other optical systems.

Overview

Lens-specific dimmable modules are designed to modulate light at the lens level, either globally or at the pixel level, to improve image clarity, contrast, and user comfort. These modules often use flexible liquid crystal (LC) technology, allowing them to be extremely thin, lightweight, and adaptable to curved surfaces, which is critical for wearable devices like AR/VR headsets.

Key Features

- Ambient Dimming:** Modules can switch light transmission rapidly (e.g., ~10 milliseconds) to adapt to changing lighting conditions, providing global dimming for unpolarized light.
- Pixel-Level Dimming:** When integrated with advanced thin-film transistor technology, modules can achieve spatial dimming, enhancing the visibility and solidity of virtual objects.
- Tunable Lens Power:** Some modules offer continuously adjustable lens power (e.g., 0 to 1 dioptres) to actively focus visible light, aligning perceived and actual image depth.
- Compact and Lightweight:** Typical modules have diameters of 30–50 mm, thicknesses of 100–200 microns, and masses of less than a gram, making them suitable for integration into small devices.
- Curvature Adaptability:** Flexible LC films can be biaxially curved to match 3D surfaces, reducing device volume and weight.

Applications

- AR/VR Headsets:** Enhances visual comfort, immersion, and focus adjustment for virtual objects.
- Embedded Vision Systems:** Improves image quality in robotics, industrial inspection, and medical imaging by optimizing lens performance for AI algorithms.
- Projection and Display Systems:** Can be integrated into optical engines for DLP or LED-based projection modules to control brightness and contrast dynamically.
- Industrial and Security Cameras:** Provides low-light optimization, wide field-of-view imaging, and adaptive light control for surveillance or outdoor applications.

Integration Considerations

Article Content

Electrochromic devices for dimming and display in augmented reality ...

Electrochromic devices capable of dynamically regulating optical properties hold promise as dimming devices for augmented reality glasses.

VIA 3 RECESSED

Module Options luminaires. Each lighting fixture can be installed as a discrete luminaire or in continuous runs or patterns. Via 3 Recessed is offered with Lambertian, asymmetric, widespread, wall wash, low

GaN-based mini-LED matrix applied to multi-functional forward

Besides, to extend the functionality of the headlamp module, we propose to dispense IR phosphor on LED dies in the high-beam zone of the GaN-based mini-LED matrix.

Understanding LED Dimming Options

To delve into dimming options for different LED applications, let's explore the versatility of adjusting lighting levels to suit specific needs. Whether

FlexEnable's flexible active optics AR/VR evaluation kits

FlexEnable has announced the launch of flexible active optical evaluation kits for AR and VR devices. The kits include ambient dimming and

Infinity led module lens 38° 6W 3,000K CRI90 dimmable incl. driver

The modules feature an integrated dimmable driver. In addition to the choice of 3 light colors, you have a choice of 2 types of attachments, a lens or reflector.

Inside the Projection Optics Module: How lenses shape nanometer

Conclusion The Projection Optics Module, with its intricate system of lenses, stands as a testament to human ingenuity in the realm of nanotechnology. By mastering the art of light

Custom Optical Lens & Lens Module

With deep experience in laser optics manufacturing, we provide both custom and off-the-shelf collimators in various diameters, focal lengths, coatings, and mounting

LED Dimming: Compatibility Guide for Your Home Lights

LED dimming can enhance your home's lighting, but compatibility is key. You'll need dimmable LED bulbs and a compatible dimmer switch. Leading

The Best Smart Glasses We've Tested for 2026 | PCMag

Upgrade your eyewear with glasses that can function as cameras, headphones, and AR displays. We've tested all the major models and have

Dimmable Glass

Gentex dimmable glass systems utilize electrochromics, which is the science of darkening a material using electricity. They contain a chemical formulation

Amico 5/6 Inch Retrofit Eyeball Gimbal Can Lights 6

Amico 5/6 Inch Retrofit Eyeball Gimbal Can Lights 6 Pack, Metal Trim, 5CCT LED Recessed Lights Directional Angled Trim Adjustable Ceiling Downlight,

FlexEnable Launches Optical Evaluation Kits for AR, VR Devices

The kits include ambient dimming and tunable lens film modules made using FlexEnable's flexible liquid crystal (LC) technology.

ADAYO fire rated dimmable led downlights, tiltable led

The low profile design of this fire rated dimmable led downlights, with a height of 40 mm, makes it suitable for limited ceiling space. Features ADAYO lighting module

Optical Evaluation Kits | FlexEnable Technology Ltd.

CAMBRIDGE, U.K., Feb. 7, 2024 — The Optical evaluation kits from FlexEnable include ambient dimming and tunable lens film modules for AR and VR devices.

How to Choose the Best Lens for LED Module: A Complete Buying

When choosing the right lens for LED module applications, prioritize optical clarity, beam control, and compatibility with your specific LED setup. The best lens for led module depends on your

Professional LHWYLED Triac Dimmable GU10 LED Module 15W Anti

Professional LHWYLED Triac Dimmable GU10 LED Module 15W Anti Glare GU10 Downlight China Manufacturer Laser Logo Customized

A Guide to Dimming LEDs: How to tell if your Lights are

Are your LED lights dimmable? Not all LED lights are dimmable, so you need to take a look at a few things to make sure you have a dimmable bulb

de.aiminglasers

Hier sollte eine Beschreibung angezeigt werden, diese Seite lässt dies jedoch nicht zu.

Introduction to Lenses: LED Optics Explained

This is why most LED fixtures use secondary optics (lenses, reflectors, TIR optics, etc.) to collect all that light and magnify its intensity

Smart dimming sunglasses for photophobia using spatial light

We have demonstrated a smart dimming sunglasses system that allows real-time light modulation and balanced scene contrast to alleviate the photophobic effect. In this section, we

FlexEnable launches flexible active optics evaluation

The kits include ambient dimming and tunable lens film modules made using FlexEnable's flexible liquid crystal (LC) technology.

"The Tuner" by Module 8 is World's First Variable-Look Cinematic Lens ...

Moment and Module 8 have announced The Tuner, a new variable-look cinematic lens system designed to capture spirit of

TI DLP® System Design: Optical Module Specifications (Rev. C)

Optical zoom allows the optical module to adjust the throw ratio by mechanically repositioning a component of the projection lens. Optical zoom is commonly found in DLP Display projectors (such

Contact Us

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