QD LASER

RETISSA® Display II
(QLEWV01)

RETISSA® Display II is a head mounted display (HMD) with a miniature projector drawing images directly onto the retina. It is a successor of RETISSA Display, the world first commercially available* HMD employing VISIRIUM® Technology, laser retinal scanning projection.

*Japanese market only

Product Overview

Appearance

Features

- A Wearable display device with HDMI input
- Focus independent projection by VISIRIUM® Technology
- Reversible (left/right) monocular design and adjustable pupillary distance with an easily detachable projector
- USB power output (DC5V, 500mA) for external image sources
- Compatible with power-bank by a micro-USB charging port
- Lightweight, simple design original frame

Delivery

To be shipped in March 2020

Specifications

Display	Retinal scanning projection (2nd generation)
Light Source	RGB semiconductor laser (R:640nm, G:515nm, B:465nm Typ.)
Field of View	Horizontal: 26 degrees (approx.)
Aspect Ratio	16:9
Resolution	720P (1,280 x 720) equivalent.
Color	8bit full color
Refresh Rate	60Hz
Brightness	<0.39μW
Image Input	HDMI Type A (1920x1080 60p/1280x720 60p/ 720x480 60p/640x480 60p)
Audio Output	Stereo Mini Jack (Φ3.5mm)
Power Supply	DC 5V (USB Micro B)
Power Output	DC 5V, 500mA (USB Type-A)
Battery	3,880mAh
Battery Life	200 min. (136 min. with DC output)
Dimensions (W x H x D)	Projector: 65 x 20 x 83.5 mm Box: 74 x 150 x 29.5 mm
Weight	Projector: 40g (approx.) Box：260g (approx.)

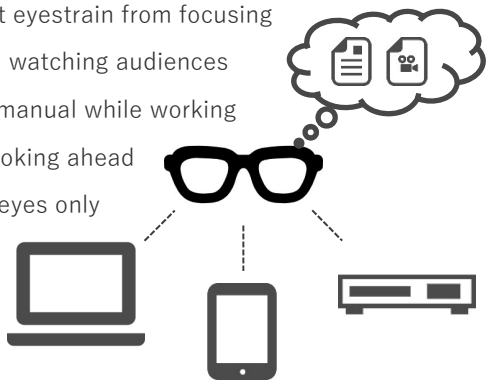
Specifications and appearance are subject to change without notice.

Use case

Wearable Display

- Watching movie: Without eyestrain from focusing
- Prompter: Reading while watching audiences
- Labor support: Reading manual while working
- Navigation: Let's walk looking ahead
- Secret display: For your eyes only

and more!

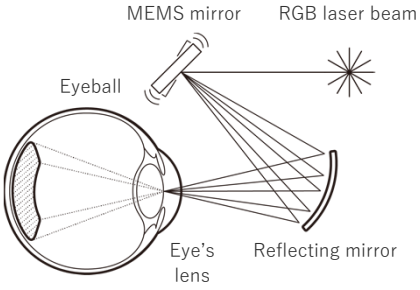


Accessible Display

- Accessibility with focus independence
- Compatible with any kinds of refractive error (myopia, hyperopia, astigmatism, and/or presbyopia)
- Combination with camera for visual support/enhancement (Optional camera under development)

VISIRIUM® Technology

VISIRIUM® Technology is a laser retinal scanning projection displaying method using RGB semiconductor laser as a light source and a two-axis MEMS mirror as a scanner. Specially designed optics conduct the laser beam to the retina through the center of the pupil, resulting in focus-independent projection of high resolution, full-color digital images.

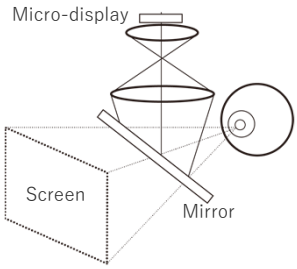


Augmented reality application (with a half-mirror)

Features of VISIRIUM® Technology

Focus Independent: Since the projected images are on the retina, users do not need to focus. Even if users have problems (refractive errors) with their vision such as myopia, hyperopia, astigmatism, and/or presbyopia, corrective measures like glasses and contact lens are not required. It is also independent of accommodation. The projected images are always clear no matter where users see. This enables perfect augmented reality (AR) when the technology is applied with optical see-through design since the digital images appear at the place where users are watching with no focal gap.

Focal Gap: Conventional optical see-through head-mounted displays always have a screen, no matter whether it is virtual or physical, in front of the eyes. It is necessary for users to focus on the screen to see the displayed images. There must be a focal gap between the real scenery and the images since the screen is located at a fixed distance.



Typical configuration of screen-based HMD

Better Image Quality: Using red, green, and blue laser diodes, the self-luminous laser display has high contrast and excellent color reproducibility. Although the images are drawn dot by dot, users can never feel the pixels since the quality of beam spots on the retina is finely tuned based on the know-how that have been cultivated in developing the technology. This makes it possible to create natural AR/VR that does not give users a sense of incongruity.

Screen-door effect: It is a kind of visual artifacts of screen-based displays. If the screen display is viewed at a closer distance and/or with magnification by lens like in conventional HMDs, the fine lines separating pixels/subpixels become visible in the image.

Demonstration of screen-door effect

Compact Formfactor: In order to realize an optical see-through design, only a simple half mirror is required in front of the user. In addition, weight and size can be reduced since optical components such as a screen display, a prism, and/or a waveguide, which tend to be heavy and bulky, are not required. This will potentially realize so-called smart glasses with natural appearance.

Contact

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