

Exhibitions

TDK showcases smart glasses equipped with ultra-compact full color laser module at major exhibitions

- The world's smallest class of full-color laser module under development by TDK has been equipped in laser direct retinal projection smart glasses created in collaboration with QD Laser, Inc. The reduced size enables laser direct retinal projection in both eyes, and also establishes a higher viewing angle
- The ultra-compact full-color laser module is made possible by equipping a planar lightwave circuit jointly developed with Nippon Telegraph and Telephone Corporation (NTT)
- On display at TDK's booth at major exhibitions CEATEC 2022 in Japan, electronica 2022 in Germany and CES 2023 in the USA

October 13, 2022

TDK Corporation (TSE:6762) will display first-of-its-kind smart glasses equipped with the world's smallest class* ultra-compact full-color laser module (FCLM) under development by TDK during CEATEC 2022, which starts on October 18, 2022.

The demonstration will showcase how projection is made possible for both eyes of the laser direct retinal projection glasses using the FCLM, overcoming the long-standing issue of displays with a narrow viewing angle. In the growing AR/VR smart glasses segment and metaverse-based society, this advancement is expected to expand potential uses of the technology and further accelerate the uptake of smart glasses.

The FCLM developed by TDK is in the smallest and lightest class of such devices at around one-tenth of previous products**, making it ideal for the development of stylish smart glasses. TDK's proprietary and long-established manufacturing technologies for magnetic heads of hard disk drives (HDD) were repurposed to create devices suited to new growth areas such as AR/VR smart glasses and the metaverse.

The FCLM was jointly developed with Nippon Telegraph and Telephone (NTT) by incorporating a Planar Lightwave Circuit (PLC) technology.

The FCLM was used as a key component in the smart glasses. Through joint development with QD Laser, Inc., which possesses outstanding laser direct retinal projection technologies, TDK created a demonstration sample of the smart glasses capable of laser direct retinal projection for both eyes, and around double the viewing angle of previous products. Laser direct retinal projection method makes images visible regardless of the viewer's eyesight. In addition, the ability to simultaneously see the real world scene through the glasses and view information displayed without having to shift focus enables new usage scenarios that are perfect for smart glasses. This is an important feature that cannot be achieved using other projection methods.

TDK will continue advancing the utility of its ultra-compact FCLM based on the results from this demonstration sample with the goal of promoting the widespread adoption of AR/VR smart glasses and metaverse-driven society, and accelerating growth efforts to put the module to practical use as soon as possible.

In addition to CEATEC 2022, the demonstration sample is also scheduled to be shown at electronica 2022 in Munich, Germany in November 2022, and at CES 2023 in Las Vegas, USA in January 2023.

* As of October 2022, according to TDK

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Glossary

- AR: Augmented Reality
- VR: Virtual Reality
- FCLM: Full-color Laser Module
- PLC: Planar Lightwave Circuit

Main features and benefits

- Development of an ultra-compact, ultralight full-color laser module (FCLM)
- Enabling implementation in stylish AR/VR smart glasses and the metaverse
- Producing demonstration glasses with a dual-eye type wide viewing angle using the laser direct retinal projection method
- Enabling wearers to watch the scene beyond the glasses together with information displayed by the smart glasses without shifting focus

Key data

Outer dimensions	Weight	Displayable Colors	Other features
5.5 mm x 10.8 mm x 2.6 mm	0.38 g	Full-color, 16.2million colors	Equipped with photo diodes for monitoring and temperature monitor

About TDK Corporation

TDK Corporation is a world leader in electronic solutions for the smart society based in Tokyo, Japan. Built on a foundation of material sciences mastery, TDK welcomes societal transformation by resolutely remaining at the forefront of technological evolution and deliberately “Attracting Tomorrow.” It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK’s comprehensive, innovation-driven portfolio features passive components such as ceramic, aluminum electrolytic and film capacitors, as well as magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in automotive, industrial and consumer electronics, and information and communication technology. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2022, TDK posted total sales of USD 15.6 billion and employed about 117,000 people worldwide.

About QD Laser, Inc.

QD Laser, Inc. (headquartered in Kawasaki, Kanagawa Prefecture; President and CEO: Mitsuru Sugawara; Securities Code: 6613) started out in 2006 as a spin-off venture of Fujitsu Laboratories Ltd. and as a pioneer seeking to commercialize quantum dot laser technology. The company delivers new semiconductor laser solutions to customers across a wide range of fields that include telecommunications, industry, healthcare and consumer use.

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https://www.tdk.com/en/news_center/press/20221013_01.html

Detailed product information is available at the following link:

https://www.tdk.com/en/featured_stories/entry_022.html

Contacts for regional media

Region	Contact		Phone	Mail
Japan	Mr. Yoichi OSUGA	TDK Corporation Tokyo, Japan	+813 6778-1055	pr@jp.tdk.com
ASEAN	Ms. Jiang MAN Ms. Pei Lu LEE	TDK Singapore (Pte) Ltd. Singapore	+65 6273 5022	asean.inquiry@sg.tdk.com
Greater China	Ms. Clover XU	TDK China Co., Ltd. Shanghai, China	+86 21 61962307	pr@cn.tdk.com
Europe	Mr. Frank TRAMPNAU	TDK Management Services GmbH Duesseldorf, Germany	+49 211 9077 127	frank.trampnau@tdk.com
America	Ms. Sara M. LAMBETH	TDK Corporation of America Irving, TX, USA	+1 972-409-4519	sara.lambeth@us.tdk.com
QD Laser, Inc.	Ms. Yuria SHOJI	Kanagawa, Japan	+81 44-333-3338	info@qdlaser.com