



NIL TECHNOLOGY

## PRESS RELEASE

# metaEye™ Ultra-compact metalens camera for eye-tracking

**Copenhagen, Denmark, January 29, 2024** – NIL Technology (NILT), a leader in advanced optical solutions, is announcing metaEye™ an ultracompact metalens-based camera with applications for eye-tracking, smart locks, biometrics, SLAM and ubiquitous sensing across a range of applications including gaming, presence detection, and smart appliances. This revolutionary metalens camera uses a patent-pending lens architecture only possible with metalenses to deliver an ultra-compact form factor, good performance, and environmental robustness.

*"This transformative metaEye™ design concept truly reveals the power of metalenses and will set new standards in the field of compact cameras and Rx modules for sensing and machine vision applications,"* says Ulrich Quaade, Head of Optics

The **metaEye™** lens stack consists of meta-surfaces, apertures, anti-reflection coatings, and a bandpass filter integrated into a single cube. This lens cube can be bonded directly onto the cover-glass of the image-sensor, which makes for simple camera module assembly. The lens cube has an aggressive total track length of 1.7 mm. The metaEye™ lens matches the sensor CRA curve, leading to good light capture across the entire field of view and delivers good on-axis and off-axis MTF performance with light-emitting-diode (LED) illumination at 850 nm.

**metaEye™** camera uses OMNIVISION's OG0TB1B sensor with a pixel size of 2.2 microns and pixel array of 400x400. The camera module is barrel-free and measures 1.64 mm (width) x 1.64 mm (length) x 2.2 mm (height), including the sensor-CSP, lens, and the flex PCB. The **metaEye™** module can be shipped on tape-and-reel, handled by a pick-and-place machine, and mounted onto the PCB using SMT reflow.



**Eye-tracking application:** NILT's ultra-compact camera can be designed for numerous applications. NILT has chosen to optimize this design for application in eye-tracking and iris recognition. Images and video captured with this metacube camera show high contrast and good resolution across the entire field of view when illuminated with an LED operating at 850 nm. The camera module operates over a large depth-of-field, making for good user experience. NILT will be demonstrating the **metaEye™** camera at SPIE Photonics West 2024.

*"OMNIVISION is a leader in BSI global-shutter sensors for compact cameras. We are pleased to support NIL Technology as they announce metaEye™ today. The OMNIVISION OG0TB1B sensor with NILT's pioneering metalens architecture has an ultra-compact form factor and excellent performance, which addresses the needs of AR|VR|MR, and adjacent markets in automotive, smart-appliances, IoT, and computer vision,"* said Devang Patel, marketing director for the IoT and emerging segment, OMNIVISION

*"This pioneering metaEye™ lens, which integrates meta-surfaces, apertures, BPF, and ARC, is a significant innovation in metalens architecture. It is made possible by NILT's vertical integration where we have design, mastering, and wafer-level-assembly working closely to maximize the overall performance"* says Brian Bilenberg, Founder and EVP Technology of NILT.

For inquiries, please contact Brian Orr, VP Sales, at [contact@nilt.com](mailto:contact@nilt.com)

#### **About NILT**

NIL Technology (NILT) excels in creating optical solutions with advanced metalenses, offering custom lens and module design, rapid prototyping, and mass production. NILT's vertical integration ensures swift, collaborative processes for customers' specific needs. NILT also engages with our customers in a foundry model where we prototype and mass-produce the customer's metalens designs. Furthermore, NILT makes custom masters using electron beam lithography, with AR displays being a key focus area. NILT applications areas include 3D sensing, XR, autonomous vehicles and life sciences. With design teams in Europe and production in Malaysia, NILT combines global expertise with efficient manufacturing. Discover more at [www.nilt.com](http://www.nilt.com).

#### **About OMNIVISION**

OMNIVISION is a global fabless semiconductor organization that develops advanced digital imaging, analog, and touch and display solutions for multiple applications and industries, including mobile phones, security and surveillance, automotive, computing, medical, and emerging applications. Its award-winning innovative technologies enable a smoother human/machine interface in many of today's commercial devices. Find out more at [www.ovt.com](http://www.ovt.com). OMNIVISION contact is DeAnn Liu, [deann.liu@ovt.com](mailto:deann.liu@ovt.com)

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