Press RELEASES

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TDK's next-generation ultrasonic time-of-flight sensor enables new mass market applications in IoT and robotics

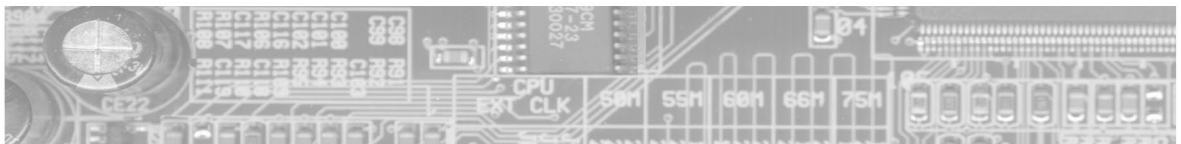
- *The InvenSense SmartSonic™ ICU-10201 high-performance ultrasonic ToF sensor has a powerful embedded processor and extended memory space, allowing complete application algorithms on the chip*
- *Ideal for IoT and robotics applications, the MEMS sensor provides accuracy required for obstacle avoidance, soft surface identification, and liquid level measurements*
- *ICU-10201 is now fully available at multiple distributors worldwide*

April 8, 2024

TDK Corporation (TSE:6762) announces full distribution availability of its InvenSense SmartSonic™ ICU-10201 ultrasonic time-of-flight (ToF) sensor with on-chip processing, enabling the design of high-performance, low-power IoT and robotics products. The ICU-10201 sensor offers the sensitivity required for accurate obstacle avoidance or proximity sensing, which is used frequently in robotics, drones, and robot vacuum cleaner (RVC) devices. It is also highly relevant for products that require level sensing, such as in a liquid dispenser or coffee machine.

Key features and advantages of the ICU-10201 ultrasonic ToF sensor include:

- Ultra-low power consumption in a miniature package: The SmartSonic family of ToF sensors integrate a MEMS piezoelectric micromachined ultrasonic transducer (PMUT) with a low-power system on chip (SoC) in an ultra-compact reflowable package.



- Enhanced on-chip processing capabilities: The ICU-10201 embeds a powerful on-chip processor with higher computational power than previous solutions. Its enhanced processing capabilities allow fitting and running a wide range of application algorithms on-chip, offloading the system MCU completely.
- High sensitivity: Based on ultrasonic pulse-echo or pitch-catch measurements, the ToF sensor provides millimeter-accurate and robust range measurements to targets at distances up to 1.7m, in any lighting condition including full sunlight, independently of the target's color and optical transparency, like glass walls or mirrors.

"Our ICU-10201 allows the design of smarter low-power solutions, making the final product greener, safer, and more aware of surrounding environments," said Massimo Mascotto, Director of Product Marketing, InvenSense, a TDK group company. "The sensor's improved on-chip processing has greater computing power in a miniature package, which enables smarter products for our customers and partners."

Glossary

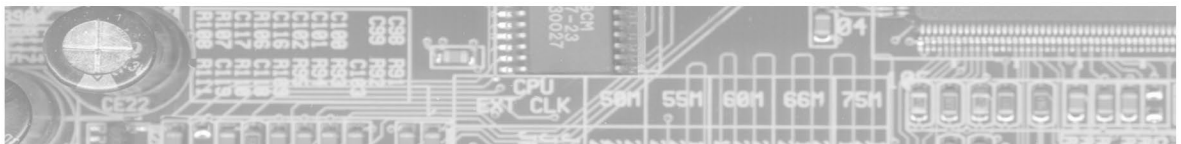
- ToF: Time of flight
- FoV: Field of view
- MCU: Microcontroller unit
- MEMS: Micro-electro-mechanical systems
- PMUT: Piezoelectric micromachined ultrasonic transducer
- RVC: Robot vacuum cleaner

Main applications

- Obstacle avoidance for robotics and drones
- Liquid level measurements for liquid dispenser and coffee machine
- Surface composition/softness and cliff detection for robot vacuum cleaners

Main features and benefits

- Second generation



- Ultra-low power
- Compact size; miniature ultrasonic sensor
- Wide operating range from 3 cm to 1.7 m
- Works in any lighting condition
- Detects objects of any color and optical transparency
- Customizable field of view (FoV) up to 180°
- 3.5 mm x 3.5 mm x 1.26 mm, 8-pin LGA package

Availability and Pricing

The ICU-10201, in an ultra-compact package footprint of 3.5 x 3.5 mm², is available from us. More Information about availability and pricing, please visit email: sales.europe@macnica.com.

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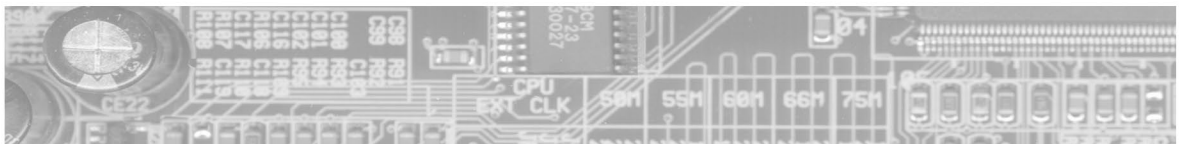
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About TDK Corporation

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 2023, TDK posted total sales of USD 16.1 billion and employed about 103,000 people worldwide.

About InvenSense

InvenSense, a TDK Group company, is a world-leading provider of Sensing Solutions. InvenSense's vision of Sensing Everything® targets the consumer electronics and industrial areas with integrated Motion, Sound, Pressure, and Ultrasonic solutions.

InvenSense's solutions combine MEMS (micro electrical mechanical systems) sensors, such as accelerometers, gyroscopes, compasses, microphones, barometric pressure sensors, and ultrasonic time-of-flight sensors with proprietary algorithms and firmware that intelligently process, synthesize, and calibrate the output of sensors, maximizing performance and accuracy. InvenSense's motion tracking, ultrasonic, audio, fingerprint, location platforms and services can be found in Mobile, Wearables, Smart Home, Industrial, Automotive, IoT, Robotics, and many more types of products.

InvenSense became part of the MEMS Sensors Business Group within the Sensor Systems Business Company of TDK Corporation in 2017. In April of 2022, Chirp Microsystems formally merged with InvenSense. InvenSense is headquartered in San Jose, California and has offices worldwide.

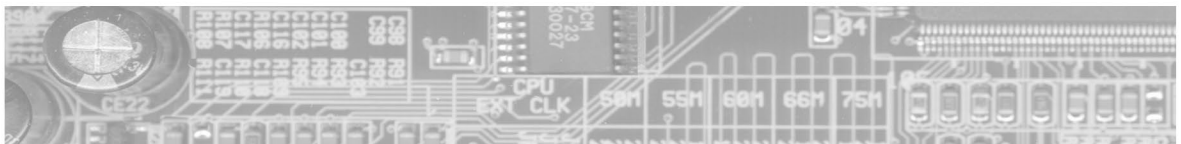
For more information please visit https://invensense.tdk.com/.

About Macnica ATD Europe GmbH, (former Macnica GmbH)

Macnica's ATD Europe GmbH, (former Macnica GmbH), was originally established in the UK in 2006, and moved to Germany in July 2008, to increase efficacy of its service for European customers.

By it's acquisition of the Munich based company Scantec Mikroelektronik in 2014 Macnica Europe formed a powerful semiconductor distribution with headquarter in Ingolstadt and offices in Munich, Regensburg, Milton Keynes (UK) and Warsaw offering an attractive and competitive portfolio of highly sophisticated devices.

Macnica provides end to end support from design-in to production through its global service network to its customers, regardless of the final destination of the product shipment to customers' manufacturing locations.



About Macnica ATD Europe S.A.S.
Founded in 1990 as ATD Electronique, Macnica ATD Europe headquarter offers innovative components dedicated to imaging applications for the European market. Its product portfolio includes: image sensors (CCD, CMOS, InGaAs, Thermal etc.), optics, interface circuits, FPGA & IPs, imaging processors, cables and OLED microdisplays.

It also covers development tools and design services enabling fast and efficient realization of new high-performance camera systems for markets such as machine vision, medical, life sciences, surveillance, automotive and others. After the acquisition of the company by Macnica Inc. as of October 1, 2020 the company operates under the name Macnica ATD Europe.

About Macnica, Inc.
Macnica was established in 1972 as a semiconductor distribution company headquartered in Yokohama, Japan, and has over 85 sales offices worldwide in eastern Asia, Europe and the USA. Total number of employees is over 3,900 and its consolidated revenue for fiscal 2021 was approximately US$ 7.6 B.

Macnica is famous for having an excellent engineering team of more than 900 application support engineers, IC designers and software developers with strong focus on providing technical support for its customers including custom design services. Macnica is continuing to extend its presence globally by having successful partners in strategic areas in the electronics market.

More information about Macnica: https://www.macnica.com/global/en/home.html.

