

Sensors

TDK offers mechanically decoupled ultrasonic modules for collision avoidance

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TDK Corporation presents the ultrasonic sensor module USSM1.0 PLUS-FS, in which the sensor element is mechanically decoupled from the housing. This makes the IP65/67 protected sensor with the order number B59110W2111W032 immune to external mechanical vibrations that can falsify the measurement result. The module, which is supplied with a nominal voltage of 12 V, can be mounted in a front chassis via a M19 thread with a locking nut or via snap hooks.

Actuated via a driver and an integrated piezoelectric disk, the integrated signal processor ASIC can calculate the signal propagation time with a repetition rate of up to 50 samples/s. This allows measuring distances from 18 cm to 200 cm; in pitch-and-catch mode with several modules, even measuring distances of 4 cm are feasible. The field-of-view (FoV) of the USSM1.0 PLUS-FS, which the customer can optimize to suit his needs, is $\pm 35^\circ$. Thus, individual measurement scenarios can also be programmed. The sensor module is suitable for a wide range of brightness conditions, including full sunlight, and measures very accurately regardless of the color and translucence of the target object.

The ultrasonic modules are particularly well suited for distance measurement and obstacle detection under difficult environmental conditions in autonomous mobile robots (AMR) or autonomous guided vehicles (AGVs).

Main applications

- Systems for obstacle detection and collision avoidance in mobile systems (e.g., AGVs, AMRs)
- Distance measurement in stationary systems (e.g., level measurement)

Main features and benefits

- Sensor module with integrated ASIC for measurements in air
- Robust package mechanically decoupled from the sensor element
- Measurement range 18 cm to 200 cm (4 cm in pitch-and-catch mode)
- Sample rate up to 50 samples/s
- Individual measuring scenarios programmable

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.

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