

Sensors

TDK offers demo kit for ultrasonic sensor modules for obstacle detection

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TDK Corporation (TSE:6762) presents a demo kit (ordering code: Z25000Z2910Z001Z21) for the mechanically decoupled ultrasonic sensor module USSM1.0 PLUS-FS (ordering code: B59110W2111W032). This component can be used for obstacle detection and distance measurement under difficult environmental conditions including full sunlight and translucent target objects in autonomous mobile robots (AMR) or autonomous guided vehicles (AGVs).

The demo kit includes a TDK demo board with USB-A to Micro-B cable, two ultrasonic sensor modules, two sensor cables, and two seals. Its software package allows the user to monitor the sensor in many operating modes. It can provide digital IO and analog readout of the echo traces. The board helps in early and later development phases because it visualizes what the sensor can detect and how it reacts in specific situations.

The IP65/67 protected USSM1.0 PLUS-FS is immune to external mechanical vibrations that can falsify the measurement result. 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, measuring distances of 4 cm are feasible.

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

You can download this text and associated images from www.tdk-electronics.tdk.com/en/240117

Further information on the products can be found at

https://www.tdk-electronics.tdk.com/en/ultrasonic_sensor_module

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