Press Information

MEMS Sensors

TDK PositionSense™ offers 'Smart Perception' for wearables, mobile, robots, and other Physical AI devices

- Now available for worldwide distribution, PositionSense is a 2-chip 9-axis sensor solution for absolute orientation detection and fast sensor calibration
- Enables the ultimate positioning accuracy for smart glasses, smartphones, AI wearables, humanoid robots, drones, and any device requiring precise location
- Integrates TDK's ultra-low power 6-axis IMU and 3-axis TMR-based magnetometer with on-chip sensor fusion software

October 13, 2026

TDK Corporation (TSE:6762) announces worldwide distribution availability of its InvenSense PositionSense™ – a two-chip nine-axis sensor solution that enables next-gen positioning accuracy and navigation for applications in wearables, robotics, drones, mobile devices, and more. The PositionSense 'Smart Perception' solution integrates TDK's lowest-power 6-axis IMU and TMR-based 3-axis magnetometer with on-chip sensor fusion and calibration software to enable fast, accurate orientation tracking and position detection.

"When your device uses PositionSense, users are always on track and never lost – even in a city, field, factory, or location without a satellite connection," said Joseph Bousaba, CEO of InvenSense, a TDK group company. "Whether for people using their smart glasses, watches, or phone for directions, or for a humanoid navigating a warehouse floor, our PositionSense sensor solution ensures highly accurate and reliable navigation for physical AI devices."

The speed and precision of PositionSense's absolute orientation detection come from the custom integration of its components:

- TDK 6-axis SmartMotion® IMU, the lowest-power IMU with high-performance MEMS technology and vibration-resistant gyroscope
- TDK 3-axis magnetometer, based on tunnel magneto resistance (TMR) sensor technology, the lowest-power magnetometer with high-sensitivity and accuracy, along with magnetic field shock resistance
- TDK on-chip sensor fusion software, enabling fast and accurate 9-axis sensor calibration

PositionSense is available in four hardware configurations, all with on-chip sensor fusion, gyro-assisted calibration, and an easy-to-integrate design for always-on sensing.

- ICM-45608 + ICT-15318 - With I2C/SPI/I3C support at 1.8V VDDIO, this PositionSense solution is ideal for IoT applications with a 16g/2000dps Accel/Gyro full-scale range.
- ICM-45608 + ICT-15312 - With I2C/SPI support at 1.2V VDDIO, this PositionSense solution is ideal for battery-powered and power-sensitive applications with 16g/2000dps Accel/Gyro full-scale range.

- ICM-45689 + ICT-15318 - With the IMU's extended ±4000 dps gyroscope and ±32 g accelerometer full-scale range, this PositionSense solution improves measurement headroom for high-dynamic motion, while offering I2C/SPI/I3C support with 1.8V VDDIO.
- ICM-45689 + ICT-15312 - With the IMU's extended ±4000 dps gyroscope and ±32 g accelerometer full-scale range, this PositionSense solution improves measurement headroom for high-dynamic motion, while offering I2C/SPI support with 1.2V VDDIO.

Learn more and find distribution availability via invensense.tdk.com/positionsense.

Glossary
– 6-axis: 3-axis gyroscope + 3-axis accelerometer
– IMU: inertial measurement unit
– MEMS: micro-electro-mechanical systems
– TMR: tunnel magneto resistance

Main applications*
TDK PositionSense addresses a wide range of consumer and industrial product applications, including but not limited to:
– Wearables including smart glasses and AR/VR
– Hearables including TWS earbuds
– Smartphones and mobile devices
– Assistive technology including smart canes
– Drones
– Robotics

Features and benefits by component
TMR technology
– High sensitivity
– High accuracy
– Lowest-power magnetometer
– Magnetic field shock-resistance
– Low noise
– Wide range

IMU technology
– Lowest power IMU technology
– High-performance MEMS technology
– Industry-first vibration-resistant gyro with BalancedGyro technology
– Low noise accelerometer

Sensor fusion
– On-chip sensor fusion and precise time synchronization, for immediate processing of sensor data at exact moment of motion
– Fast and accurate gyro and mag cross-calibration
– Automatic magnetic shock recovery

About TDK Corporation
TDK Corporation (TSE:6762) is a global technology company and innovation leader in the electronics industry, based in Tokyo, Japan. With the tagline “In Everything, Better” TDK aims to realize a better future across all aspects of life, industry, and society. For over 90 years, TDK has shaped the world from within; from the pioneering ferrite cores to cassette tapes that defined an era, to powering the digital age with advanced components, sensors, and batteries, leading the way towards a more sustainable future. United by TDK Venture Spirit, a start-up mentality built on visions, courage and mutual trust, TDK’s passionate team members around the globe pursue better—for ourselves, customers, partners, and the world. Today, the state-of-the-art technologies of TDK are in everything, from industrial applications, energy systems, electric vehicles, to smartphones and gaming, at the core of modern life. TDK’s comprehensive, innovative-driven portfolio includes cutting-edge passive components, sensors and sensor systems, power supplies, lithium-ion and solid-state batteries, magnetic heads, AI and enterprise software solutions, and more—featuring numerous market-leading products. These are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics, TDK-Lambda, TDK SensEI, and ATL. Positioning the AI ecosystem as a key strategic area, TDK leverages its global network across the automotive, information and communication technology, and industrial equipment sectors to expand its business in a wide range of fields. In fiscal 2026, TDK posted total sales of USD 16.6 billion and employed about 107,000 people worldwide.

About InvenSense
InvenSense, a TDK group company, is a world-leading provider of custom sensing solutions for consumer electronics, industrial, and automotive applications. InvenSense solutions integrate MEMS and magnetic sensors, such as IMUs, accelerometers, gyroscopes, compasses, microphones, and TMR sensors, with proprietary algorithms and firmware that intelligently process, synthesize, and calibrate the output of sensors for maximized performance and accuracy. InvenSense solutions empower leading technology in smartphones, wearables, hearables, smart home, gaming, IoT, robotics, drones, industrial, automotive, and other applications. Headquartered in San Jose, California, and with offices worldwide, InvenSense became part of the Sensor Systems Business Company of TDK Corporation in 2017.

You can download this text and associated images from https://www.invensense.tdk.com/en-us/news-media/press/tdk-positionsense-offers-smart-perception-for-wearables-mobile-robots-and-other-physical-ai-devices

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