

# Press



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PR-No. 19 – 29. November 2022

**TDK's new robust and accurate Industrial motion sensors bring fault tolerance and software synergy to high performance navigation applications**

- *10-year longevity commitment*
- *6-axis Industrial IMUs offer 1.9 deg/hr gyroscope bias instability, fault tolerance, and micro-second accurate time stamping features.*
- *Ultra-low noise sensors deliver precise measurements for high-end navigation systems*
- *Hardware and software synergy enable industry-leading redundancy and early warning capabilities to avoid operational disruption.*
- *Factory calibration across full operating temperature range for offset, sensitivity (scale factor), G-sensitivity, and cross-axis sensitivity.*

*November 15, 2022*

**TDK Corporation (TSE:6762)** extends the SmartIndustrial™ line of robust and accurate motion sensors and announces the availability of InvenSense IIM-46234 and IIM-46230 new high-performance fault-tolerant inertial measurement units (IMU) targeted at navigation applications that require accurate, stable, and best-in-class bias instability at an affordable price.

IIM-46234 and IIM-46230 are modules that include multiple 6-axis sensors, each of which can measure three dimensions of linear acceleration and three dimensions of rotational rate. The calibration of these devices over the full temperature range (-40°C to 85°C), guarantees best performance not typical in standard IMUs, which often have deteriorating performance as temperatures increase or decrease. It also provides stable measurements across all temperatures to minimize errors in position and angle for nav-

**MACNICA**  
ATD EUROPE

MACNICA ATD Europe GmbH,  
85055 Ingolstadt

[www.macnica.eu](http://www.macnica.eu)

**MACNICA**  
ATD EUROPE

MACNICA ATD Europe GmbH,  
82110 Munich



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igation applications. The modules also include a microcontroller that provides multiple options for communication and sensor fusion.

As these products offer precise measurements, even in harsh environments with high vibrations and wide temperature variations, this product family is well-suited for a variety of navigation applications, including high-end real-time kinematic positioning (RTK) and GNSS/INS units, precision agriculture, construction machinery, and industrial robots. An example application is an industrial autonomous vehicle or drone that requires best-in-class dead reckoning performance in case of GPS signal loss.

“These types of high-end IMU modules have been cost-prohibitive in the past. We now provide a solution that combines performance and affordability for customers developing navigation systems for drones, industrial autonomous vehicles, and navigation units,” said Camilo Delgado, Director of Product Marketing & Industrial Motion Sensor Business.

This new product family also integrates TDK’s unique SensorFT™ feature for fault tolerance, which combines the multi-IMU hardware design with TDK’s proprietary fault detection and recovery software, to deliver built-in redundancy and early warning capabilities. A system that includes IIM-4623X sensors could provide customers with advanced warnings, enabling preventative maintenance to avoid operational disruption.

### Glossary

1. AV: Autonomous Vehicles
2. IMU: Inertial Measurement Unit
3. GPS: Global Positioning System
4. GNSS: Global Navigation Satellite System

### Main Applications

1. Construction machinery
2. Precision agriculture
3. Navigation
4. Platform stabilization

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5. Robotics
6. Geo-referencing, mapping, & surveying

### Main Features and Benefits

- Low bias instability and noise
- Low offset and sensitivity variation over temperature
- Factory calibration over temperature range for Bias, Sensitivity, misalignment, G-sensitivity
- Robustness to shock and vibration
- Triaxial, delta angle, and delta velocity output
- TDK proprietary SensorFT feature that delivers built-in redundancy and fault tolerance against individual sensor failures

Product	IIM-46234	IIM-46230
Number of axes	6-axis IMU (3-axis Gyroscope & 3-axis Accelerometer)	6-axis IMU (3-axis Gyroscope & 3-axis Accelerometer)
Packaging Dimensions	23 × 23 × 8.5 mm	23 × 23 × 8.5 mm
Gyro Bias Instability	1.9°/hr	4.1°/hr
Interface	SPI, UART	SPI, UART
Factory calibration	Offset, sensitivity (scale factor), G-sensitivity & cross-axis sensitivity	Offset, sensitivity (scale factor), G-sensitivity & cross-axis sensitivity
Temperature range	-40 to 85 °C	-40 to 85 °C

### Availability and Pricing

For more information availability and pricing please visit email: [sales.europe@macnica.com](mailto:sales.europe@macnica.com).

#### Contact:

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Macnica ATD Europe GmbH

Josef Sigl

Tel. +49-89-899143-11

Email: [sales.europe@macnica.com](mailto:sales.europe@macnica.com)

##### Sales

Macnica ATD Europe GmbH

Tel. +49-84188198-102

Email: [sales.europe@macnica.com](mailto:sales.europe@macnica.com)

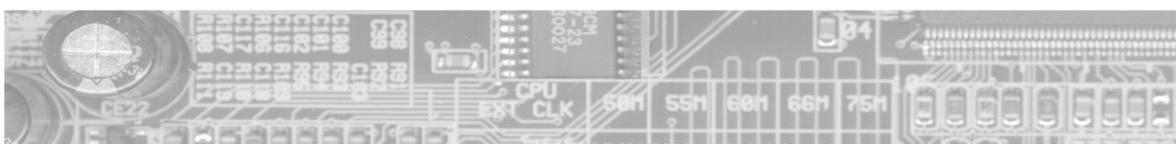
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ATD EUROPE

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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 2022, TDK posted total sales of USD 15.6 billion and employed about 117,000 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://www.invensense.tdk.com>.



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### **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 its 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.

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