

MEMS Sensors

TDK introduces industry's lowest noise and lowest power MEMS barometric pressure sensor

- ICP-20100 is the latest advancement in the SmartPressure™ family
- Industry's newest and most precise pressure sensor in a 2 x 2 x 0.72 mm package
- Suitable for smartphones, wearables, drones, and IoT markets

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TDK Corporation (TSE: 6762) announces the InvenSense ICP-20100 platform, the latest technology advancement in the SmartPressure™ product family. The ICP-20100 is a barometric pressure sensor based on MEMS capacitive technology, improving our lead in the development of ultra-low noise at the lowest power and progressing our industry-leading relative accuracy, sensor throughput, and temperature stability. The ICP-20100 achieves the industry's lowest pressure noise of 0.4 Pa RMS, while attaining the industry's lowest power consumption of 1.0 μ A, and retains excellent temperature stability with a temperature coefficient of ± 0.5 Pa/°C.

The ICP-20100 capacitive pressure sensor can operate over wide temperature ranges and a variety of applications, meeting US carrier requirements for 3D geolocation and emergency applications such as the enhanced 911 (E911) system, enabling mobile indoor/outdoor navigation, improved activity identification for leisure, sport and fitness purposes, and altitude-hold in drones. The sensor assists in extending battery life for "AlwaysOn" applications due to its extreme low-power consumption. Other new advancements of ICP-20100 showcase improved measurement of small pressure differences of ± 0.4 Pa, thus enabling the ICP-20100 to detect altitude changes of less than 5 cm. The platform includes chipsets, developer kits, and app notes.

"The ICP-20100 expands our SmartPressure product family which includes the ICP-101xx – a combination of high accuracy, low power, temperature stability, and waterproofing in a small footprint, and the ICM-20789, the industry's first 7-axis combo (3-axis accelerometer, 3-axis gyroscope, 1-axis pressure)," said Amir Panush, CEO of InvenSense, a TDK Group company and General Manager of TDK Corporation's MEMS Sensors Business Group. "This latest pressure sensor technology advancement continues TDK's lead in bringing innovative human-sensing to our OEM partners and the consumer electronics market."

For strategic customers, InvenSense is providing samples of the ICP-20100 pressure sensor family in a 2 x 2 x 0.72 mm industry-standard package footprint; volume production is expected in 1H 2021. TDK will be demonstrating the ICP-20100 platform along with the industry's most comprehensive portfolio of passive components, sensors, power supplies and batteries during the upcoming CES 2021 conference, being held digitally at <https://www.ces.tech>. For additional information and collateral, please visit <https://www.invensense.tdk.com/pressure> or contact InvenSense Sales at sales@invensense.com.

Main applications

- Altitude Control of Drones and Flying Toys
- Mobile Phones and E911 application
- Leisure, Sports, and Fitness Activity Identification
- Indoor/Outdoor Navigation (dead-reckoning, floor/elevator/step detection)
- Vertical Velocity Monitoring
- Virtual Reality and Gaming Equipment
- Weather Forecasting

Key features

- **Ultra-low noise** : Industry's lowest pressure noise of 0.4 Pa rms
- **Ultra-low power**: Industry's lowest power consumption of 1.0 μ A at 1 Hz output data rate
- **Low temperature coefficient**: Industry-leading temperature coefficient of ± 0.5 Pa/ $^{\circ}$ C
- **Digital Features**: I2C, I3C, SPI, FIFO, Interrupt, User configurable ODR/OSR

Key data

Product	Packaging Dimensions	Pressure Noise	Power Consumption	Temperature Coefficient	Vdd/Vdd_IO
ICP-20100	2 x 2 x 0.72 mm	Noise: 0.4 Pa RMS	1.0 μ A at 1 Hz ODR	± 0.5 Pa/ $^{\circ}$ C	VDD: 1.8, 3.3V VDD_IO: 1.2, 1.8, 3.3V

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 2020, TDK posted total sales of USD 12.5 billion and employed about 107,000 people worldwide.

About InvenSense

InvenSense, Inc., a TDK Group company, is a world leading provider of MEMS sensor platforms. InvenSense's vision of Sensing Everything® targets the consumer electronics and industrial areas with integrated Motion, Sound, and Ultrasonic solutions. InvenSense's solutions combine MEMS (micro electrical mechanical systems) sensors, such as accelerometers, gyroscopes, compasses, microphones, and ultrasonic 3D-sensing 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, and IoT products. InvenSense became part of the MEMS Sensors Business Group within the newly formed Sensor Systems

Business Company of TDK Corporation in 2017. In February of 2018, Chirp Microsystems joined the InvenSense family through its acquisition by TDK. InvenSense is headquartered in San Jose, California and has offices worldwide. For more information, go to [invensesense.tdk.com](https://www.invensense.tdk.com)

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<http://www.invensense.com/news-media/invensesense-introduces-industrys-lowest-noise-and-lowest-power-MEMS-barometric-pressure-sensor/>

Further information on the products can be found under <https://www.invensense.tdk.com/pressure>

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