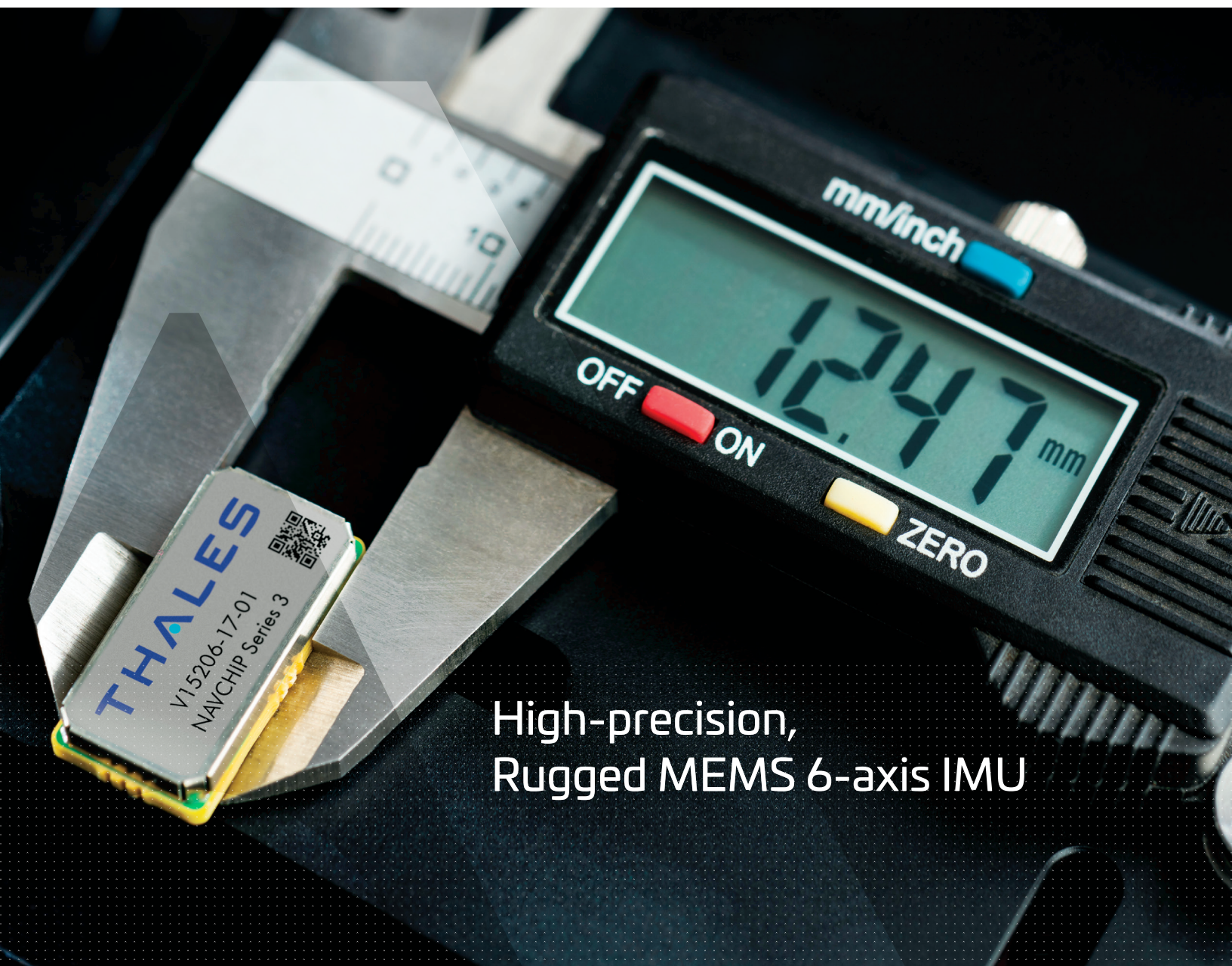


InterSense® NavChip™ Inertial Measurement Unit (IMU)

High-precision,
Rugged MEMS 6-axis IMU

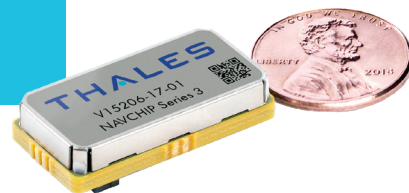


InterSense® NavChip™ Inertial Measurement Unit (IMU)



High-precision,
Rugged MEMS 6-axis IMU

InterSense® NavChip™ IMU



The NavChip is a high precision MEMS 6-axis Inertial Measurement Unit (IMU). Using proprietary technologies and advanced signal processing techniques, the NavChip achieves a level of performance, miniaturization, and environmental ruggedness superior to competing IMUs using standard off-the-shelf MEMS sensors. The NavChip is a very low drift IMU with a full-scale acceleration range of $\pm 16g$ and a full-scale angular rate of $2,000^\circ/s$. It is fully factory-calibrated and temperature compensated over an operating range of -40° to $+85^\circ$ C.

| Technical Specifications | | Typical values | |
|--------------------------|--------------------------------------|--|---|
| | | NavChip | NavChip Series 3 Class B NavChip Series 3 Class A |
| Gyros | Δ bias, scale, misalignment | Factory calibrated and temperature compensated over full temperature range | |
| | In-run bias stability | 5°/hr | 4°/hr |
| | Bias accuracy over temp range | $\pm 0.2^\circ/s$ | |
| | g sensitive bias | 0.004°/s/g | |
| | Angle random walk | 0.18 °/√hr | |
| | Scale factor accuracy | $\pm 0.05\%$ | |
| | Scale factor linearity | 0.01% | |
| | Axis alignment accuracy | $\pm 0.03^\circ$ | |
| Accels | ΔV bias, scale, misalignment | Factory calibrated and temperature compensated over full temperature range | |
| | In-run bias stability | 0.04 mg | 0.006 mg |
| | Velocity random walk | 0.03 m/s/√hr | 0.02 m/s/√hr |
| | Bias accuracy over temp range | ± 3 mg | |
| | Scale factor accuracy | $\pm 0.09\%$ | |
| | Scale factor linearity | 0.06% | |
| | Axis alignment accuracy | $\pm 0.03^\circ$ | |
| Limits | Operating & storage temp | -40° to $+85^\circ$ C | |
| | Full scale acceleration range | $\pm 16g$ | |
| | Full scale angle rate | 2000°/s | |
| | Vdd to GND | -0.3 V to $+6.0$ V | |
| | In/out to GND | -0.3 V to 3.3 V | |
| SWaP | Size | 12.5mm x 24.5mm x 5.4mm | 12.5mm x 24.5mm x 6.1mm |
| | Weight | 3 grams | |
| | Power consumption @ 3.3 V | 135mW (scales linearly with voltage) | |
| Output | Interfaces | UART, SPI | UART, SPI, I2C |
| | Data | Compensated ΔV and $\Delta \Theta$ | Compensated ΔV and $\Delta \Theta$, AHRS |
| | $\Delta V, \Delta$ output rate | Up to 200 Hz | Up to 1000 Hz |
| | Adapters | RS-422, USB/TTL serial, ADIS | |
| | Default sampling rate/period | 1000 Hz/1 ms | |
| | UART data rate | 38,400 to 921,600 baud, configurable | |
| Input | Voltage | 3.25 V–5.5 V (typical 3.3 V) | |
| | Current | 40 mA | |
| | Optional external sync pin | 1-1000 ms period (integer) | |

Specifications are subject to change without notice.

Thales Visionix

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