OEM1000 & xOEM1000

Miniature GNSS/INS for integrated solutions

When space is limited but you still need to deliver accurate and reliable data to your customers, the OEM1000 and xOEM1000 provide a complete economical package to support your application.

Trusted globally for ground truth measurements in:

/ Robot control systems

/ Vehicle dynamics testing

/ Autonomous vehicle validation

/ Global NCAP ADAS testing

OXTS
Integrated

Big things in small packages

Despite its small size, the OEM1000 integrates high-grade MEMS inertial sensors and dual RTK capable GNSS receivers into a rugged, compact package.

The xOEM1000 features the same powerful hardware and sensors, but as a board-set configuration for direct integration inside your own product. Both systems deliver accurate, reliable data in real-time with centimetre-level position and precise orientation.
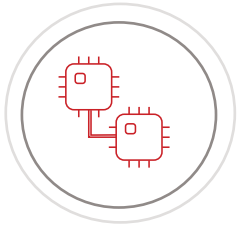
Ideal for system integration

Low latency, high speed outputs enable smooth continuous data that is essential for safety critical systems and real time control like robotic systems and guided platforms.

Our inertial navigation systems provide accurate ground truth reference for autonomous systems and sensor packages. Reliable localisation with the high performance IMU and additional aiding technologies like tight-coupling and "No-slip" land vehicle profile help maintain centimetre-level positioning in adverse conditions.

No export restrictions means you can sell and operate integrated systems globally with zero hassle.

Customise to suit your needs

Every integrator makes somethig unique. Starting with our leading INS technology, choose from a range of options to tailor your system to fit your application without paying for features you don't need.

- / CAN output
- / GX/IX™ RTK tight-coupling technology

- / Wheel speed odometer input support
- / Network differential

- / Increased output rate up to 250 Hz
- / Generic aiding input
- / And more...

Precision reference you can trust

The technology and performance you can expect is backed by 20 years of history and experience. Our in-house calibration facilities, custom built IMUs, and advanced navigation algorithms are proven and trusted by customers around the world.

The OEM1000 and xOEM1000 systems provide economical solutions without compromising performance to deliver complete 3D motion and dynamics measurement with GNSS + inertial sensor fusion. Dual GNSS receivers enable accurate and stable heading even when stationary, and the blended INS measurements provide a comprehensive list of measurements including position, velocity, acceleration, and orientation.

- / Multi-frequency multi-constellation dual antenna RTK GNSS
- / Small yet proficient MEMS IMU provides precision dynamics measurement and reduces errors in bad GNSS
- / Tight-coupling further improves performance in difficult environments like urban canyons

- / Zero export restrictions enables seemless global business
- / Low latency 100 Hz output over Ethernet and RS-232
- / Rugged enclosed OEM1000 or board-set xOEM1000 options allow flexibility in development and deeper integration

OXTS
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Technology to support you

OxTS systems are more than just GNSS + IMU hardware. The advanced navigation algorithms and supporting technologues help ensure you get the best out of your system and your integration is robust, reliable, and the best performance you can get.

Dual antenna GNSS

/ Integrated dual antenna receiver enables true heading calculation

/ Accurate and stable heading performance even during low dynamics or stationary periods

/ Start logging and outputting full navigation data before the vehicle starts moving with static initialisation

/ Increased accuracy with wider antenna baselines

/ GLONASS support on both primary and secondary receivers enhances robustness and speeds up static initialisation

/ Tight-coupling implementation in heading algorithms improves reliability in difficult environments

GX/IX™ RTK

/ With the tightly-coupled GNSS + IMU, raw satellite data is used directly in the navigation algorithms to improve performance in limited GNSS conditions

/ Custom RTK processing engine tailored to the OEM1000 sensors helps reliability and allows RTK quality in post-processing with RINEX corrections

/ Faster RTK relock after obstructions and position updates even with fewer than 4 satellites in view maximises time spent with optimal accuracy

Land vehicle dynamic profile

/ Typical land vehicle motion allows navigation constraints that improve performance with no external equipment required

/ Lateral No-slip enhances lateral velocity, heading, and slip angle and reduces drift when GNSS is unavailable

/ Vertical No-slip enhances vertical velocity and pitch to reduce drift

/ An external wheel speed odometer can further enhance velocity measurements and reduce drift

Hardware	OEM1000	xOEM1000
Dimensions	142 x 77 x 41 mm	112 x 65 x 30 mm
Mass	0.425 kg	0.15 kg
Input voltage	10-31 V dc	10-31 V dc
Power consumption	9 W	9 W
Max output rate	100 Hz, 250 Hz[1]	100 Hz, 250 Hz[1]
Operating temperature	-40º to +70ºC	-40º to +70ºC
Calibration temperature	-10º to +70ºC	-10º to +70ºC
Environmental protection	IP67	None
Vibration[2]	4.12 g^2/Hz, 10-2000 Hz	4.12 g^2/Hz, 10-2000 Hz
Shock survival[2]	60 g	60 g
Internal storage	32 GB	32 GB
I/O connector	22 pin Deutsch AS	22 pin header
GNSS antenna connector	SMA	Hirose H.FL
Dual antenna	✔	✔
Interfaces	Ethernet, RS-232, CAN[1]	Ethernet, RS-232, CAN[1]

Performance[3]

Positioning		GPS L1, L2 GLONASS L1, L2 Beidou[1] B1, B2
Position accuracy (CEP)	SPS	1.6 m
	SBAS	0.6 m
	DGPS	0.4 m
	RTK	0.02 m
10 s outage	RTK	0.32 m
	PP	0.07 m
60 s outage	RTK	2.82 m
	PP	0.74 m
Velocity accuracy (RMS)		0.1 km/h
Roll/pitch accuracy (1σ)		0.05º
Heading accuracy (1σ)[4]		0.1º

Sensors

Type	Accelerometers	Gyros
Technology	MEMS	MEMS
Range	±30 g	±300º/s
Bias stability	20 µg	3º/hr
Linearity	0.05%	0.05%
Scale factor	0.01%	0.05%
Random walk	0.05 m/s/√hr	0.5º/√hr
Axis alignment	<0.05º	<0.05º

[1] Optional upgrade.

[2] Subject to mounting/enclosure. Tested in OEM1000 enclosure.

[3] Valid for open sky conditions.

[4] Dual antenna heading valid for 2 m antenna separation. Wider separation will improve accuracy. Supports up to 5 m separation.

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Differentiate yourself with OxTS Integrated
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