Quanta Micro

GNSS aided Inertial Navigation System

0.015° ROLL/PITCH
0.035° YAW

Outstanding Orientation & Navigation Performance, Disruptive SWaP-C

Best in class MEMS INS. Based on SBG Systems' renown expertise in INS design, and calibration, Quanta Micro easily supports vibrations. Low noise and bias gyros (0.8°/h) allows delivering ultra accurate attitude angles and are even capable of maintaining highly accurate single antenna heading in challenging condition like corridor mapping and low dynamic flights.

Reliability is key for robotics and autonomous applications. Quanta Micro has been designed from the ground-up to meet the most stringent requirements, delivering continuous navigation during GNSS outages, while featuring advanced interfacing capabilities in a tiny board level integration.

An optional secondary antenna maintains highly accurate heading in the lowest dynamic conditions!

Use anywhere: maximum performance

- Ideal for all UAV LiDAR mapping jobs
- Odometer and vehicle dynamic
- constraints in land applications
- 5 cm heave for marine applications

KEY FEATURES

- Disruptive SWAP-C for a survey class INS
- Survey grade MEMS IMU maximizes performance and robustness
- High bandwidth IMU for vibration resistance
- Dual-frequency, quad-constellation GNSS, delivering cm accuracy
- Fast & robust dual antenna heading
- Smooth real time and post-processing Workflows with Qinertia Software
- User friendly web interface
- 8 GB embedded datalogguer
- Full featured REST API for seamless OEM integration

SBG SYSTEMS | Motion & Navigation you can trust

ISO 9001 BUREAU VERITAS Certification

Specifications

No Export Restriction

1-sigma errors over full temperature range [-40 to 85°C]

INTERFACES

Aiding sensors	GNSS, RTCM, NTRIP, Odometer, DVL
Protocols	NMEA, ASCII, sbgECom (binary), REST API
Ethernet	Full duplex (10/100 base-T) PTP / NTP, NTRIP, Web interface, FTP
Datalogger	8 GB or 48 h @ 200 Hz
Serial ports	3x TTL UART, full duplex
CAN	1x CAN 2.0 A/B bus, up to 1 Mbps
Output rate	200Hz (IMU, INS)
I/O	4x: Inputs : PPS, Events in up to 1 kHz 2x Outputs: SYNC out, PPS, Virtual odo LEDs drivers for status display
Connectors	44 pin contacts, 1.27 mm pitch, SMD 2x U.FL for antennas

MECHANICAL & ENVIRONMENTAL

Dimensions	50 x 37 x 23 mm
Weight	38 g
Temperature range	-40 to 85°C
Operating vibrations	8 g RMS (MIL-STD-810G)
IMU Sensor range	490°/s | 40g
Operational limits	500 m/s 80 km altitude
MTBF (computed)	50,000 h

SYSTEM PERFORMANCE

Parameter	Single point	RTK	PPK
Roll/Pitch	0.03°	0.02°	0.015°
Heading Single ant.*	0.1°	0.08°	0.035°
Heading Dual ant. 2m	0.06°	0.06°	0.035°
Velocity	0.05 m/s	0.02 m/s	0.01 m/s
Position	1.2 m	0.01 m + 0.5ppm	0.01 m + 0.5ppm

** Typical UAV mission, dependent on dynamics*

GNSS

Features	SBAS, RTK, PPK
Signals	GPS: L1 C/A, L2C GLONASS: L1OF, L2OF GALILEO: E1, E5b BEIDOU: B1I, B2I
Update rate	PVT: 5 Hz, RAW 1 Hz
Time to first fix (cold start)	< 24 s

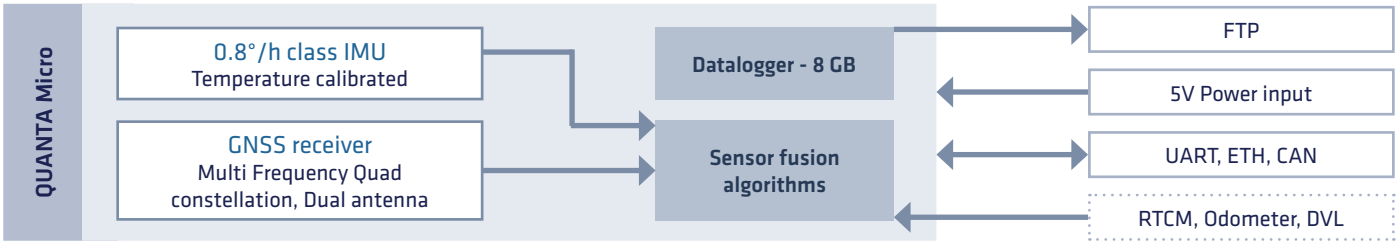
ELECTRICAL

Power supply range	5.0V DC +/- 10%
Power consumption	1.1 W
Antenna Ports	5V DC – max 150 mA Gain: 17 - 50 dB

TIMING SPECIFICATIONS

Timestamp accuracy	< 200 ns
PTP accuracy	< 1 µs
PPS accuracy	< 10 µs (jitter < 10 µs)
Drift in dead reckoning	1 ppm

BLOCK DIAGRAM



Development Kit

Jump start your integration with the development kit allowing you to fully test Quanta Micro with USB, RJ45,DB9 connectors (Serial & CAN) and DIL connectors, allowing you to start the Software integration before your own system is available.

Qinertia

Qinertia post processing Software is a needed companion to get the maximum performances from Quanta Micro:

- Forward + Backward processing
- Tight coupling Inertial + GNSS
- Remove uncertainty of RTK availability
- Kinematic VBS, and much more...

Free Technical Support | Unlimited Firmware Updates | 2-year Warranty

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Contact our Experts: **www.sbg-systems.com/contact**