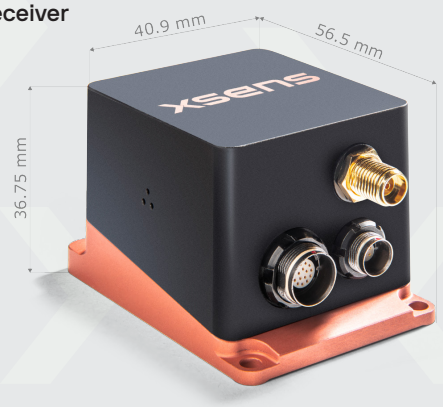
# Xsens MTi-680G

- Rugged, IP68 rated RTK GNSS/INS
- 0.2 deg roll/pitch & cm-level position accuracy
- Internal u-blox ZED F9 RTK enabled GNSS receiver




## Description

The MTi-680G is an RTK enabled GNSS/INS with a ruggedized housing featuring IP68 protection against environmental influences. Building on the proven Xsens MTi 600-series technology it enables a robust and easy to use cm-level positioning and orientation tracking for outdoor applications. It features an incredibly powerful onboard u-blox ZED F9 RTK GNSS receiver to provide superior positioning performance. It is designed for easy integration and seamless interfacing with other equipment.

The MTi-680G is supported by the MT Software Suite which includes MT Manager (GUI for Windows/Linux), SDK, example codes and drivers for many platforms including ROS.

- White label and OEM integration options available
- 3D models available on request

### Sensor fusion performance

| | |
|---|---|
| Roll/Pitch | 0.2 deg RMS |
| Yaw/Heading | 0.5 deg RMS |
| Position | 1cm+1ppm CEP1 |
| Velocity | 0.05m/s RMS |

### Gyroscope

| | |
|---|---|
| Standard full range | 2000 deg/s |
| In-run bias stability | 8 deg/h |
| Bandwidth (-3dB) | 520 Hz |
| Noise Density | 0.007 °/s/√Hz |
| g-sensitivity (calibr.) | 0.1 °/s/gz |

### Accelerometer

| | |
|---|---|
| Standard full range | 10 g |
| In-run bias stability | 10 (x,y) 15(z) µg |
| Bandwidth (-3dB) | 500 Hz |
| Noise Density | 60 µg/√Hz |

### Magnetometer

| | |
|---|---|
| Standard full range | +/- 8 G |
| Total RMS noise | 1 mG |
| Non-linearity | 0.2% |
| Resolution | 0.25 mG |

### RTK GNSS receiver

| | |
|---|---|
| Brand | u-blox |
| Model | ZED F9 |
| RTK correction input | RTCM 3.2/3.3 |
| RTCM input port | RS232 (38K4-921K6 bit/s) |

### Barometer

| | |
|---|---|
| Standart full range | 300-1250 hPa |
| Total RMS noise | 1.2 Pa |
| Relative accuracy | +/- 8 Pa (~0.5m) |

### Mechanical

| | |
|---|---|
| IP-rating | IP68 |
| Operating Temperature | -40 to 85 °C |
| Casing material | Aluminum |
| Mounting orientation | No restriction, full 360° in all axes |
| Dimensions | 56.50x40.90x36.75 mm |
| Connector | Main: ODU (AMC HD 12 pins) RTCM: ODU (AMC HD 4 pins) Antenna: SMA |
| Weight | 98 g |
| Certifications | CE, FCC, RoHS |

### Electrical

| | |
|---|---|
| Input voltage | 4.5 to 24V |
| Power consumption (typ) | <1 W |

### Interfaces / IO

| | |
|---|---|
| Interfaces | CAN, RS232 |
| Sync Options | SyncIn, SyncOut, ClockSync |
| Protocols | Xbus, ASCII (NMEA) or CAN |
| Clock drift | 1ppm |
| Output Frequency | Up to 2 kHz, 400 Hz SDI |
| Built-in-self test | Gyro, Acc, Mag, Baro, GNSS |

### Software Suite

| | |
|---|---|
| GUI (Windows/Linux) | MT Manager, Firmware updater, Magnetic Field Mapper |
| SDK (Example code) | C++, C#, Python, Matlab, Nucleo, public source code |
| Drivers | LabVIEW, ROS, GO |
| Support | Online manuals, community and knowledge base |

Unless stated otherwise, all specifications are typical. Specifications subject to change without notice. This document is informational and not binding.
Complete and detailed specifications are available at mtidocs.movella.com