

MTi-680

- **Small, IP51-rated RTK GNSS/INS**
- **0.2 deg roll/pitch & cm-level position accuracy**
- **Connects to external RTK GNSS receiver**

The MTi-680 is a Global Navigation Satellite System/Inertial Navigation System (GNSS/INS) with an integrated Real-Time Kinematic GNSS receiver. The MTi-680's added RTK feature means you can improve your positional data from meter-level to centimeter-level accuracy. This easy-to-use GNSS/INS module is designed for easy integration and seamless interfacing with other equipment.

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



- White label and OEM integration options available
- 3D models available on request
- Available online via Digi-Key, Mouser, Farnell and local distributors

Sensor Fusion Performance

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|-------------|-------------|
| Roll, Pitch | 0,2 deg RMS |
| Yaw/Heading | 0.5 deg RMS |
| Position | <1cm CEP |
| Velocity | 0.05m/s RMS |

Gyroscope

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|-------------------------|---------------|
| 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.) | 0.001 °/s/g |

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

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

GNSS Receiver

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|-----------------|----------|
| Brand | External |
| Model | External |
| RTCM input port | External |

Barometer

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

Mechanical

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|-----------------------|---|
| IP-rating | IP51 |
| Operating Temperature | -40 to 85 °C |
| Casing material | PC-ABS |
| Mounting orientation | No restriction, full 360° in all axes |
| Dimensions | 28x31.50x13 mm |
| Connector | Main: Phoenix Contact 16 pin, 1.27 mm pitch |
| Weight | 8.9 g |

Electrical

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

Interfaces / IO

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|--------------------|----------------------------|
| Interfaces | UART, CAN, RS232 |
| Sync Options | SyncIn, SyncOut, ClockSync |
| Protocols | Xbus, ASCII (NMEA) or CAN |
| Clock drift | 1ppm (external) |
| Output Frequency | 2 kHz, 400 Hz SDI |
| Built-in-self test | Yes |

Software Suite

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|---------------------|--|
| 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 | BASE by XSSENS: online manuals, community and knowledge base |