The 3DM-GX4-25™ offers a range of fully calibrated inertial measurements including acceleration, angular rate, magnetic field, deltaTheta and deltaVelocity vectors. It also outputs computed attitude estimates including Euler angles (pitch, roll, and heading (yaw)), rotation matrix and quaternion. Uncertainty values and data-valid flags are available for all estimated outputs. Thanks to a sophisticated Adaptive Kalman Filter, the estimates are highly immune to magnetic disturbances and linear motion. Bias tracking and sensor noise model options allow for fine tuning your application. All quantities are fully temperature compensated and are mathematically aligned to an orthogonal coordinate system.

The 3DM-GX4-25™ architecture has been carefully designed to substantially eliminate common sources of error such as gain and offset errors induced by temperature changes and sensitivity to supply voltage variations. Gyro drift is extremely low and through a variety of estimation techniques it can approach near-tactical performance in many applications.

Thanks to the MIP™ Protocol, the 3DM-GX4™ family is drop-in protocol compatible with the 3DM-GX3® and 3DM-RQ1™ families of inertial sensors. The 3DM-GX4-25™ is initially sold as a starter kit consisting of an AHRS module, RS-232 or USB communication and power cable, software memory stick or CD, user manual, and quick start guide.
## Specifications

### General
- **Interface**: USB 2.0 and RS232
- **Baud rate**: USB: Full Speed, RS232: 9,600 bps to 921,600 bps (115,200 bps default)
- **Power supply voltage**: +3.2 to +36 volts DC
- **Power consumption**: at full performance: 100 mA typ (120 mA max when powered by Vpri (3.2V-5.5V); 100 mA typ (120 mA max) when powered by Vaux (5.2V-36V)
- **Connector**: micro-D89
- **Operating temperature**: -40 °C to +85 °C ambient
- **Mechanical shock**: 500 g (calibration unaffected) 1000 g (bias may change) 5000 g (unpowered survivability)
- **MTBF**: 1.2 million hours (Telcordia method I, GL35C) 0.45 million hours (Telcordia method I, GM35C)
- **Dimensions**: 36.0 mm x 24.4 mm x 11.1 mm - excluding mounting tabs, width across tabs 36.6 mm
- **Weight**: 16.5 grams
- **Standards**: ROHS Compliant, CE Mark, MIL 461
- **Shock limit**: 500 g
- **Software utility**: Included in starter kit (XP/Vista/Win7/Win8 compatible)
- **Software development kit (SDK)**: complete data communications protocol and sample code
- **API**: MP™ Packet Protocol
- **Compatibility**: drop-in protocol compatibility with 3DM-GX3™-25

### IMU Filtering
- **Features**: adaptive Kalman Filter with gyro and accel bias tracking, magnetometer hard and soft Iron compensation tracking, vehicle dynamics mode selection, adaptive measurement noise enable/disable, user-defined sensor to vehicle frame transformation, selectable internal or external heading sources, full world magnetic model, WGS84 gravity model,
- **Estimation Filter update rate**: 500 Hz
- **IMU Data output rate**: 1 Hz to 1000 Hz

### Interface
- **User adjustable bandwidth**: 225 Hz max
- **Sampling rate**: 4 kHz
- **Resolution**: <0.1
- **Offset error over temperature (Hysteresis)**: ±0.05% typical
- **Gain error over temperature (Hysteresis)**: ±0.05% typical

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- **Software development kit (SDK)**: complete data communications protocol and sample code

### API
- **API**: MP™ Packet Protocol

### Compatibility
- **Compatibility**: drop-in protocol compatibility with 3DM-GX3™-25

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