Bibliografia


### Xsens

#### Output
- 3D orientation (Quaternions/Matrix/Euler angles)
- 3D acceleration
- 3D rate of turn
- 3D earth-magnetic field (normalized)
- Temperature

#### Sensor performance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Rate of turn</th>
<th>Acceleration</th>
<th>Magnetic Field</th>
<th>Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>3 axes</td>
<td>3 axes</td>
<td>3 axes</td>
<td>-</td>
</tr>
<tr>
<td>Full Scale (standard)</td>
<td>± 300 deg/s</td>
<td>± 0.1% of FS</td>
<td>± 750 mGauss</td>
<td>-55...+125 °C</td>
</tr>
<tr>
<td>Linearity</td>
<td>5 deg/s</td>
<td>0.32 m/s²</td>
<td>0.2% of FS</td>
<td>&lt;1% of FS</td>
</tr>
<tr>
<td>Bias stability (1o)</td>
<td>0.05%</td>
<td>0.001 m/s²/V</td>
<td>0.2% of FS</td>
<td>0.5 °C accuracy</td>
</tr>
<tr>
<td>Scale Factor stability (1o)</td>
<td>-</td>
<td>0.1 deg</td>
<td>0.5 mGauss (1o)</td>
<td>-</td>
</tr>
<tr>
<td>Noise density</td>
<td>0.1 deg/s/V</td>
<td></td>
<td>0.1 deg</td>
<td>-</td>
</tr>
<tr>
<td>Alignment error</td>
<td>40 Hz</td>
<td>0.1 deg</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Bandwidth (standard)</td>
<td></td>
<td>30 Hz</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

#### Orientation performance
- Dynamic Range: all angles in 3D
- Angular Resolution: 0.05 deg
- Static Accuracy (Roll/Pitch): <0.5 deg
- Static Accuracy (Heading): <1 deg
- Dynamic Accuracy: 2 deg RMS

#### Options
- Full Scale: ± 150 deg/s, ± 800 deg/s, ± 1200 deg/s
- Other options on request

#### Interfacing
- Max update rate: 512 Hz (calibrated sensor data), 100 Hz (orientation data)
- Digital interface: RS-232, RS-422 and USB (external converter)
- Analog interface (optional): 0 – 3.3V (Roll, Pitch, Heading)
- Operating voltage: 4.5 – 15V
- Power consumption: 380 mW (orientation output)

#### Housing
- Dimensions: 58x58x22 mm (WxLxH)
- Weight: 50 g
- Ambient temperature operating range: 0 – 55 deg Celsius

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Figura 109 – “Datasheet” Xsens
Gamin

1.5 TECHNICAL SPECIFICATIONS
Specifications are subject to change without notice.

1.5.1 Physical Characteristics

1.5.1.1 Size
61 mm in diameter and 19.5 mm in height

1.5.1.2 Weight
- GPS 18 unit only (no cable): 1.9 oz (53.9 g)
- GPS 18 USB: 3.5 oz (100.4 g)
- GPS 18 PC: 6.5 oz (184.6 g)
- GPS 18 LVC (3 meter cable): 3.9 oz (110.6 g)
- GPS 18 LVC-5m (5 meter cable): 5.7 oz (161.6 g)
- GPS 18-5Hz (5 meter cable): 5.7 oz (161.6 g)

1.5.1.3 Color
Black

1.5.1.4 Case Material
Polycarbonate thermoplastic that is waterproof to IEC 60529 IPX7 level (immersion in 1 meter of water for 30 minutes)

1.5.1.5 Cable Length
- GPS 18 USB: 2 meter
- GPS 18 PC: 2 meter
- GPS 18 LVC: 3 meter (Garmin Part Number 010-00321-05)
- GPS 18 LVC-5m: 5 meter (Garmin Part Number 010-00321-06)
- GPS 18-5Hz: 5 meter

Figura 110 – “Datasheet” GPS Parte 1
1.5.2 Electrical Characteristics

1.5.2.1 Input Voltage
- GPS 18 USB: 4.4–5.5 V
- GPS 18 PC: 8–30 V (Automotive supply from cigarette lighter jack)
- GPS 18 LVC: 4.0–5.5 V
- GPS 18-5Hz: 4.0–5.5 V

1.5.2.2 Input Current
- GPS 18 USB: 55 mA @ 5.0 V
- GPS 18 PC: 50 mA @ 13.8 V
- GPS 18 LVC: 60 mA @ 5.0 V
- GPS 18-5Hz: 65 mA @ 5.0 V

1.5.2.3 CMOS Serial Output Levels
- GPS 18 PC: 0 V to 5 V (Asynchronous Serial, TIA-232-F (RS-232) Compatible Polarity)
- GPS 18 LVC and GPS 18-5Hz: 0 V to Vin, between 4 and 5.5 V (Asynchronous Serial, TIA-232-F (RS-232) Compatible Polarity)

1.5.4 GPS Performance

1.5.4.1 Receiver
WAAS enabled; 12 parallel channel GPS receiver continuously tracks and uses up to 12 satellites (up to 11 with Measurement Pulse Output active) to compute and update your position.

1.5.4.2 Acquisition Times
- Reacquisition: Less than 2 seconds
- Warm: Approx. 15 seconds (all data known)
- Cold: Approx. 45 seconds (initial position, time, and almanac known; ephemeris unknown)
- AutoLocate™: 5 minutes (almanac known; initial position and time unknown)
- SkySearch: 5 minutes (no data known)

1.5.4.3 Update Rate
- GPS 18 USB, PC, and LVC: 1 record per second
- GPS 18-5Hz: 5 records per second

1.5.4.4 Accuracy
- GPS Standard Positioning Service (SPS)
  - Position: < 15 meters, 95% typical
  - Velocity: 0.1 knot RMS steady state
- WAAS
  - Position: < 3 meters, 95% typical
  - Velocity: 0.1 knot RMS steady state
- Measurement Pulse Output Time: ±1 microsecond at rising edge of the pulse
- Dynamics: 999 knots velocity (only limited at altitude greater than 60,000 feet), 6g dynamics

Figura 111 – “Datasheet” GPS Parte 2