R&D specialists usually compromise between high accuracy and price. The Ekinox 2 Series has been designed to bring robust and cost-effective MEMS solutions to the FOG technology’s level of accuracy. Ekinox Series opens a new world of opportunities.
Ekinox Series is a product range of high accuracy inertial systems. It has been designed to bring robust, maintenance free, and cost-effective MEMS to the tactical grade. Thanks to a drastic selection of high end MEMS sensors, an advanced calibration procedure, and powerful algorithm design, the Ekinox 2 Series achieves 0.02° attitude accuracy.

**Brings robust and cost-effective MEMS to the Tactical Grade**

- High Performance Inertial Systems
- ITAR Free
- Cost-effective & Robust MEMS technology
- Maintenance Free

**Accuracy**

**3D ORIENTATION**

<table>
<thead>
<tr>
<th>Roll, Pitch</th>
<th>0.03°*</th>
<th>GNSS aiding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.02°*</td>
<td>RTK aiding</td>
</tr>
<tr>
<td></td>
<td>0.015°</td>
<td>Post-Processing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Heading</th>
<th>0.1°*</th>
<th>Dual Antenna GNSS (baseline &lt; 2 m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.05°*</td>
<td>Dual Antenna GNSS (baseline &lt; 4 m)</td>
</tr>
<tr>
<td></td>
<td>0.03°*</td>
<td>Post-Processing</td>
</tr>
</tbody>
</table>

**POSITION**

<table>
<thead>
<tr>
<th>Single Point L1/L2</th>
<th>1.2 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBAS</td>
<td>0.6 m</td>
</tr>
<tr>
<td>DGPS</td>
<td>0.4 m</td>
</tr>
<tr>
<td>RTK</td>
<td>0.02 m</td>
</tr>
<tr>
<td>RTK 30s Outage</td>
<td>3 m</td>
</tr>
<tr>
<td>Marine conditions</td>
<td></td>
</tr>
<tr>
<td>RTK 60s Outage</td>
<td>0.2% TD</td>
</tr>
<tr>
<td>Marine conditions, DVL* aided</td>
<td>3 m</td>
</tr>
<tr>
<td>Automotive mode - With odometer</td>
<td></td>
</tr>
<tr>
<td>PPK**</td>
<td>0.02 m</td>
</tr>
</tbody>
</table>

**HEAVE**

<table>
<thead>
<tr>
<th>Real-time</th>
<th>5 cm or 5%</th>
<th>Whichever is greater, velocity aided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave period</td>
<td>0 to 20 s</td>
<td>Auto-adjusting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Delayed</th>
<th>2.5 cm or 2.5%</th>
<th>Whichever is greater, velocity aided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave period</td>
<td>0 to 40 s</td>
<td></td>
</tr>
</tbody>
</table>

* Depends on DVL performance. - TD: Travelled Distance. - Typical RMS values
**Post-processing Kinematic
A Cutting-Edge Architecture

Software

CONFIGURATION, REAL-TIME DISPLAY & REPLAY

Configuration is made easy through our intuitive embedded web interface where all parameters can be quickly displayed and adjusted.

The sbgCenter offers all the tools for real-time visualization (200 Hz) and replay of the records stored in the internal data logger.
Applications

**AEROSPACE**
- Mid-sized & large UAV
- Avionics
- LiDAR
- Gyro-stabilized camera
- Flight data recorder
- Ready-to-use INS/GPS (Ekinox2-N)
- Designed for harsh environments
- Temperature calibrated (-40 to 75°C)
- Unmatched precision in high vibration conditions (MIL-STD-810G)
- Robust IP68 enclosure

**LAND**
- Car motion
- Unmanned Ground Vehicle
- Camera and 3D scanner
- SATCOM antenna
- Machine Control
- All-in-one solution with Dual Antenna GPS, RTK GNSS, and odometer (Ekinox 2 Land Solution)
- Ethernet & CAN connectivity
- Precise GPS UTC synchronization
- Low latency (2 ms)
- Very low noise on Attitude & Navigation data

**MARINE**
- Hydrography
- Motion monitoring
- Performance sailing
- Offshore
- Targeting system
- Integrated Dual Antenna GPS for True Heading (Ekinox2-D)
- Real-time Auto adjusting heave on 4 monitoring points
- NMEA, TSS & Simrad protocols
- Ethernet & Web interface

**SUBSEA**
- AUV, ROV
- SONAR, LiDAR, Camera
- Compact and low-power consumption
- Real-time data fusion with DVL, etc.
- Up to 4 simultaneously connected equipment

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**Seamless Integration**

**STARTING BOX**
The selected Ekinox model is shipped with a quick start guide and its own calibration report.
A set of software tools is included such as the sbgCenter application, API C libraries with code examples, etc.
A robust and waterproof transport case is fitted to contain other ordered items such as cables, GNSS antennas, etc.

**NEED A CUSTOM PACKAGE?**
Every industry has its own constraints. Our Sales Engineers will work with you to recommend the right solution for your project, or for an entirely custom design.

**SBG SYSTEMS SERVICES**
Support – Training - Custom Design
Specifications

SENSEs PERFORMANCE

<table>
<thead>
<tr>
<th>Accelerometers</th>
<th>Gyroscopes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A2</strong></td>
<td><strong>300°/s</strong></td>
</tr>
<tr>
<td><strong>A3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Measurement range</strong></td>
<td><strong>8 g</strong></td>
</tr>
<tr>
<td><strong>Random walk</strong></td>
<td><strong>7 µg/√Hz</strong></td>
</tr>
<tr>
<td><strong>Bias in-run instability</strong></td>
<td><strong>2 µg</strong></td>
</tr>
</tbody>
</table>

INTERFACE

Aiding Sensors: 2x GNSS, RTCM, DVL, Odometer, Gyro-compass

Protocols:
- **Output**: NMEA, ASCII, Binary, TSS, Simrad
- **Input**: NMEA, Trimble, Novatel, Septentrio, Hemisphere, Veripos, Fugro, PDD, PD6

Output Rate: 1 to 200 Hz

Logging Capacity: 8 GB or 48h @ 200 Hz

Serial RS-232/422:
- Model N/D: 2 outputs / 4 inputs
- Model A/E: 3 outputs / 5 inputs

CAN: 1 CAN 2.0 A/B bus up to 1 Mbit/s

Pulses:
- Inputs: PPS, Event marker up to 1 kHz
- Outputs: SyncOut, Trigger
- 5 inputs / 2 outputs

Ethernet: Full Duplex (10/100 Base T)

ENVIRONMENTAL SPECIFICATIONS

Operating Vibrations: 20 Hz to 2 kHz as per MIL-STD-810G
- Accelerometer 8 g: 3 g RMS
- Accelerometer 14 g: 8 g RMS

IP Rating: IP68

Operating Temperature: -40 to 75°C / -40 to 167°F

MTBF: 50,000 hours

PHYSICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Ekinox2-A/E</th>
<th>Ekinox2-N/D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GPS</strong></td>
<td><strong>L1/L2 Dual Antenna GNSS receiver</strong></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td><strong>400 grams</strong></td>
</tr>
<tr>
<td></td>
<td><strong>0.88 pounds</strong></td>
</tr>
<tr>
<td><strong>Dimensions (L x W x H)</strong></td>
<td><strong>10 x 8.6 x 5.8 cm</strong></td>
</tr>
<tr>
<td></td>
<td><strong>3.9 x 3.4 x 2.2”</strong></td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td><strong>&lt; 3 W</strong></td>
</tr>
<tr>
<td><strong>Supply Voltage</strong></td>
<td><strong>9 to 36 VDC</strong></td>
</tr>
</tbody>
</table>

Typical RMS values. All specifications subject to change without notice.
SBG Systems is a leading supplier of MEMS-based inertial motion sensing solutions. The company provides a wide range of inertial solutions from miniature to high accuracy. Combined with cutting-edge calibration techniques and advanced embedded algorithms, SBG Systems products are ideal solutions for industrial & research projects such as unmanned vehicle control, antenna tracking, camera stabilization, and surveying applications.

**PRODUCTS**

- **Subsea MRU & INS**
- **Ekinox INS with RTK base station and odometer**

**TEST RESULTS**

- **Marine**
- **Hydrography**
- **Automotive**
- **Aerospace**

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