EKINOX 2 SERIES 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 2 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.

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

### Accuracy

#### 3D ORIENTATION

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

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

| PPK**            | 0.02 m | 3 m |

#### HEAVE

<table>
<thead>
<tr>
<th>Real-time</th>
<th>5 cm or 5% Whichever is greater, velocity aided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wave period</td>
<td>0 to 20 s Auto-adjusting</td>
</tr>
<tr>
<td>Delayed</td>
<td>2.5 cm or 2.5% Whichever is greater, velocity aided</td>
</tr>
<tr>
<td>Wave period</td>
<td>0 to 40 s</td>
</tr>
</tbody>
</table>

* Depends on DVL performance. - TD: Travelled Distance. - Typical RMS values
**Post-processing Kinematic
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 (Ekinox2 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

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

SENSORS PERFORMANCE

<table>
<thead>
<tr>
<th>Accelerometers</th>
<th>Gyroscopes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2</td>
<td>A3</td>
</tr>
<tr>
<td>Measurement range</td>
<td>8 g</td>
</tr>
<tr>
<td>Random walk</td>
<td>7 µg/√Hz</td>
</tr>
<tr>
<td>Bias in-run instability</td>
<td>2 µg</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, PD0, 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>GPS</td>
<td>L1/L2 Dual Antenna GNSS receiver</td>
</tr>
<tr>
<td>Weight</td>
<td>400 grams</td>
</tr>
<tr>
<td></td>
<td>0.88 pounds</td>
</tr>
<tr>
<td>Dimensions (L x W x H)</td>
<td>10 x 8.6 x 5.8 cm</td>
</tr>
<tr>
<td></td>
<td>3.9 x 3.4 x 2.2 “</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>&lt; 3 W</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>9 to 36 VDC</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.

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