EKINOX SERIES R&D specialists usually compromise between high accuracy and price. The Ekinox 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

Brings robust and cost-effective MEMS to the Tactical Grade

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

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 Series achieves 0.02° attitude accuracy.

Accuracy

3D ORIENTATION

| Roll, Pitch | GNSS aiding | 0.03° |
|            | RTK aiding  | 0.02° |
|            | Post-Processing | 0.015° |
| Heading    | Dual Antenna GNSS (baseline < 2 m) | 0.08° |
|            | Dual Antenna GNSS (baseline < 4 m) | 0.05° |
|            | Post-Processing | 0.03° |

POSITION

| Single Point L1/L2 | 1.2 m |
| SBAS              | 0.6 m |
| DGPS              | 0.4 m |
| RTK               | 0.01 m |
| RTK 30s Outage    | 3 m Marine conditions |
| RTK 60s Outage    | 0.2% TD Marine conditions, DVL* aided |
|                  | 3 m Automotive mode - With odometer |
| PPK**             | 0.02 m 3 m |

HEAVE

| Real-time | 5 cm or 5% Whichever is greater, velocity aided |
| Wave period | 0 to 20 s Auto-adjusting |
| Delayed   | 2.5 cm or 2.5% Whichever is greater, velocity aided |
| Wave period | 0 to 40 s |

* 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.
Specifications

**SENSORS PERFORMANCE**

<table>
<thead>
<tr>
<th></th>
<th>Accelerometers</th>
<th>Gyroscopes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A2</strong></td>
<td>8 g</td>
<td>300 °/s</td>
</tr>
<tr>
<td><strong>A3</strong></td>
<td>14 g</td>
<td>300 °/s</td>
</tr>
<tr>
<td><strong>Random walk</strong></td>
<td>7 µg/√Hz</td>
<td>30 µg/√Hz</td>
</tr>
<tr>
<td><strong>Bias in-run instability</strong></td>
<td>2 µg</td>
<td>&lt; 0.5 °/hour</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, P00, PD6
- **Output Rate**: 1 to 200 Hz
- **Logging Capacity**: 8 GB or 48h @ 200 Hz
- **Serial RS-232/422**: Model 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)
  PTP Grand Master Clock
  NTRIP v1/v2 client

**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
- **EMC**: EN60945

**PHYSICAL CHARACTERISTICS**

<table>
<thead>
<tr>
<th></th>
<th>Ekinox-A/E</th>
<th>Ekinox-D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GPS</strong></td>
<td>-</td>
<td>L1/L2 Single or Dual Antenna GNSS receiver</td>
</tr>
<tr>
<td></td>
<td></td>
<td>448 channels, GPS, GALILEO, BEIDOU</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>400 grams 0.88 pounds</td>
<td>600 grams 1.32 pounds</td>
</tr>
<tr>
<td><strong>Dimensions (L x W x H)</strong></td>
<td>10 x 8.6 x 5.8 cm 3.9 x 3.4 x 2.2 &quot;</td>
<td>10 x 8.6 x 7.5 cm 3.9 x 3.4 x 2.9 &quot;</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>&lt; 3 W</td>
<td>&lt; 5 W</td>
</tr>
<tr>
<td><strong>Supply Voltage</strong></td>
<td>9 to 36 VDC</td>
<td>9 to 36 VDC</td>
</tr>
</tbody>
</table>

Typical RMS values. All specifications subject to change without notice.
# Applications

## AEROSPACE
- Mid-sized & large UAV
- Avionics
- LiDAR
- Gyro-stabilized camera
- Flight data recorder
- Ready-to-use INS/GPS (Ekinox-D)
- 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
- Ethernet & CAN connectivity
- Precise Time Protocol (PTP) for time 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 (Ekinox-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
SBG Systems is a leading supplier of 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.

TEST RESULTS

Marine
Hydrography
Navsight Marine

Aerospace

SBG Systems EMEA (Headquarters)
Phone: +33 1 80 88 45 00
E-mail: sales@sbg-systems.com

SBG Systems North America
Phone: +1 (657) 845-1771
E-mail: sales.usa@sbg-systems.com

www.sbg-systems.com