

Sparton Navigation and Exploration

Sparton Navigation and Exploration, or Sparton NavEx, is a worldwide leader in the development and production of inertial sensor systems. Sparton NavEx designs and manufactures MEMS-based inertial systems that provide exceptional accuracy when measuring heading, orientation, and position. Sparton's sensor technology delivers highly accurate, low power, low cost, robust sensor solutions for military, aerospace, industrial, and commercial applications.

Sparton has more than a century of experience designing and manufacturing for governments and industries worldwide and now brings this history and expertise to its Engineered Components and Products (ECP) segment.

The Precision Sensing and Measurement (PSM) platform, including Sparton NavEx, provides a broad array of customer-centric solutions, ranging from devices that detect and measure (or sense) to engineered products to custom design and manufacturing services to meet the challenges of diverse and demanding applications.

APPLICATION EXPERIENCE

- Sensors (Acoustic, Magnetic, Inertial, E-Field)
- Heading and Orientation
- Pan and Tilt
- Platform Stabilization
- GPS Augmentation
- Optical and Electro-Optical (EO) Targeting
- Antenna Positioning
- Surveying – Land and Sea
- Unmanned Systems Orientation

TECHNOLOGICAL EXPERTISE

- Inertial Sensor/Digital Compass Systems
- Acoustic Sensors/Hydrophones
- Field Applications and Engineering Services
- Product Customization

DESIGN & ENGINEERING SERVICES CAPABILITIES

- Design for Assembly (DFA) Methodology
- Design for Manufacturability (DFM) Methodology
- End-to-End Program Management
- Engineering and Product Development
- Supply Chain Management

CERTIFICATIONS

- ISO 9001
- AS9100
- IPCV-610
- ITAR compliant

DIFFERENTIATORS

- Enhanced Calibration
- NorthTek and AdaptNav Software
- Technical Support
- Custom Designs
- Engineering Services



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NAVIGATION AND EXPLORATION

EXCEPTIONAL ACCURACY



Sparton Sensor Capabilities



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NAVIGATION AND EXPLORATION

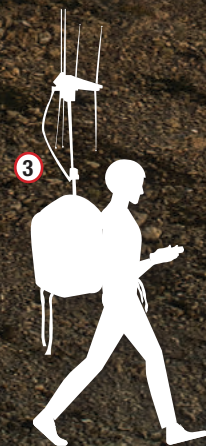
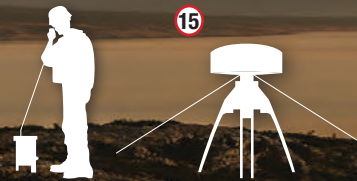
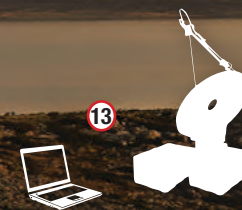
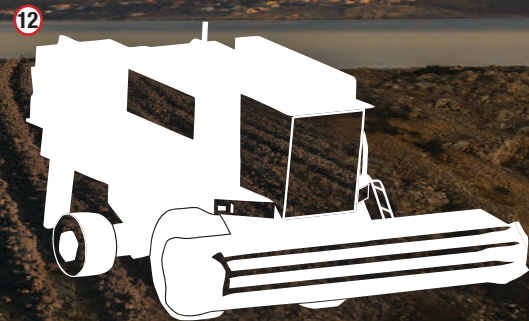
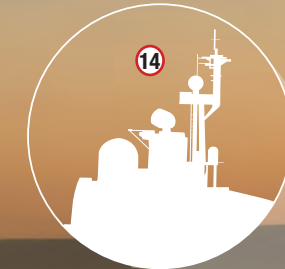
Defense and Targeting

- 1 Optical Targeting systems require maximum accuracy at all times.
- 2 Electro-Optical Targeting systems are utilized in night vision, infrared, laser, and range finding devices and are vital components in military operations.
- 3 Direction Finding systems triangulate target radio signals and require heading data.



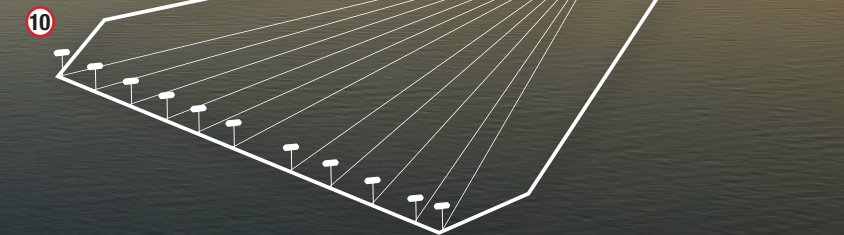
Unmanned Systems

- 4 An Unmanned Aerial Vehicle (UAV) or Unmanned Aerial System (UAS), commonly known as a drone, requires heading and orientation data.
- 5 Unmanned Underwater Vehicles (UUVs) operate in a GPS-denied environment and the data provided from MEMS-based gyros provides heading stability.
- 6 Unmanned Ground Vehicles (UGVs) also require heading and orientation data.
- 7 Weather Buoys use inertial sensors as remote sensing to provide heading and even direction.
- 8 Sea Gliders utilize the power of waves to thrust themselves forward and require heading and orientation data.



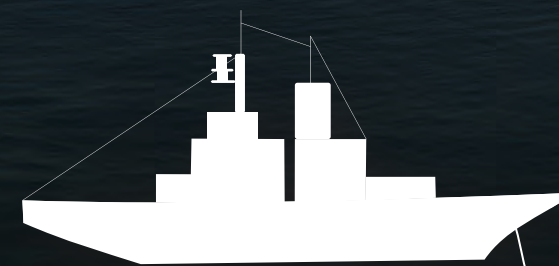
Surveying – Land and Sea

- 9 Surveying applications need to be assured that equipment is level and properly aligned to achieve best results.
- 10 Towed Arrays are seismic streamer systems used in underwater exploration that require high levels of heading and attitude accuracy.
- 11 Seismic bottom nodes are used in exploration/acquisition environments to expand data ranges and results.
- 12 Similar to towed arrays, Agricultural Vehicles require platform leveling to ensure they operate efficiently.



Antenna Positioning

- 13 Mobile Antenna systems like those used for satellite communications require efficient high pointing accuracy with azimuth and elevation angles.
- 14 Shipboard Antennas must be able to react to the ebb and flow of a ship on the high seas by maintaining a consistent platform level.
- 15 Portable, or Mobile, Air Traffic Control systems need to be able to quickly determine heading as well as platform stabilization and leveling.



General Applications

- Heading and Orientation
- Pan and Tilt
- Direction Finding
- Platform Stabilization and Leveling
- GPS Augmentation
- Hydrophones

