### DiNIS Component Specifications:

<table>
<thead>
<tr>
<th><strong>System Depth Rating:</strong> 100 m</th>
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</thead>
<tbody>
<tr>
<td><strong>Navigation Components</strong></td>
</tr>
<tr>
<td><strong>Doppler Velocity Log:</strong></td>
</tr>
<tr>
<td>Frequency: 600 kHz;</td>
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<tr>
<td><strong>MEMS AHRS:</strong></td>
</tr>
<tr>
<td>Sensor Roll Rate: 200 °/s;</td>
</tr>
<tr>
<td>Max Heading Error: 0.8 ° (2 ° in magnetic environment)</td>
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<tr>
<td><strong>Pressure sensor Depth:</strong></td>
</tr>
<tr>
<td>Precision: 0.1 m; Accuracy: 0.5 m</td>
</tr>
<tr>
<td><strong>GPS:</strong> Commercial Grade OEM with optional deployable antenna or optional dual frequency SAASM</td>
</tr>
</tbody>
</table>

**Navigation accuracy (typical):**
- **DVL only:** 0.3% of distance +/- 1 m*
- **DVL aided inertial (best case):** 0.25% of distance +/- 1 m* + heading error
  - Typical CEP Error in normal conditions ranges 0.1% to 2.2% of distance traveled, bottom-lock dependent

**Pitch-roll sensor range:**
- With 2-D cal: up to +/- 20 degrees
- With 3-D cal: up to +/- 180 degrees

**Assumptions:**
- Calibrated heading at start
- Initial position fix accuracy: 10 cm.
- Circular or out-and-back swim path
- Ideal conditions (no drift, magnetic fields, constant pitch/roll attitude)
- Constant DVL Bottom Lock

<table>
<thead>
<tr>
<th><strong>Sensors and Batteries</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forward looking sonar:</strong></td>
</tr>
<tr>
<td>Blueview DF900-2250, dual Frequency, 900 kHz/2250 kHz</td>
</tr>
<tr>
<td><strong>Low-light video camera:</strong></td>
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<tr>
<td>Resolution: 800TVL</td>
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<tr>
<td><strong>LED Camera Lights</strong></td>
</tr>
<tr>
<td><strong>Battery Type:</strong> Lithium ion (standard); Lithium Polymer (low μ) (Option)</td>
</tr>
<tr>
<td><strong>Battery Capacity:</strong> 6 hrs (std per battery)</td>
</tr>
<tr>
<td>12 hrs with 2 batteries (Lithium)</td>
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<tr>
<td>Underwater swappable to allow extending mission time</td>
</tr>
</tbody>
</table>

**Housing materials:** Non-magnetic for primary housing and components
- Aluminum sonar, camera, and battery housing

**Display:**
- Backlit TFT LCD
- Resolution: 1080p
- Display size: 10.1”

**Data storage capacity:**
- USB to SSD *
- Solid-State Disc Drive:
  - 512 GB (Std);
  - Internal storage optional to 64 GB SD or up to 1 TB SSD

* Assumptions:
  ✓ Calibrated heading at start
  ✓ Initial position fix accuracy: 10 cm.
  ✓ Circular or out-and-back swim path
  ✓ Ideal conditions (no drift, magnetic fields, constant pitch/roll attitude)
  ✓ Constant DVL Bottom Lock

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**“DiNIS”™ Diver Navigation and Imaging System**

- Underwater Waypoint Navigation
- Underwater Reconnaissance and Bathymetry
- Sonar and Video Imagery
- Tactical Planning and Decision Making
- Military and Commercial Applications
DiNIS provides the diver with a complete suite of commercial underwater sensors for the purpose of waypoint navigation and underwater reconnaissance:

- Single and dual-frequency sonar systems from either Teledyne BlueView (M900/2250) or TriTech (Gemini 720ik)
- Complete navigation sensor suite including Teledyne RDI Doppler Velocity Log (DVL), GPS, inertial sensors and MEMS Gyro, Pressure sensor, and low magnetic influence heading sensors
- Low-light color video camera (Options available for Wide Dynamic Range (WDR) and Black & White/IR)
- Underwater USB memory stick and solid state data storage devices
- Deployable GPS Antenna for shallow water GPS fix while submerged (Optional)
- External video ports for Heads Up Display (HUD)
- Additional sensor and I/O ports to allow for future system expansion
- Diver “Marking” & “Tagging” with automatic geo-referencing of targets of interest
- Connectivity to top-side computer for extensive system diagnostics, updates, data transfer, mission planning, and general software maintenance or firmware flashing

DiNIS is differentiated from other diver systems by its unique architecture, integrating all sensors through a single central controller board and a single Graphical User Interface, allowing:

- Single point control of all sensors
- Interoperability of all acoustic sensors with minimal interference
- All data is correlated, tagged with common time-stamp and geo-referenced
- International Language Support, allowing divers to operate in their native language
- Operator defined tags to allow informative and dynamic target marking

Interactive Top Side mission planning and post-processing software allowing multi-asset and mission data overlays and analysis, providing enhanced value to the military end user.