Northrop Grumman’s Navigation Data Distribution System (NAVDDS) product lines provide industry-leading performance and scalability to meet the requirements of a wide variety of customer platforms. NAVDDS receives navigational data from an array of shipboard sensors, manages the data, and distributes it to all shipboard clients in the format(s) needed by that client. NAVDDS functions as a single common reference that integrates all individual components. NAVDDS is built upon an Open Architecture Computing Environment (OACE) and is a scalable solution that leverages commercial-off-the-shelf (COTS) technology. Through a common series of system designs, NAVDDS installations can be tailored to accommodate the unique needs of individual customers and platforms. NAVDDS uses a common time reference, data time-tags, and predictive algorithms to correct for variable transmission delays. The result is a previously unachievable accuracy of distributed data to all users.

Benefits of Use

- Scalable System
- Easily expandable
- Ruggedized COTS component
- Low senescence
- Low latency
- “Data now” philosophy
- Easily adaptable
• Meets environmental requirements
• Open Architecture (OA) compliant
• Linux Operating System (Open Source)
• Suitable for fire control

**Common NAVDDS Interfaces**
- Global Positioning System (GPS)
- RS-422 Serial
- Time Server
- NTDS-E
- Synchr
- Alarm Contact Closures
- Ethernet
- Stanag 4156
- IRIG-B
- PTTI

**Specifications**

**Accuracy**
The NAVDDS is designed to meet the accuracy requirements stated herein under all environmental conditions.

**Static Accuracies**
- ±0.35 arc min for digital Heading, Roll, and Pitch outputs
- ±3.0 arc min for all standard coarse-only (1X - Heading or 2X - Roll/Pitch) synchro outputs
- ±0.07 arc min for all fine (36X) synchro outputs

**Dynamic Accuracies**

<table>
<thead>
<tr>
<th>Axis</th>
<th>Amplitude</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yaw</td>
<td>±10</td>
<td>10</td>
</tr>
<tr>
<td>Pitch</td>
<td>±3</td>
<td>6</td>
</tr>
<tr>
<td>Roll</td>
<td>±5</td>
<td>12</td>
</tr>
</tbody>
</table>

Worst-case dynamic error shall not exceed 0.5 arc min RMS for all synchro outputs.

**Typical System Inputs/Outputs**
A typical NAVDDS has 22 synchro 400Hz outputs with 2 60Hz amplified outputs.

**Typical Digital Inputs:**
- Ethernet (dual redundant)
- RS-422 NMEA 0183 (14 inputs)
- RS-232 NMEA 0183 (2 inputs)
- NTDS-E Superchannel (4 inputs)
- IRIG-B (2 inputs)
- Precise Time and Time Interval (PTTI) and HaveQuick

**Typical Digital Outputs:**
- Ethernet (dual redundant, copper or fiber)
- RS-422 NMEA 0183 (14 outputs)
- RS-422 Non-NMEA (14 outputs)
- RS-232 NMEA 0183 (2 outputs)
- NTDS-E Superchannel (2 outputs)
- IRIG-B (28VDC)
- Precise Time and Time Interval (PTTI) (6 outputs)

**Environments**

**Temperature**
Operating 0° C to +45° C
Storage -40° C to +71° C

**Humidity**
5% to 95% non-condensing over the full operating-temperature range

**Electromagnetic Compatibility**
MIL-STD-461E, Surface Ships - Metallic - Below Decks

**Shock**
MIL-S-901D, Grade A

**Vibration**
MIL-STD-167/1, Type 1 Equipment

**Components**

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