Model 2685 MIPS

Key Features

- Accurate and stable
- Lightweight and portable
- Integrated pitch, roll and heading sensors
- Integrated depth and temperature sensors
- Tested to military standards for compatibility
- Approved for military use

The 2685 Mobile Integrated Positioning System (MIPS) is an advanced Ultra Short Baseline (USBL) underwater tracking system.

The MIPS antenna provides a subsea positioning solution in a compact design for use in a Naval environment.

System integration is via a high speed serial link ideal for OEM applications.

The MIPS antenna is deployed from a single point mooring allowing a variety of platforms to be utilised.

Technical Specification

PHYSICAL SPECIFICATION

Depth Rating 100m
Transceiver Dimensions 510.0mm x Ø100.0mm (including connector)
Transceiver Weight 12.5kg in air, 8.5kg in water

Additional Sensors

Depth Sensor 10 bar, 0.25% accuracy -10°C to +40°C
Temperature Sensor 1°C resolution -10°C to +40°C
Compass Accuracy 0.5°
ACOUSTIC SPECIFICATION
Accuracy is based on the correct speed of sound being entered, no ray bending and an acceptable S/N ratio

- Slant range accuracy: 0.2m (accuracy dependent on correct speed of sound)
- Position accuracy: 0.45° drms 1.0% of slant range (acoustic accuracy excluding heading errors)
- Frequency band (MF): Reception 24 - 30 kHz, Transmission 17 – 26 kHz
- Transmitter power: > 187dB ref. 1uPa at 1m
- Tracking beam pattern: Hemispherical
- Beacon types: Transponders and responders
- Interrogation rate: Internally set or external key

USER INTERFACE
- Data communication: DS008-9010 Interface protocol
- Down link: RS-422, 19,200 baud.
- Up link: RS-422, 19,200 baud.
- Responder up link: RS-422 drivers/receivers used

ELECTRICAL SPECIFICATION
- Power requirements: 24-28VDC 2A

ENVIRONMENTAL SPECIFICATION
Temperature
- Operation in water: -4°C to +32°C
- Operation in air: -20°C to +44°C
- Storage temperature: -40°C to +70°C

High ambient temperature operation in air is for short duration system checks only, thermal protection is fitted and unit will auto shut down.

Vibration
- DEF STAN 00-35 Part 3: Issue 4

M1: General Purpose Vibration Test: Deployed or installed in surface ships: Sine sweep
M1: General Purpose Vibration Test: Deployed or installed in surface ships: Sine dwell

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Region</th>
<th>Amplitude (mm pk)</th>
<th>Frequency (Hz)</th>
<th>Duration (mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sine Sweep</td>
<td>Upper deck, Protected Compartment and Hull</td>
<td>0.125</td>
<td>5 to 33</td>
<td>60</td>
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<tr>
<td></td>
<td></td>
<td>0.250</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sine Dwell</td>
<td>All</td>
<td>1.250</td>
<td>14</td>
<td>20</td>
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<tr>
<td></td>
<td></td>
<td>0.300</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.125</td>
<td>33</td>
<td>20</td>
</tr>
</tbody>
</table>
Model 2685 MIPS Technical Specification

Shock
DEF STAN 00-35 Part 3: Issue 4
NCUE – Classical Shock Pulse

<table>
<thead>
<tr>
<th></th>
<th>Vertical</th>
<th>Lateral</th>
<th>Longitudinal</th>
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</thead>
<tbody>
<tr>
<td>Pulse Shape</td>
<td></td>
<td>Half Sine</td>
<td></td>
</tr>
<tr>
<td>Pulse Width</td>
<td></td>
<td>10ms</td>
<td></td>
</tr>
<tr>
<td>Acceleration</td>
<td>45g</td>
<td>25g</td>
<td>25g</td>
</tr>
<tr>
<td>Duration</td>
<td></td>
<td>1 shock in each direction of each orientation (6 in total)</td>
<td></td>
</tr>
</tbody>
</table>

Humidity
Operation 5% to 95% non condensating
Storage 5% to 95% non condensating

COMPATIBILITY

EMC
MIL STD 461D tests: CE101, CE102, RE101, RE102, CS101, CS114, RS101, RS103 to an upper limit of 1GHz.*
*Subject to power supply.

Magnetic Signature
External housing material is Aluminum Silicon Bronze (NES 834) with a typical relative magnetic permeability of 1.05.

RELIABILITY

Mean Time Between Failure (MTBF)
Calculations have been performed in accordance to MIL-HDBK-217F (inc. notice 1 & 2), the environmental factor used was Naval Unsheltered. The Quality factor used was ‘industrial’. The stress factor applied was 50%, the temperature factor applied was the upper operating condition = 50˚C.

Calculated results = 2894 hours.
In-service MTBF >20,000, 2009 to date.

INTERFACE CABLE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Cable Jacket</td>
<td>Polyurethane jacket</td>
</tr>
<tr>
<td>Construction</td>
<td>4 screened twisted pairs (STP)</td>
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<tr>
<td>Diameter</td>
<td>10.8mm approx.</td>
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<tr>
<td>Bend Radius</td>
<td>200mm minimum</td>
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<tr>
<td>Max Length</td>
<td>100m</td>
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<tr>
<td>SWL (Safe working Load)</td>
<td>25kg, (tested to 50kg)</td>
</tr>
<tr>
<td>Electrical connector subsea</td>
<td>Souriau 12 contact</td>
</tr>
<tr>
<td>Electrical connector – surface</td>
<td>Wire end</td>
</tr>
</tbody>
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