Signal Concentrator Unit

The Signal Concentrator Unit (SCU) is a real-time distribution system for ship sensor data. The SCU has been designed for mission-critical applications and therefore intrinsically supports a dual-redundant configuration of two or more SCUs.

Functions

The SCU will typically provide the following functions:

- Receives data from the following sensors: 2 Doppler Logs, 4 GPSs, 2 Electromagnetic Logs, 2 Weather Stations, 2 Echo Sounders and 2 Inertial Navigation Systems
- Monitors status of sensors
- Monitors link status to sensors
- Selects best source of sensor data
- Timestamps sensor data
- Provides age of data for selected sensor data
- Distributes sensor data
- Distributes SCU status
- Distributes status of each sensor and status of the link sensor status
- Displays the status of the SCU, sensors and sensor links

Features

- Configurable
- Flexible
- Scalable
- Replicated Architecture
- Fault-Tolerant
- Networked
- Cost-Effective

Design and Architecture

The SCU implements a distributed hardware architecture ensuring a high level of reliability and freedom from any single point of failure.

Applications

- Naval Ships
- Merchant Ships
Signal Concentrator Unit

Interfaces

The SCU provides the following interfaces:

- Configurable up to 96 high-speed serial interfaces (UART or HDLC configurable up to 20 Mbps maximum per interface)
- Up to 24 low-speed serial interfaces (UART up to 115 kbps maximum per interface)
- 2 Ultra high-speed LAN interfaces (FDDI, Gigabit Ethernet, 10 Gigabit Ethernet, 4 Gigabit Fibre Channel, etc.)
- Up to 14 PMC slots
- Up to 6 spare VME slots

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Power Supply</td>
<td>115 V, 60 Hz or 240 V, 50 Hz. The power supply requirements are specified by STANAG 1008</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>Typically 3 A</td>
</tr>
<tr>
<td>Total Mass</td>
<td>20 kg +/- 10 kg</td>
</tr>
<tr>
<td>Temperature</td>
<td>0°C to 70°C. Options: 0°C to 55°C, -15°C to +75°C, -40°C to +85°C</td>
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<tr>
<td>Shock</td>
<td>25 g (5 ms)</td>
</tr>
<tr>
<td>IP Rating</td>
<td>IP 54 (OEC-60529)</td>
</tr>
<tr>
<td>Heat Dissipation</td>
<td>150 W</td>
</tr>
<tr>
<td>Noise</td>
<td>&lt; 6 dBA</td>
</tr>
<tr>
<td>Dimensions</td>
<td>L = 420 mm. B = 483 mm. H = 450 mm +/- 100 mm</td>
</tr>
<tr>
<td>Performance</td>
<td>Sensor data latency of less than 1 ms for selected high-speed serial interfaces. Age of data estimation, from end of reception to end of transmission, accurate to within 100 µs for sensor data on selected high-speed serial interfaces. Flash RAM Storage Data for increased vibration tolerance.</td>
</tr>
<tr>
<td>Software</td>
<td>VxWorks Real-Time Operating System. C, C++ Application Software</td>
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<tr>
<td>Options</td>
<td>VME. Multibus II. Compact PCI. PCI/104. PCI</td>
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