Product Data Sheet

**DC-4E**

Tilt Compensated Attitude & Heading System

**Description**

The Sparton DC-4E delivers superior performance by incorporating tri-axial magnetometers and accelerometers with highly optimized next generation software and advanced calibration algorithms. It offers best-in-class reliability, attitude and heading accuracy and provides 3-axis calibrated magnetic field measurements with full 360° tilt-compensated heading, pitch, and roll data. Proprietary adaptive in-field calibration algorithms provide accurate performance even in the presence of magnetic distortions due to ferrous objects positioned on the mounting platform. Furthermore, the DC-4E also incorporates the World Magnetic Model allowing it to provide a True North output at all locations around the globe.

**Features**

- 2D and 3D adaptive in-field calibration providing hard and soft magnetic interference compensation
- Simple 2-wire serial (UART) interface (3.3V logic level) with user-selectable baud rate
- Built-in World Magnetic Model for accurate True North
- Advanced sensing technology (3-axis magnetic, 3-axis MEMS acceleration)
- Magnetic and True North heading (yaw), pitch, and roll measurement
- Low power consumption and power management (Sleep Mode) functionality
- Powerful user programmable customizations via NorthTek™ Forth interpreter
- Industry leading static accuracy and resolution
- Rugged (epoxy encapsulated) construction
- Supports multiple communication protocols
- Full 360° roll-over capability
- Small physical size
- In-field calibration point selection and distribution indicator
- Quality of in-field calibration indicator

**Typical Applications**

- Platform stabilization and positioning
- Pan and tilt, mapping and antenna pointing
- Heading and orientation
- Inclinometer
Specifications

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Pin Name</th>
<th>I/O</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1-1</td>
<td>V_TEST</td>
<td>O</td>
<td>3.3V regulator output for test purposes (factory use only)</td>
</tr>
<tr>
<td>P1-2</td>
<td>DEBUG_RXD</td>
<td>I</td>
<td>3.3V logic RXD input to Debug Port (factory use only)</td>
</tr>
<tr>
<td>P1-3</td>
<td>DEBUG_TXD</td>
<td>O</td>
<td>3.3V logic TXD output from Debug Port (factory use only)</td>
</tr>
<tr>
<td>P1-4</td>
<td>#WP_EEPROM</td>
<td>I</td>
<td>Pin removed for keying</td>
</tr>
<tr>
<td>P1-5</td>
<td>#RESET</td>
<td>I</td>
<td>3.3V logic, active-low reset input (the pin has a weak pull-up)</td>
</tr>
<tr>
<td>P1-6</td>
<td>Factory Use</td>
<td>I</td>
<td>Do not connect (factory use only)</td>
</tr>
<tr>
<td>P1-7</td>
<td>GND</td>
<td>N/A</td>
<td>System Ground</td>
</tr>
<tr>
<td>P2-1</td>
<td>V+</td>
<td>I</td>
<td>+4 to +10V DC power supply input Max load = 33mA</td>
</tr>
<tr>
<td>P2-2</td>
<td>USER_RXD</td>
<td>I</td>
<td>3.3V logic RXD input to User Com Port</td>
</tr>
<tr>
<td>P2-3</td>
<td>USER_TXD</td>
<td>O</td>
<td>3.3V logic TXD output from User Com Port</td>
</tr>
<tr>
<td>P2-4</td>
<td>#RESET</td>
<td>I</td>
<td>3.3V logic, active-low reset input (the pin has a weak pull-up)</td>
</tr>
<tr>
<td>P2-5</td>
<td>#EINT0</td>
<td>I</td>
<td>3.3V logic, active-low interrupt input (the pin has a weak pull-up) Used for programming purposes</td>
</tr>
<tr>
<td>P2-6</td>
<td>GND</td>
<td>N/A</td>
<td>System Ground</td>
</tr>
<tr>
<td>P2-7</td>
<td>GND</td>
<td>N/A</td>
<td>System Ground</td>
</tr>
</tbody>
</table>

Performance data applies under the following conditions unless otherwise specified: 23°C, 0° Pitch/Roll, 300mGauss Horizontal and 0mGauss Vertical Magnetic Field.

Specifications subject to change without notice.

For more information and detailed specifications scan QR code.

For support, please e-mail: productsupport@sparton.com

1 Performance data applies under the following conditions unless otherwise specified:
23°C, 0° Pitch/Roll, 300mGauss Horizontal and 0mGauss Vertical Magnetic Field.
2 Specifications in parentheses represent current limits of calibration methodology.
3 Performance at maximum dip angle will be degraded.
For more information and detailed specifications scan QR code.

For support, please e-mail: productsupport@sparton.com

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