SPAN® SPAN CPT7

COMPACT DUAL ANTENNA SPAN ENCLOSEMENT DELIVERS 3D POSITION, VELOCITY AND ATTITUDE

SPAN: WORLD-LEADING GNSS+INS TECHNOLOGY
Synchronous Position, Attitude and Navigation (SPAN) technology brings together two different but complementary technologies: Global Navigation Satellite System (GNSS) positioning and inertial navigation. The absolute accuracy of GNSS positioning and the stability of Inertial Measurement Unit (IMU) gyro and accelerometer measurements are tightly coupled to provide an exceptional 3D navigation solution that is stable and continuously available, even through periods when satellite signals are blocked.

SPAN CPT7 OVERVIEW
The SPAN CPT7 is a compact, single enclosure GNSS+INS receiver, powered by NovAtel's world class OEM7® technology. Capable of delivering up to centimetre-level accuracy, customers can choose from a variety of positioning modes to ensure they have the optimal level of accuracy for their application.

The SPAN CPT7 contains a high performing and highly reliable Honeywell HG4930 Micro Electromechanical System (MEMS) IMU to deliver leading-edge NovAtel SPAN technology in an integrated, single enclosure solution. It provides tactical grade performance for unmanned vehicles, mobile mapping and other commercial and/or military guidance applications. The SPAN CPT7 is a small, lightweight and low power solution with multiple communication interfaces for easy integration on multiple platforms.

SPAN CPT7 ADVANTAGES
The tight coupling of the GNSS and IMU measurements delivers the most satellite observations and the most accurate, continuous solution possible. Further, SPAN CPT7 is comprised entirely of commercial components, simplifying export restrictions involved with traditional GNSS+INS systems.

IMPROVE SPAN CPT7 ACCURACY
Take advantage of NovAtel CORRECT® to receive your choice of accuracy and performance, from decimetre to RTK-level positioning. For more demanding applications, Inertial Explorer® post-processing software can be used to post-process SPAN data to provide the system's highest level of accuracy.

BENEFITS
+ Continuous, stable positioning
+ Easy integration into space and weight constrained applications
+ Future proof for upcoming GNSS signal support
+ Multiple communication interfaces
+ Commercially exportable system (non-ITAR)
+ Small, low power, all-in-one GNSS/INS enclosure

FEATURES
+ MEMS gyros and accelerometers
+ Increased satellite availability with 555 channel capability
+ SPAN Land Vehicle technology
+ Optional SPAN Profiles support
+ Advanced interference mitigation features
+ Dual antenna ALIGN® heading
### SPAN CPT7

**SPAN SYSTEM PERFORMANCE**

<table>
<thead>
<tr>
<th>Channel Count</th>
<th>555 Channels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal Tracking</td>
<td>3 GPS L1/C/A, L1C, L2C, L2P, L5 GLONASS L1 C/A, L1/C/A, L2P, L3, L5 BeiDou B1I, B1C, B2I, B2a Galileo E1, E5a, E5b, E5b NavIC (IRNSS) L5 SBAS L1, L5 QZSS L1 C/A, L1C, L2C, L5 L-Band (Primary RF only)</td>
</tr>
<tr>
<td>Number of Configurable PPS Output</td>
<td>1 up to 5 channels</td>
</tr>
<tr>
<td>Technology</td>
<td>MEMS Mounting Plate (operating)</td>
</tr>
<tr>
<td>VEXXIS series antennas</td>
<td></td>
</tr>
<tr>
<td>Inertial Explorer®</td>
<td></td>
</tr>
<tr>
<td>Power and I/O cable</td>
<td></td>
</tr>
<tr>
<td>Field upgradeable firmware and 1 SPAN Land Vehicle</td>
<td></td>
</tr>
<tr>
<td>ALIGN</td>
<td></td>
</tr>
<tr>
<td>Power and I/O</td>
<td></td>
</tr>
<tr>
<td>API</td>
<td></td>
</tr>
<tr>
<td>Export licensing restricts operation to a maximum of 515 metres per second, message output impacted above 500 m/s.</td>
<td></td>
</tr>
<tr>
<td>Typical SPAN system performance values when using this IMU. Performance specifications subject to GNSS system characteristics, Signal-in-Space (SIS) operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference.</td>
<td></td>
</tr>
<tr>
<td>Model-configurable to track L5/E5a (all / Galileo) through L2 (GPS) or L3/E5b/B2 (GLONASS / Galileo / BeiDou) through L2 (GLONASS). See manual for details.</td>
<td></td>
</tr>
<tr>
<td>Shock (operating) MIL-STD-810G(Ch1), Method 516.7, Procedure 1, 40 g, 11 ms terminal sawtooth</td>
<td></td>
</tr>
</tbody>
</table>

### PERFORMANCE DURING GNSS OUTAGES

<table>
<thead>
<tr>
<th>Outage Duration</th>
<th>Positioning Mode</th>
<th>POSITION ACCURACY (M) RMS</th>
<th>VELOCITY ACCURACY (M/S) RMS</th>
<th>ATTITUDE ACCURACY (DEGREES) RMS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Horizontal</td>
<td>Vertical</td>
<td>Horizontal</td>
</tr>
<tr>
<td>0 s</td>
<td>RTK</td>
<td>0.02</td>
<td>0.05</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>1.20</td>
<td>0.60</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>pPP</td>
<td>0.01</td>
<td>0.02</td>
<td>0.015</td>
</tr>
<tr>
<td>10 s</td>
<td>RTK</td>
<td>0.12</td>
<td>0.10</td>
<td>0.040</td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>1.30</td>
<td>0.65</td>
<td>0.040</td>
</tr>
<tr>
<td></td>
<td>pPP</td>
<td>0.01</td>
<td>0.02</td>
<td>0.020</td>
</tr>
<tr>
<td>60 s</td>
<td>RTK</td>
<td>3.82</td>
<td>0.75</td>
<td>0.165</td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>5.10</td>
<td>1.30</td>
<td>0.165</td>
</tr>
<tr>
<td></td>
<td>pPP</td>
<td>0.15</td>
<td>0.05</td>
<td>0.020</td>
</tr>
</tbody>
</table>

1. Typical SPAN system performance values when using this IMU. Performance specifications subject to GNSS system characteristics, Signal-in-Span (SIS) operational degradation, ionospheric and tropospheric conditions, satellite geometry, baseline length, multipath effects and the presence of intentional or unintentional interference.
3. The secondary antenna input does not support L-Band or SBAS signals.
5. Designed for BeiDou Phase 2 and 3, B1 and B2 compatibility (where applicable).
6. GPS-only.
7. Requires subscription to TerrStar data service. Subscriptions available from NovAtel.
8. Typical value. No almanac or ephemerides and no approximate position or time.
9. Typical value. Almanac and recent ephemerides and approximate position and time entered.
10. Time accuracy does not include biases due to RF or antenna delay.
11. Event Output
12. Time to First Fix
13. Initialization time
14. Initialization reliability
15. Stopwatch terminal sawtooth
16. Power consumption
17. Power consumption
18. Input voltage
19. Output voltage
20. Maximum current
21. IMU Raw Data Rate
22. Horizontal Position Accuracy (RMS)
23. Vertical Position Accuracy (RMS)
24. Horizontal Velocity Accuracy (M/S) RMS
25. Vertical Velocity Accuracy (M/S) RMS
26. Roll Accuracy (RMS)
27. Pitch Accuracy (RMS)
28. Heading Accuracy (RMS)
29. Physical and Electrical
30. Dimensions
31. Weight
32. Power
33. Input/Output Connectors
34. Input voltage
35. Power consumption
36. Input voltage
37. Output voltage
38. Maximum current
39. Input/Output Connectors
40. Antennas
41. Power and I/O
42. 2 x SMA
43. Acceleration (operating)
44. CPT7 is a trademark of NovAtel Inc.
45. VEXXIS series antennas
46. SPAN Land Vehicle
47. ALGIN
48. Power and I/O cable
49. Mounting Plate
50. VEKXXIS series antennas
51. RoHS, WEEE
52. NovAtel Connect™
53. Copyright ©2018 NovAtel Inc. All rights reserved.