

## GPS with Dead Reckoning

### ■ Track your vehicle even when GPS can't

Typical GPS receivers gather information from multiple GPS satellites to provide positioning data. Unfortunately in a real world mobile environment, gathering this information is not always possible. Trees, covered parking lots, tunnels and tall buildings block or interfere with the satellite signals, creating situations where GPS receivers do not have enough information to provide accurate positioning data.

Digital Dispatch Systems' GPS 530™ with Dead Reckoning provides a solution to these problems. By using wheel tick information feeding the speedometer and an internal gyroscope (sensors), the GPS 530™ determines the vehicle's velocity and heading, allowing the unit to calculate a position even when GPS information is interrupted. Navigation by this method is called dead reckoning.



### ■ Features

- Continuous position reporting with or without GPS information
- High sensitivity, 12-channel GPS receiver
- Standard NMEA 0183 protocol interface
- DR sensor calibrated by GPS to ensure optimum performance
- GPS and dead reckoning sensors blended using a Kalman filter

### ■ Benefits

- Rapid time to first fix under all start-up conditions
- High sensitivity ensures satellite visibility in low GPS signal locations
- Dead Reckoning provides continuous position reporting even during GPS satellite blockages



## Specifications

Receiver architecture	<ul style="list-style-type: none"> <li>12-channel, L1 1575.42MHz</li> <li>Acquisition Sensitivity: -130 dBm</li> <li>Navigation Sensitivity: -136 dBm</li> <li>Tracking Sensitivity: -138 dBm</li> <li>Li battery backup for retaining almanac/ephemeris</li> </ul>
Accuracy	<ul style="list-style-type: none"> <li>Horizontal: better than 2.1m (CEP), 5.2m (2 dRMS)</li> <li>Time: typically better than 1 <math>\mu</math>s</li> </ul>
Acquisition/Re-acquisition (typical)	<ul style="list-style-type: none"> <li>Hot start: 8 seconds (with valid almanac, time, position and ephemeris)</li> <li>Warm start: 42 seconds (with valid almanac, time and position)</li> <li>Cold start: 55 seconds (with valid almanac)</li> <li>Reacquisition Time: 100ms on less than 10s blockage</li> </ul>
Antenna Input	<ul style="list-style-type: none"> <li>SMA antenna connector for active antenna</li> <li>Powered by receiver (20mA max at 3 VDC)</li> <li>Antenna short protection</li> </ul>
Power Requirements	<ul style="list-style-type: none"> <li>13.8VDC, 250mA with reverse voltage protection</li> </ul>
Physical	<ul style="list-style-type: none"> <li>Dimensions: 145 x 124 x 30 mm (5.7 x 4.9 x 1.2 inches)</li> <li>Weight: 200 grams ( 7.0 ounces)</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>Operating temperature: -20C to +60C</li> <li>Humidity: 90% non-condensing</li> </ul>
Data Interface	<ul style="list-style-type: none"> <li>1-9600 Baud serial port with DB9F connector</li> <li>NMEA-0183 Standard Interface Protocol with Navman proprietary Dead Reckoning extensions</li> </ul>
Dead Reckoning	<ul style="list-style-type: none"> <li>&lt; 5% of distance traveled from GPS fix</li> </ul>

Specifications are subject to change without notice.

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