



# Vontas OnRoute Dead Reckoning with Map Matching Navigation

Maintain accurate positioning at all times.

Accurate location positioning is key to maintaining operational control and optimizing the rider experience during service. Vontas Dead Reckoning and Map Matching Navigation ensures you know where your vehicles are on the road where there is no GPS signal or where environmental conditions prevent accurate satellite reception.

Vontas OnRoute ITS controller equipped with a turn rate sensor and dead reckoning module compute the vehicle's position using its complex positioning algorithms, so you maintain accurate positioning reporting at all times, even when signal visibility is affected by dense foliage conditions, tall buildings, or underground tunnels.

## Overview



### Ensure Reliable Navigation

- Uses a turn rate sensor on the Vontas OnRoute Integrated Vehicle Logic Unit (IVLU), input from GPS, odometer readings, and map matching to compute an estimated position
- Dead Reckoning algorithm calculates position using distance, speed, and direction
- Integral to existing mobile vehicles ITS equipment where in some instances existing mobile equipment may be retrofitted to support Dead Reckoning solution
- Mobile Map Data Builder application pointed to Map Matching Database; map matching converts and downloads map data to the mobile subsystem



### Specifications

- Position Accuracy: SDGPS <3 meters Dead Reckoning: 2% to 5% of distance traveled since last reported GPS position
- GPS acquisition times:
  - TTFF: 10 seconds hot start, (probability > 95%)
  - TTSF 20 seconds, (probability > 95% < 5 minutes)
  - TTSF 30 seconds, (Off or Standby < 60 minutes)
  - TTSF 70 seconds (Off or Standby < 60 minutes)
- Interfaces: Power, GPS and Navigation; datums predefined
- Velocity accuracy: 0.04 meters/second steady rate

## Agency Benefits



### Critical Positioning Accuracy

Dead Reckoning as a back-up navigation system to GPS supports the transmission of correct positioning information necessary to maintain complex transit operations data in today's fast-paced transit environment.



### Improved FTA Compliance

Increased data validity flowing from improved operations feedback results in more concise FTA reporting.



### Protected Service Levels

With positioning accuracy, last-minute service adjustments are easier to manage, ensuring reliable service and up-to-the-minute information for passengers on changes to service. Responsive customer support and a highly skilled, experienced project support team in your corner also help ensure smooth operations.

## Passenger Benefits



### Reliable Service

- Results in more accurate schedule adherence, improving riders' experience of transit and increasing ridership



### Accurate Passenger Information

- Increases customer satisfaction due to better on-time reporting to transit information products, (Arrival Departures, InfoWeb and PDA's)



### Safer Journeys

- Accurate positioning improves response times during emergencies, keeping your passengers safer

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