Omnisense

knowhere anywhere

the whereBox
Product Data Sheet

Description

The Omnisense whereBox is used to determine and track the positions and motion of Devices within a defined area. The Devices may form a wireless mesh network to exchange measurements with one another. Measurements are sent back to the whereBox, via one or more gateways (otherwise known as edge or link devices). The whereBox is responsible for computation of the device positions, behaviour and motion (using the Omnisense Joint Timing and Location Engine - JTLE), management of the network, and hosting and managing the interface with external applications.

The whereBox is a smart appliance in a small form factor. A local web server and web interface is used to configure and manage the whereBox and the network of Devices connected to it. Graphical tools are included to allow visualisation of network and Device status and performance on a local display.

An application API is provided using industry standard IP protocols over an Ethernet LAN connection. This API allows software applications to connect to the whereBox to receive data feeds of real-time positioning information, query historical data and to send back configuration and management commands to the whereBox.

The whereBox maintains logs of raw measurements from the positioning system as well as computed outputs available to the application API.

Ordering

The whereBox is used in conjunction with physical tracking devices including Omnisense S500 or nanotron *swarm* bee devices. Additional technologies and devices will be added in the future: including data feeds from GNSS, dead reckoning and beacon technologies. A tracking system usually comprises the following components:

- a whereBox;
- a gateway node (aka edge or link device) to pass data from the sensors to the whereBox;
- several devices used as tags or beacons to track the objects of interest.

Key Features

The main features of the whereBox are:

- Small form factor appliance
- Based on Intel NUC platform
- Running a secure Linux server
- User and device authentication
- Industry standard hardware
- Low power (~20 Watts)
- Standards based API, IP over Ethernet
- GUI tools for management and status
- Smart location processing
- Full logging and audit trails maintained
- Compatible with Omnisense S500 system

Contact Information

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Specifications	
Hardware	Industry standard platform: Intel Next Unit of Computing (NUC) based Components selected for long term availability Quad-core Intel i5 CPU At least 4 GB RAM and 120 GB SSD
User interface	Designed to run headless with no display, keyboard or mouse if they are not required Supports USB mouse and keyboard HDMI monitor if required, 1920x1080 resolution recommended
Wireless Network Interface	Via gateway devices (one or more): USB, Serial port, Wi-Fi or Ethernet connectivity supported, including TCP/IP interface to network.
LAN/WAN connectivity	Ethernet or Wi-Fi, TCP/IP
Software Included	Linux server pre-installed and configured as an appliance Omnisense JTLE (Joint Timing and Location Engine) Web server and tools for network configuration and management Log management for raw and computed data logs omniWhere GUI tools for managing and configuring the system.
Application API	JSON formatted messaging over raw TCP/IP or using HTTP (See Omnisense reference manual RM007 for details) Application software not provided
Supported Features	Real-time position reporting: X,Y, Z (full 3D), plus zones and occupancy Node attitude reporting (heading, pitch, roll) – if device supported Output coordinates: Cartesian, UTM, WGS84; user configurable Zoning and zone change reporting Special behavioural features as supported by devices
Management	Web browser interface for management of tracking system OTA (over the air) software updates if supported by devices Remote access hooks for server maintenance and updates
Logging	System logs for raw data and Outputs Logs can be used for post-analysis or performance and audit purposes.
Power Requirement	12 V DC nominal power source, mains adapter provided typically 20 W
Physical dimensions	115 mm x 105 mm x 40 mm
Environmental	Indoor use: 0 to 50°C, non-condensing, ventilated

Position trail from 4 people walking abreast wearing S524 tags