GCN554R Hybrid Gateway

Product Data Sheet

Description

The GCN554R is part of Omnisense's Series 500 geolocation system. It is a universal gateway device providing connectivity between the Series 500 wireless mesh network and TCP/IP networks. It enables the Series 500 network to be installed and operated remotely from the whereBox which provides the Omnisense localisation services.

The GCN554 Gateway incorporates the full functionality of the GCN524 tag device as well as a range of physical interfaces (via Bring-up-Board to Raspberry Pi) including serial, USB, Ethernet and Wi-Fi.

GCN554 Gateways are typically installed at fixed locations where they act as anchors or access points, in addition to providing connectivity between the GCN524 tags and the whereBox.

The GCN554 Gateway can be powered from a variety of power sources including USB, PoE, 12 V or 24 V DC power supplies or even directly from a solar panel.

With a rich set of wireless and physical interface options it can be integrated with many other IoT sensor systems.

Ordering

Normally supplied as part of a Series 500 Geolocation System, the GCN554 Gateway provides the essential connectivity between the GCN524 tag devices and the whereBox.

A system usually comprises: a whereBox, one or more GCN554 gateways and four or more GCN524 devices. A range of accessories are also available, and additional Tag and Module products are planned.

Extended functionality options allow development and deployment of customer applications including other IoT sensing systems.

Contact Information

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Example Applications

The GCN554 provides flexible interconnectivity options allowing the physical system to be deployed remotely (over TCP/IP via Ethernet or 5GHz WiFi) from the whereBox, thereby opening up many opportunities:

- Animal tracking and welfare monitoring
- Locating people on site
- Worker protection for health and safety
- Mustering – mining, maritime, industrial sites
- Healthcare: dementia, post operative care
- Emergency services personnel, fire, police
- Sport, real-time or training
- Defence: training, blue forces, GPS-denied
- Leisure and Events: visitors and/or staff
- Material Handling – assets in warehouses

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	Specifications
Accuracy	±50 cm 95%, ±20 cm CEP under good propagation conditions using UWB radio: line-of-sight or near-line-of-sight in a relatively uncluttered environment. CSS radio giving 1-2 m accuracy. Full 3D positioning.
Range	Up to 400 m (CSS) under ideal radio path conditions, less in obstructed conditions. A typical outdoor working range is 200 m (CSS). Typical UWB range 20-50m depending on conditions.
Antenna	Internal chip antennas, omnidirectional.
Frequency of operation	Ultra WideBand – 6 RF bands from 3.5-6.5 GHz using IEEE802.15.4-2011 Chirp Spread Spectrum - 2.4 GHz ISM band using IEEE 802.15.4a Bluetooth Low Energy - 2.4 GHz ISM band (optional) Wi-Fi 802.11abgn – 2.4 GHz and 5 GHz bands (optional)
Radio	UWB -42 dBm - CSS +17 dBm - BLE +4 dBm – Wi-Fi +18 dBm
Network Protocol and Function	Cluster Tree and Mesh architectures, supporting mobility in networks Gateway or Edge device (aka border router)
Network Connectivity	TCP/IP over Ethernet or Wi-Fi integrated with Raspberry Pi through Omnisense MKF524 Pi HAT bring-up-board. Serial port and USB optional
Battery	Internal backup battery (optional) for managing short term power breaks.
Battery life	Specified to need
Other physical interfaces	Connectivity for user access Options for adding peripherals: SPI, I2C, serial, USB etc.
Application Extensibility	Framework for applications to be incorporated, extending functionality in specialised ways.
Processor	ARM
Display	LED indicators for network connectivity and operational status (internal)
Size	160 mm x 160 mm x 40 mm.
Weight	Approximately 200 g
Environmental	-25°C to +65°C, non-condensing, IP65 rated (according to choice of housing)
Approvals	CE, ETSI and FCC compliant (pending).

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