



Digital GPS/GNSS Repeater System



Tanto is a digital GPS/GNSS repeater system for commercial, public safety, or military applications. The system can be used for cellular communication timing, network timing, or for providing indoor location services where the GPS signals are not readily available.

The system is made up of 2 main pieces:

1. The GNSS200 Remote Unit – The IP-65/NEMA 4X rated remote unit connects to active or passive GPS antennas. The unit can then convert the signal to CPRI (a digital transport protocol) and transports it over fiber. The unit can also be used stand-alone to provide network timing protocol (NTP) functions via Ethernet protocol.
2. The GNSS100 Hub Unit – The indoor head-end unit receives the CPRI data from the GPS200 and converts the signal back to RF for distribution to Mobile Phone Base stations. It can also provide NTP functions via Ethernet protocol to a LAN or other devices requiring accurate GPS timing.

Features & Highlights:

- Point to Point CPRI transport
- Power over Ethernet (PoE) - the outdoor unit can be powered via either PoE class 3 or external supply
- Redundancy - any of the antenna inputs or combination thereof can be used as the signal source which is then sent down the digital link to the indoor units. Physical links can be single or paired.
- Multiple frequencies and GNSS systems supported - GPS L1, GPS L2, GLONASS, BeiDou
- Precision Time Protocol (PTP) server - optional upgrade to serve as a PTP server
- Network Monitoring System (NMS) - the units can monitor each antenna port and each digital port and report when a link is broken
- SNMP v1, v2c, and v3 interfaces with traps
- Web server with IPv4 and IPv6
- Indoor unit can be DC or AC powered
- Offset - the system can report the signal delay, so the external receiving units can use this offset to compensate their timing calculations

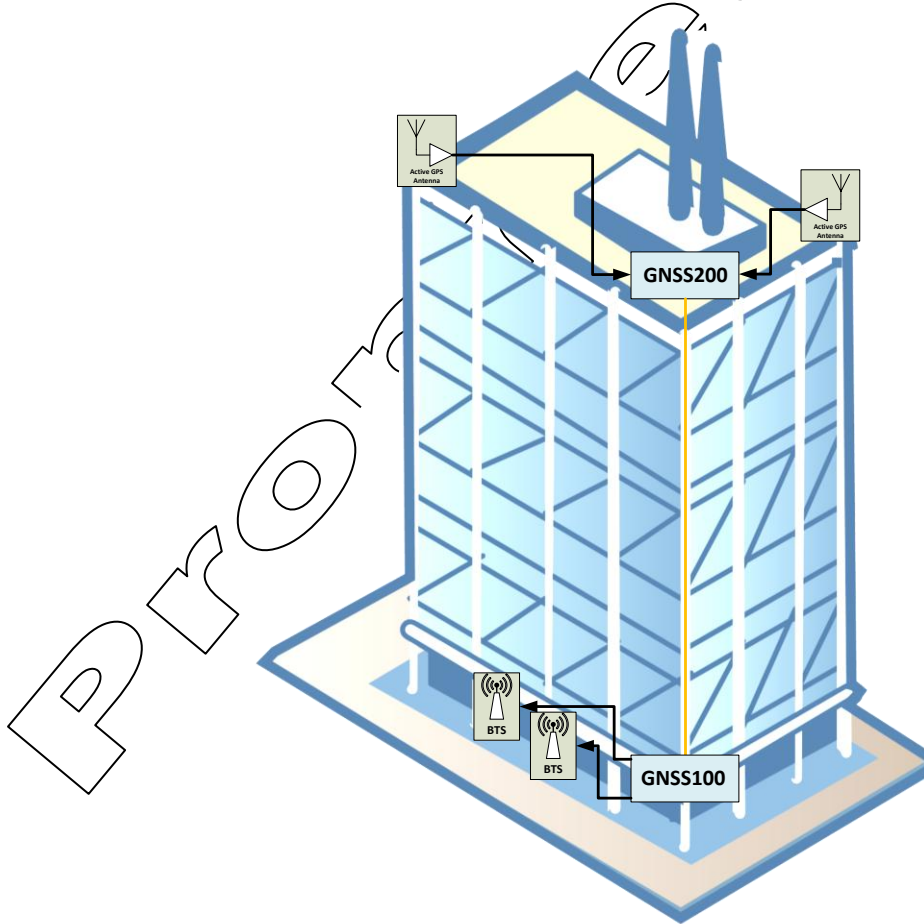


Table 1 - Electrical Specifications

| Parameter | GPS200 | GPS100 |
|--|---|------------------------------------|
| Description | Tanto Outdoor Unit | Tanto Indoor Unit |
| # of channels (<i>Note 1</i>) | 2 Rx | 2 Tx |
| Frequency Bands (<i>Note 2</i>) | GPS L1 (1575MHz) | |
| 2dB Bandwidth (<i>Note 3</i>) | 20.46MHz (max) | |
| Power Supply | PoE or -48/+24 VDC | -48/+24 VDC or 110/220 VAC |
| Power Consumption | 25W (max) IEEE 802.3at Class 4 | 25W (max) without remote connected |
| Rx Noise Figure | 5dB (max without external LNA) | - |
| Rx Input IP3 (IIP3) | 30dBm (min) | - |
| Rx RF Input Return Loss | 14dB (min) | - |
| Antenna Power Supply (<i>Note 1</i>) | +5V (typ), 150mA (max) | - |
| Tx RF Output Power | - | -5dBm (max) |
| Tx Output IP3 (OIP3) | - | 15dBm (min) |
| Tx Other Spurious Outputs | - | -75dBc (max) |
| DC Load on RF output port | - | 200 ohm (0.25W) |
| Digital signal transport | CPRI (Texas Instruments AIF2 compliant) | |
| Ethernet ports | RJ45 (2) | |
| Ethernet speed | 10/100 MBps compatible | |

Notes:

- 1) Additional channels/configurations supported with optional upgrades, contact sales for more details
- 2) Other frequency bands and GNSS signals available, contact sales for more details
- 3) Hardware bandwidth. Narrower bandwidths available via software commands.

Table 2 - Absolute Maximum Ratings

| Parameter | GPS200 | GPS100 |
|---|-------------------------------------|-------------------|
| Description | Tanto Outdoor Unit | Tanto Indoor Unit |
| Operating Voltage | 36-56VDC for PoE or 36-56 VDC | +36 to +56 VDC |
| Maximum Rx Input Power (no damage) | -15dBm | n/a |
| Maximum DC voltage on Tx input port (no damage) | n/a | +5.5V |
| Maximum DC power into Tx input port (no damage) | n/a | 0.25W |
| Operating Temperature Range | -20* to +55 deg C | 0 to +50 deg C |

*Extended temperature range available as special order

Table 3 - Mechanical Specifications

| Parameter | GPS200 | GPS100 |
|---|---|---|
| Description | Tanto Outdoor Unit | Tanto Indoor Unit |
| Enclosures (<i>Note 1</i>) | IP65 wall mount IP65 pole mount | 1RU 19in rack mount Bench top |
| Dimensions (W x D x H) Without mounting brackets or connectors (<i>Note 1</i>) | 11.81in x 2.17in x 8.66in 300mm x 55mm x 220mm | 17.0in x 15.0in x 1.7in 422mm x 200mm x 43.8mm |
| Weight | TBD | TBD |
| Rx RF Input Connector (<i>Note 1</i>) | Type N (2) | (optional upgrade) |
| Tx RF Output Connector | (optional upgrade) | SMA (2) |
| Optical ports (<i>Note 1</i>) | LC/UPC (2 duplex) | LC/UPC (2 duplex) |

Notes:

1) Other housings and connectors available, contact sales for more details

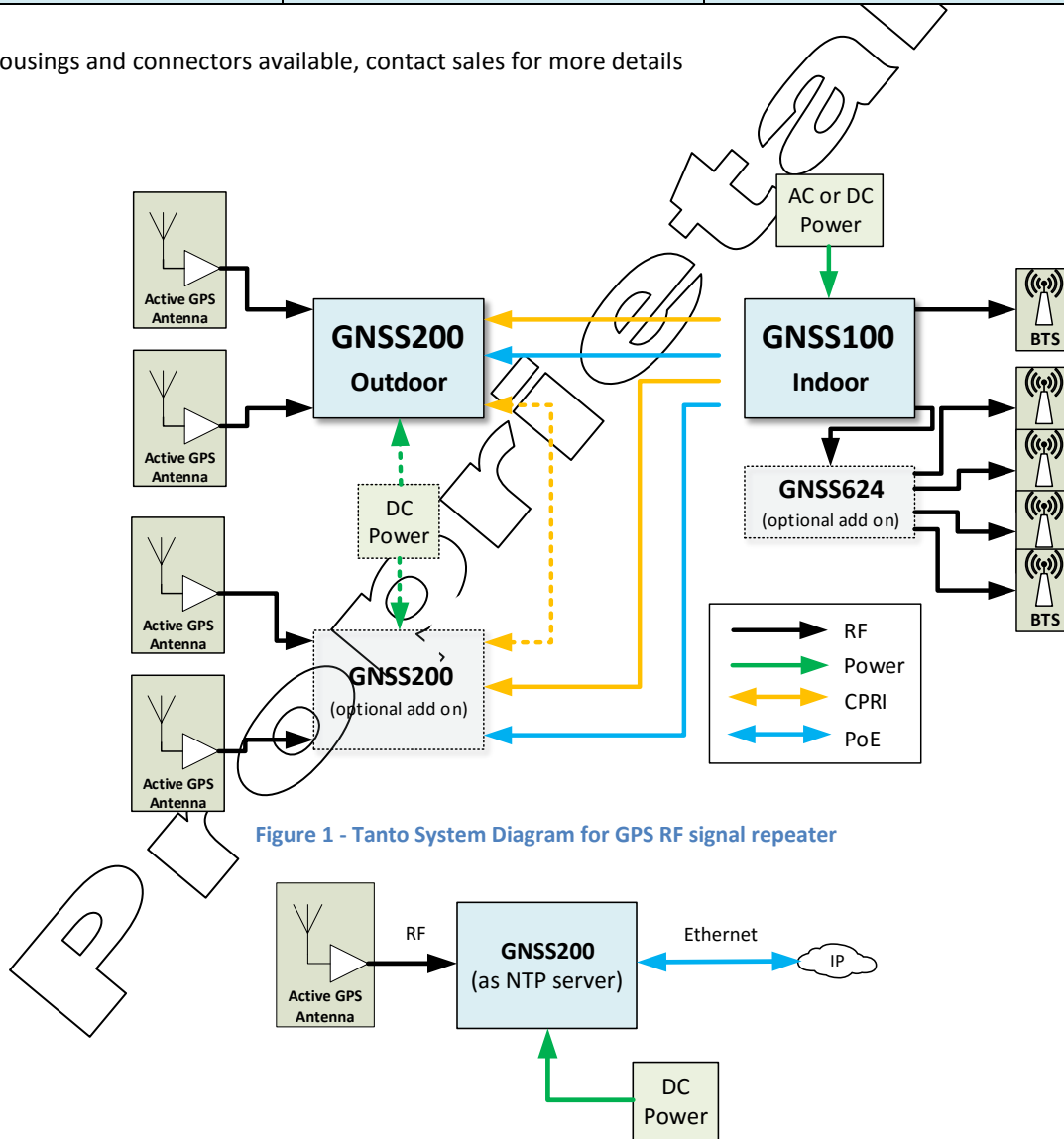


Figure 1 - Tanto System Diagram for GPS RF signal repeater

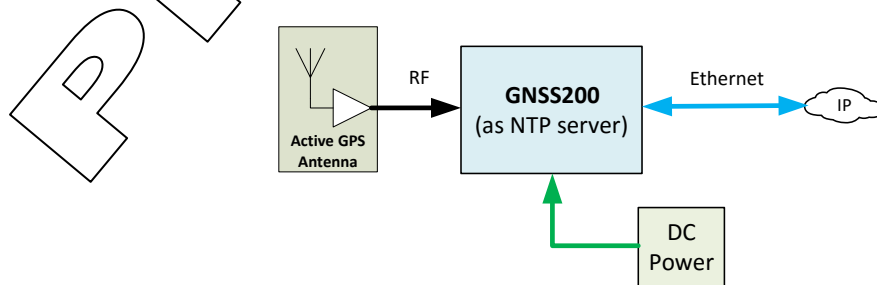


Figure 2 - Tanto Remote as an NTP server