A Tallysman Accutenna®

TW7972 Triple Band GNSS Antenna + L-band Correction Services

The TW7972 is precision tuned triple band, Accutenna® technology antenna for reception of GPS L1/L2/L5, GLONASS G1/G2/G3, BeiDou B1/B2, Galileo E1/E5a+b plus L-band corrections signals. The TW7972 provides superior multi-path rejection and axial ratio, a linear phase response, and tight Phase Centre Variation (PCV), while protecting against intermodulation and saturation caused by high level cellular 700MHz signals. This antenna is ideal for precision agriculture, autonomous vehicle tracking and guidance, and other applications where precision matters.

Architecturally, the TW7972 features a dual feed circular stacked patch element. The signals from the two orthogonal feeds are summed in quadrature, pre-filtered in a low loss filter to protect against a wide range of potentially interfering signals, amplified in high linearity, wide-band LNA, then band-split, tightly filtered and amplified prior to signal recombination at the output.

The TW7972 provides reception for signals in the bands 1164MHz to 1254MHz and 1525MHz to 1606MHz. It is housed in a magnetic mount, weather-proof enclosure.

This product is also available in an OEM format (TW3967 for 28dB and TW3972E for 35dB)

Applications
- Precision GPS position
- Triple Frequency RTK systems (base and rovers)
- Positive Train Control (PTC) systems
- Military & Security

Features
- Very low Noise, Pre-filtered Preamp, < 3dB
- Axial ratio: <2dB typ.
- Tight Phase Center Variation
- LNA Gain 32 dB typ.
- Low current: 20 mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC

Benefits
- Ideal for triple band RTK systems
- Great multipath rejection
- Increased system accuracy
- Great signal to noise ratio
- IP67, REACH, and RoHS compliant
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Specifications (Measured a Vcc = 3V, and Temperature=25°C)

### Antenna
- **Patch Architecture:** Circular, Dual Feed, Dual Stacked Patch
- **E5a/L5 Gain (100mm ground plane):** -1.5 dBi Min at Zenith
- **E5b/G3 Gain (100mm ground plane):** 3.0 dBi Min at Zenith
- **L2 Gain (100mm ground plane):** 4.3 dBi Min at Zenith
- **G2 Gain (100mm ground plane):** 2.5 dBi Min at Zenith
- **E1 Gain (100mm ground plane):** 4.6 dBi Min at Zenith
- **L1 Gain (100mm ground plane):** 4.4 dBi Min at Zenith
- **G1 Gain (100mm ground plane):** 3.0 dBi Min at Zenith
- **Typical Axial Ratio @ zenith:**
  - L5/E5ab <2 dB
  - G2 <2 dB
  - L1/E1 <1 dB
- **Gain Variation with Temperature:** 3 dB max over operational temperature range
- **LNA Noise Figure:** 2.5 dB typ at 25°C
- **VSWR (at LNA output):** <1.5:1
- **Supply Voltage Range:** +2.5 to 16VDC nominal, up to 50mV p-p ripple
- **EMI Immunity:** 50V/Meter, excepting L1+/-100MHz and L2 +/- 100MHz
- **Supply Current:** 20 mA typ. at 25°C, 25mA max at 75°C
- **Typical Axial Ratio @ zenith:**
  - L5/E5ab <2 dB
  - G2 <2 dB
  - L1/E1 <1 dB
- **Overall LNA Gain:** 32 dB typ,
- **Gain Variation with Temperature:** 3 dB max over operational temperature range
- **LNA Noise Figure:** 2.5 dB typ at 25°C
- **VSWR (at LNA output):** <1.5:1
- **Supply Voltage Range:** +2.5 to 16VDC nominal, up to 50mV p-p ripple
- **EMI Immunity:** 50V/Meter, excepting L1+/-100MHz and L2 +/- 100MHz
- **Supply Current:** 20 mA typ. at 25°C, 25mA max at 75°C
- **Typical Axial Ratio @ zenith:**
  - L5/E5ab <2 dB
  - G2 <2 dB
  - L1/E1 <1 dB
- **Electrical Bandwidth:**
  - L2/L5: 1164MHz-1254MHz (Filter bandwidth) L-band/L1: 1525 MHz-1606MHz (Filter bandwidth)
  - L2/L5: >45 dB
  - L1/E1/band Rejection: >40 dB
- **Vibration:** 3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G
- **Salt fog / spray:** MIL STD 810D

### Mechanicals & Environmental
- **Mechanical Size, Ground Plane:** 69mm (dia) x 22mm (H)
- **Operating Temperature Range:** -40°C to +85°C
- **Enclosure:** Radome: EXL9330, Base: Zamak White Metal
- **Weight:** 180 g
- **Attachment Method:** Magnetic Mount. Four-threaded holes in the base allow for screw mounting.
- **Environmental:** IP67, RoHS and REACH compliant

### Ordering Information
- **TW7972 – Triple Band GNSS antenna with L-Band Correction:** 33-7972-xx-yyyy
- **Where xx = connector type and yyyy = cable length in mm (where applicable)**

Please refer to the Ordering Guide [here](http://www.tallysman.com/index.php/gnss/ordering-guide/) for the current and complete list of available connectors.

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