

# TW7972



When precision matters.®

## TW7972 Triple-band GNSS Antenna + L-band

**Frequency Coverage:** GPS/QZSS-L1/L2/L5, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b, BeiDou-B1/B2/B2a, NavIC-L5  
+ L-band correction services

The TW7972 is precision-tuned Accutenna® technology antenna supporting triple-band GPS/QZSS-L1/L2/L5, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b, BeiDou-B1/B2/B2a, NavIC-L5, including the satellite-based augmentation system (SBAS) available in the region of operation [WAAS (North America), EGNOS (Europe), MSAS (Japan), or GAGAN (India)], plus L-band correction services coverage, and is especially designed for precision triple-frequency positioning.

This antenna is ideal for precision agriculture, autonomous vehicle tracking and guidance, and other applications where precision matters.

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.

This antenna provides superior multipath rejection and axial ratio, a linear phase response, and tight Phase Centre Variation (PCV), while protecting against intermodulation and saturation caused by high-level LTE 700 Mhz signals.

The TW7972 is housed in a magnetic mounted, IP67 weather-proof enclosure.

This antenna is also available in embedded OEM formats (TW3967 for 28 dB and TW3972E for 35 dB).



### Applications

- Autonomous vehicle tracking and guidance
- Positive Train Control (PTC)
- Positive Train Location (PTL)
- Precision GNSS positioning
- Precision agriculture
- Triple-frequency RTK and PPP receivers
- Safety & security

### Features

- Very low noise preamp (< 2.5 dB typ.)
- Low axial ratio (< 2.0 dB typ.)
- Tight phase centre variation
- High-gain LNA (32 dB typ.)
- Low current (24 mA typ.)
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC
- IP67, REACH, and RoHS compliant

### Benefits

- Excellent multipath rejection
- Increased system accuracy
- Excellent signal-to-noise ratio

**About Tallysman:** With global headquarters and manufacturing in Ottawa, Canada, Tallysman is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Tallysman's mission is to support the needs of a new generation of positioning systems by delivering unprecedented antenna precision at competitive prices. Learn more at [www.tallysman.com](http://www.tallysman.com)

Revision: 1.1

**Contact us:**  
[info@tallysman.com](mailto:info@tallysman.com)  
T: +1 613 591-3131

# TW7972 Triple-band GNSS Antenna + L-band

Frequency Coverage:

GPS/QZSS-L1/L2/L5, GLONASS-G1/G2/G3, Galileo-E1/E5a/E5b, BeiDou-B1/B2/B2a, NavIC-L5  
+ L-band correction services

## Antenna

Technology Dual-feed Stacked RHCP ceramic patch

		Gain	Axial Ratio
		dBic typ. at Zenith	dB at Zenith
<b>GNSS</b>			
GPS / QZSS	L1	4.0	< 1.0
	L2	4.0	< 1.5
	L5	-1.5	< 2.0
GLONASS	G1	2.5	< 1.5
	G2	2.5	< 2.0
	G3	2.5	< 2.0
Galileo	E1	4.0	< 1.0
	E5a	-1.5	< 2.0
	E5b	2.5	< 2.0
	E6	-	-
BeiDou	B1	4.0	< 1.0
	B2	2.5	< 1.5
	B2a	-1.5	< 2.0
	B3	-	-
IRNSS / NavIC	L5	-1.5	< 2.0
QZSS	L6	-	-
L-band correction services		3.5	< 1.0
<b>Satellite Communications</b>			
Iridium		-	-
Globalstar		-	-
<b>Other</b>			
Axial Ratio at 10°	-	Efficiency	-
Phase Centre Variation	-		

## Mechanicals

Mechanical Size	69 mm (dia.) x 22 mm (h.)
Weight	180 g
Available Connectors	see Ordering Guide
Radome / Enclosure	Radome: EXL9330, Base: Zamak White Metal
Mount	Magnetic

## Environmental

Operating Temperature	-40 °C to 105 °C
Storage Temperature	-50 °C to 105 °C
Mechanical Vibration	MIL-STD-810E Method 514.5
Shock and Drop	MIL-STD-810G Method 516.6
Salt Fog	-
Low Pressure - Altitude	-
IP Rating (housing)	IP67
Compliance	IPC-A-610, FCC, RED / CE Mark, RoHS, REACH

## Warranty:

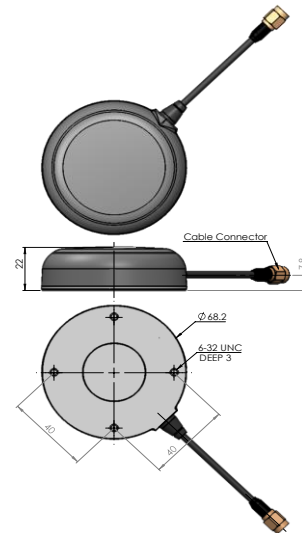
Parts and Labour	3-year standard warranty
------------------	--------------------------

## Low Noise Amplifier (LNA) - Measured at 3.0 VDC and 25°C

Frequency Bandwith	Out-of-Band Rejection
Lower Band	1160 - 1255 MHz ≥ 45 dB @ ≤ 1050 MHz ≥ 30 dB @ ≤ 1125 MHz ≥ 35 dB @ ≥ 1350 MHz
L-band corrections services	1539 - 1559 MHz
Upper Band	1559 - 1606 MHz ≥ 30 dB @ ≤ 1450 MHz ≥ 30 dB @ ≥ 1690 MHz ≥ 40 dB @ ≥ 1730 MHz

Architecture	Pre-filter → LNA stage 1 → filter → LNA stage 2
Gain	32 dB typ.
Noise Figure	2.5 dB typ. @ 25 °C
VSWR	< 1.5:1 typ.   1.8:1 max
Supply Voltage Range	2.5 to 16 VDC nominal, up to 50mV p-p ripple
Supply Current	24 mA typ. at 25 °C, 25 mA max. at 75 °C
ESD Circuit Protection	15 kV air discharge
P 1dB Output	-
Group Delay Variation	-

## Mechanical Diagram



## Ordering Information

Part Number **33-7972-xx-yyyy**

Where xx = connector type; yyyy = cable length in mm

Please refer to our **Ordering Guide** to review available radomes and connectors at:  
<https://www.tallysman.com/resource/tallysman-ordering-guide/>