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When precision matters®

A Tallysman *Accutenna*®
TW3972 Triple Band GNSS Antenna + L-band Correction Services

The TW3972 is an *Accutenna*® technology antenna providing triple band GPS L1/L2/L5, GLONASS G1/G2/G3, BeiDou B1/B2, Galileo E1/E5a+b plus L-band correction services coverage and is especially designed for precision triple frequency positioning. The TW3972 provides superior multi-path signal rejection, a linear phase response, and tight Phase Centre Variation (PCV). This antenna is ideal for precision agriculture, autonomous vehicle tracking and guidance, and other applications where precision matters.

The TW3972 features a precision tuned, twin circular dual feed, stacked patch element. The signals from the two orthogonal feeds are combined in a hybrid combiner, amplified in a wide-band LNA, then band-split for narrow filtering in each band and further amplified prior to recombination at the output. The antenna also has a strong pre-filter to mitigate inter-modulated signal interference from LTE and other cellular bands.

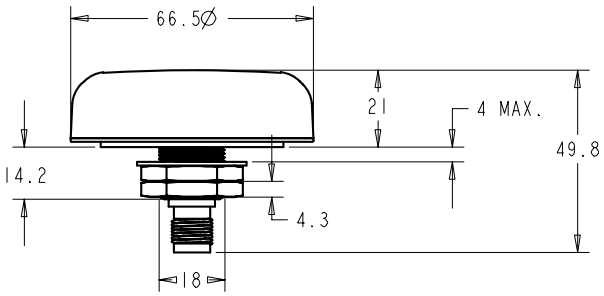
The TW3972 offers excellent axial ratio and a tightly grouped phase center variation.

The TW3972 covers from 1164MHz to 1254MHz and 1525MHz to 1606MHz.

The TW3972 is housed in a through-hole mount, weather-proof enclosure for permanent installations. L Bracket or Pipe Mount (part numbers 23-0040-0, 23-0065-0 respectively) are available for non-rooftop installation. A 100mm ground plane is recommended for non-roof-top installations.

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

TW3972 Dimensions (mm)



Applications

- Precision GPS position
- Triple Frequency RTK receivers
- Military & Security

Features

- Very low Noise Preamp, < 2.5dB
- Axial ratio: <2dB typ.
- Tight Phase Center Variation
- LNA Gain 37 dB typ.
- Low current: 24 mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC

Benefits

- Ideal for triple band RTK surveying systems
- Great multipath rejection
- Increased system accuracy
- Great signal to noise ratio
- IP67, REACH, and RoHS compliant

When precision matters.

TW3972 Triple Band GNSS Antenna + L-band Correction Services

Specifications (Measured a Vcc = 3V, and Temperature=25°C)

Antenna

Patch Architecture			Circular, Dual Feed, Dual Stacked Patch		
E5a/L5 Gain (100mm ground plane)			-1.5dBic typ. at Zenith		
B2/E5b/G3 Gain (100mm ground plane)			2.5 dBic typ. at Zenith		
L2 Gain (100mm ground plane)			4.0 dBic typ. at Zenith		
G2 Gain (100mm ground plane)			2.5 dBic typ. at Zenith		
E1 Gain (100mm ground plane)			4.0 dBic typ. at Zenith		
L1 Gain (100mm ground plane)			4.0 dBic typ. at Zenith		
G1 Gain (100mm ground plane)			2.5 dBic typ. at Zenith		
Axial Ratio @ zenith					
L5/E5ab		<1.5dB	B2		<1.5dB
L2	<	1dB	G2		<1.5dB
L-Band		<1dB			
L1/E1		<1dB	G1		<1.5dB

Electrical

Filter Bandwidth			L2/L5: 1164MHz-1254MHz	L-Band/ L1: 1525 MHz-1606MHz
Overall LNA Gain			37dB typ, 35 dB min,	
Gain Variation with Temperature.			3dB max over operational temperature range	
LNA Noise Figure			2.5dB typ at 25°C	
VSWR (at LNA output, reference 50 Ohms)			<1.5:1 typ. 1.8:1 max.	
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			24 mA typ. at 25°C	
ESD Circuit protection			15 KV air discharge.	
Out-of-Band Rejection	**L5/E5/L2/G2**		**L1/E1/B1/G1**	
	<1050 MHz	>45 dB	<1450 MHz	>30dB
	<1125 MHz	>30 dB	>1690 MHz	> 30dB
	>1350 MHz	>45 dB	>1730 MHz	> 40dB

Mechanicals & Environmental

Mechanical Size, Ground Plane	66mm x 21mm (see drawing on other page), 100mm ground plane recommended
Operating Temperature Range	-40°C to +85°C
Enclosure	Radome: EXL9330, Base: Zamak White Metal
Weight	185 g
Attachment Method	Permanent ¾" (19mm) through hole mount
Environmental	IP67, RoHS and REACH compliant
Shock	Vertical axis: 50 G, other axes: 30 G
Vibration	3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G
Salt fog / spray	MIL-STD-810F Section 509.4

Ordering Information

TW3972 – Triple Band GNSS antenna with L-Band Correction 33-3972-xx-yy-zzzz

Where xx = connector type, yy = shape and colour of radome and zzzz = cable length in mm (where applicable)

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

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