



Contact NavtechGPS for product details. [www.NavtechGPS.com](http://www.NavtechGPS.com)  
+1-703-256-8900 • 800-628-0885 • [info@navtechgps.com](mailto:info@navtechgps.com)

When precision matters...

## A Tallysman Accutenna® TW3970 Triple Band GNSS Antenna + L-band Correction Services

The TW3970 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 TW3970 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 TW3970 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 TW3970 offers excellent axial ratio and a tightly grouped phase center variation.

The TW3970 covers from 1164MHz to 1254MHz and 1525MHz to 1606MHz.

The TW3970 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 (TW3965 for 28dB and TW3970E for 35dB)

### Applications

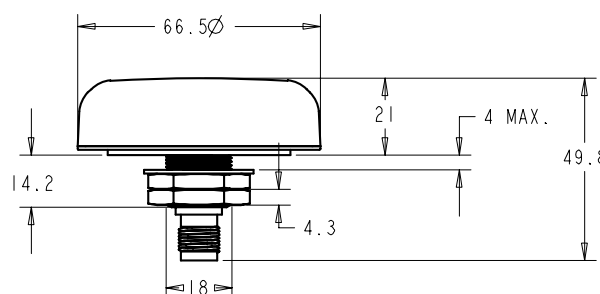
- Precision GPS position
- Triple Frequency RTK receivers
- Mission Critical GPS Timing
- Military & Security

### Features

- Very low Noise Preamp, < 2dB
- Axial ratio: <2dB typ.
- Tight Phase Center Variation
- LNA Gain 35 dB typ.
- Low current: 20 mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC



TW3970 Dimensions (mm)



### Benefits

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



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## TW3970 Triple Band GNSS Antenna + L-band Correction Services

### Specifications (Measured at $V_{cc} = 3V$ , and Temperature = 25°C)

#### Antenna

Patch Architecture	Circular, Dual Feed, Dual Stacked Patch		
E5a/L5 Gain (100mm ground plane)	-1.5dBic Min at Zenith		
E5b/G3 Gain (100mm ground plane)	3.0 dBic Min at Zenith		
L2 Gain (100mm ground plane)	4.3 dBic Min at Zenith		
G2 Gain (100mm ground plane)	2.5 dBic Min at Zenith		
E1 Gain (100mm ground plane)	4.6 dBic Min at Zenith		
L1 Gain (100mm ground plane)	4.4 dBic Min at Zenith		
G1 Gain (100mm ground plane)	3.0 dBic Min at Zenith		
Axial Ratio @ zenith			
L5/E5ab	<1.5dB	L2/B2	<1dB
G2/E6/B3	<1.5dB	L-Band/L6/L1	<1dB
L1/E1	<1dB	G1	<1.5dB
1dB Bandwidth,	L5/L2: 1164MHz-1254MHz L-Band/L1: 1525MHz-1606MHz		

#### Electrical

Bandwidth	L2/L5: 1164MHz-1254MHz (Filter bandwidth) L-band/L1: 1525 MHz-1606MHz (Filter bandwidth)		
Overall LNA Gain	35dB typ, 32 dB min,		
Gain Variation with Temperature.	3dB max over operational temperature range		
LNA Noise Figure	2.5dB max 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.		
ESD Circuit protection	15 KV air discharge.		
Out-of-Band Rejection			
	<b>L5/E5/L2/G2</b>	<b>L1/E1/B1/G1</b>	
	<1050 MHz	>45 dB	<1450 MHz
	<1125 MHz	>30 dB	>1690 MHz
	>1350 MHz	>35 dB	>1730 MHz

#### 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 3/4" (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

TW3970 – Triple Band GNSS antenna with L-Band Correction

33-3970-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.

#### Tallysman Wireless Inc

106 Schneider Road, Unit 3, Ottawa ON K2K 1Y2 Canada

Tel 613 591 3131

Fax 613 591 3121

[sales@tallysman.com](mailto:sales@tallysman.com)

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Rev 1.3