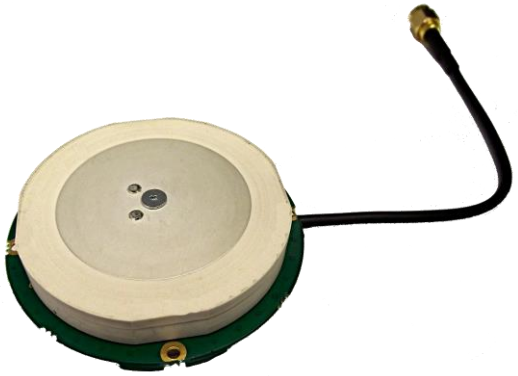
When precision matters...

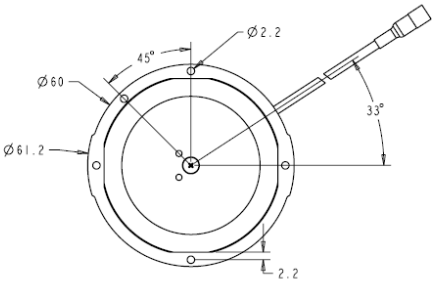
A Tallysman *Accutenna*®

TW3972E High Gain Embedded Triple Band GNSS Antenna + L-band Correction Services

The TW3972E 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 TW3972E 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.



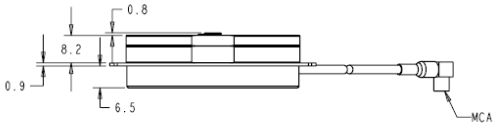
The TW3972E features a precision tuned, twin circular dual feed, stacked patch element. The signals from the two orthogonal feeds are combined in a hybrid combiner, amplified in a wide-band LNA, then band-split for narrow filtering in each band and further amplified prior to recombination at the output.



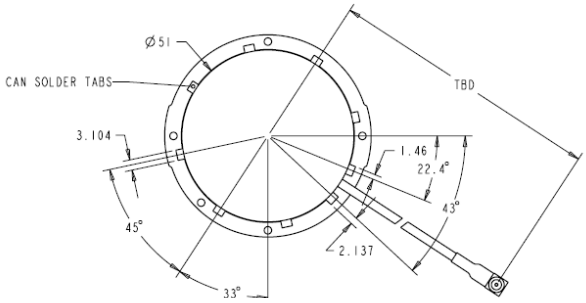
The TW3972E offers excellent axial ratio and a tightly grouped phase center variation. The antenna also has a strong pre-filter to mitigate inter-modulated signal interference from LTE and other cellular bands.

The TW3972E covers from 1164MHz to 1254MHz and 1525MHz to 1606MHz.

The OEM TW3972E is supplied with a standard 60mm diameter circular ground plane, with a coaxial cable terminated with a connector (right angle MCX is shown in the drawing). Mounting holes are provided for attachment to larger ground planes. Custom tuning and ground plane options may be available, depending on purchase level commitment.



This product is also available in a housed format: TW3972



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
- 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)			-1.5dBic 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)			<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	60mm diameter, 0.75mm thick, see mechanical drawing
Operating Temperature Range	-40°C to +85°C
Weight	75 g
Attachment Method	Plated screw holes
Environmental	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

Ordering Information

TW3972E – Embedded Triple Band GNSS antenna with L-Band Correction 33-3972E-xx-yyyy
Where xx = connector type, yyyy = cable length in mm

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

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