

# TW3972E

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**CALIAN**<sup>®</sup>  
Confidence. Engineered.

## High Gain Multi-Constellation Triple-Band Antenna

Frequency Coverage: GPS L1, L2, L5 | GALILEO E1, E5a, E5b | BEIDOU B1, B2a, B2b | GLONASS G1, G2, G3 | NavIC L5 + L-Band

The TW3972E is an Accutenna<sup>®</sup> technology antenna providing triple-band GPS-L1/L2/L5, GLONASS-G1/G2/G3, BeiDou B1/B2b, Galileo E1/E5a/E5b plus L-band Corrections coverage and is especially designed for precision triple frequency positioning. The TW3972E provides superior multipath 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 wideband 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 centre 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 1164 MHz to 1254 MHz and 1559 MHz to 1606MHz.

The OEM TW3972E is supplied with a standard 60 mm (dia.) diameter circular ground plane, with a coaxial cable terminated with a connector. 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
- Law enforcement and public safety

### Features

- Very low noise preamp < 2.5 dB
- Axial ratio: < 2.0 dB typ.
- Tight phase centre variation
- High-gain LNA: 37 dB typ.
- Low current: 24 mA typ.
- ESD circuit protection (15 kV)
- Invariant performance from 2.5 to 16 VDC

### Benefits

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

**About Calian:** With global headquarters and manufacturing in Ottawa, Canada, Calian is a leading manufacturer of high-precision antennas and components for Global Navigation Satellite System (GNSS) applications. Calian'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.calian.com](http://www.calian.com)

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Antenna - Measured with a 100 mm ground plane

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
	L2	4.0	< 1
	L5	-1.5	< 1.5
GLONASS	G1	2.5	< 1.5
	G2	2.5	< 1.5
	G3	2.5	< 1.5
Galileo	E1	4.0	< 1
	E5A	-1.5	< 1.5
	E5B	2.5	< 1.5
	E6	-	-
BeiDou	B1	4.0	< 1
	B2b	2.5	< 1.5
	B2a	-1.5	< 1.5
	B3	-	-
IRNSS / NavIC	L5	-1.5	< 1.5
QZSS	L6	-	-
L-Band Services (1539 MHz - 1559 MHz)		3.5	< 1
<b>Satellite Communications</b>			
Iridium		-	-
Globalstar		-	-
<b>Other</b>			
Axial Ratio at 10°		-	Efficiency
PCV $\Phi > 15^\circ$		$\pm 10$ mm	PCO

## Mechanicals

Size	62 mm (dia.) x 17 mm (h.) (see diagram)
Weight	70 g
Radome	-
Mount	5 x M2 screws
Available Connectors	Please refer to ordering guide

## Environmental

Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to + 95 °C
Vibration	MIL-STD-810D Method 514.3-1
Shock	Vertical axis: 50 G, other axes: 30 G
Salt Fog	MIL-STD-810F Section 509.4
Other Tests	-
IP Rating	-
Compliance	IPC-A-610, FCC, CE RED, RoHS, REACH

## Warranty

Parts and Labour	1-year standard warranty
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Low Noise Amplifier (LNA) - Measured at 3V and 25°C

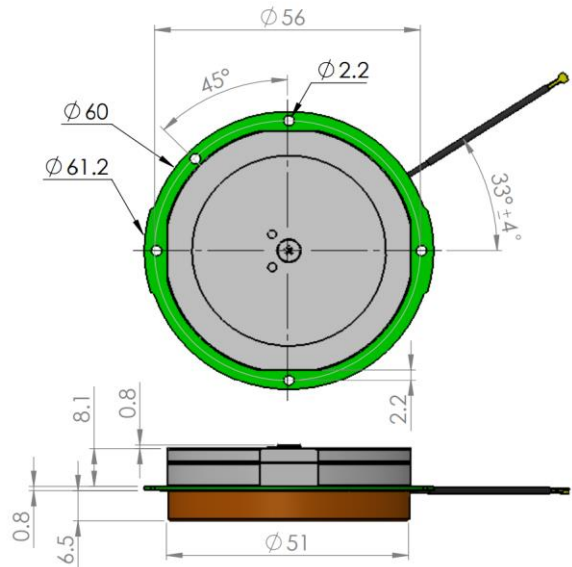
Frequency Bandwidth	Out of Band Rejection
Lower Band	1165-1254 MHz
L-Band Corr.	1539 - 1559 MHz
Upper Band	1559 - 1606 MHz

< 1050 MHz > 45 dB
< 1125 MHz > 30 dB
> 1350 MHz > 45 dB
< 1450 MHz > 30 dB
> 1690 MHz > 30 dB
> 1730 MHz > 40 dB

Architecture	Pre-filtered
Gain	37 dB typ, 35 dB min.
Noise Figure	2.5 dB typ.
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., 25 mA max. at 75 °C.
ESD Circuit Protection	15 kV air discharge
P 1dB Output	11 dBm typ.
Group Delay	12 (L1 & G1), 4.8 (G3 & L2 & G2) [ns]

Mechanical Diagram - Units in 'mm' or 'inches' where specified



## Ordering Information

Part Number **33-3972E-xx-yyyy**

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

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



Contact NavtechGPS for product details. [www.NavtechGPS.com](http://www.NavtechGPS.com)  
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