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## A Tallysman Accutenna® TW2710 / TW2712 Magnet Mount Multi-Constellation Antenna

The TW2710 / TW2712 employs Tallysman's unique Accutenna technology covering the BeiDou B1, Galileo E1, GPS L1, GLONASS L1 and SBAS (WAAS, QZSS, EGNOS & MSAS) frequency band (1557 to 1606 MHz). It is especially designed for precision industrial, agricultural and military applications. It provides truly circular response over its entire bandwidth thereby producing superior multipath signal rejection.

The TW2710 / TW2712 has a low axial ratio, excellent phase linear response and a tight phase centre variation, providing the performance normally associated with higher priced antennas.

The TW2710 / TW2712 features a dual-feed wideband patch element, with one LNA per feed, a mid section combiner and SAW filter, and a final output gain stage.

The TW2712 has a pre-filter to provide extra protection against saturation by strong near frequency or harmonic signals, such as LTE.

The TW2710 / TW2712 is housed in a compact, industrial-grade weather-proof, magnet mount enclosure, and is available with a variety of connectors and cable lengths.

The antenna can be ordered without the magnet. In such cases, the magnet is replaced with a plastic plug to provide a smooth under surface.

### Applications

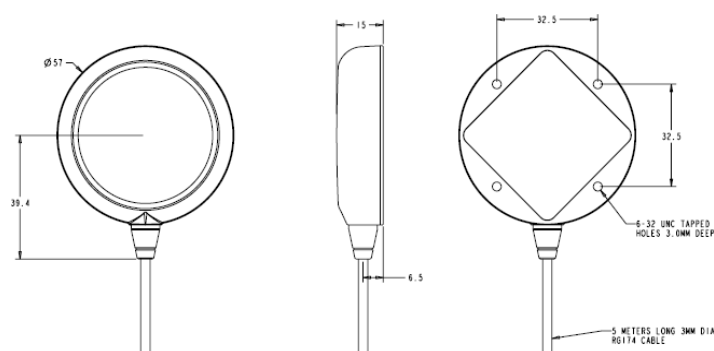
- High Accuracy & Mission Critical GNSS
- Precision Agriculture, Mining & Construction
- Military & Security
- Law Enforcement & Public Safety
- Fleet Management & Asset Tracking

### Features

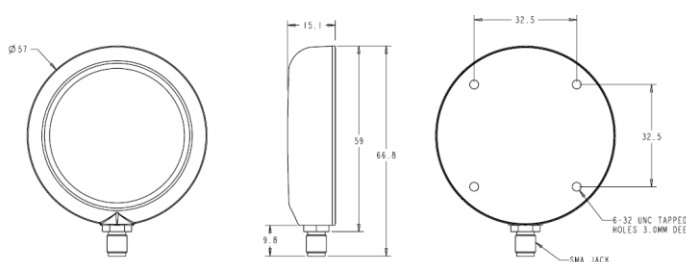
- Covers B1 / E1 / L1 / G1 Frequencies
- Great axial ratio: 1 typ., 3 dB max
- Low noise LNA:  $\leq 1$  dB
- High rejection SAW filter
- LNA gain: 28 dB typ.
- Low current: 15 mA typ.
- Wide voltage input range: 2.5 to 16 VDC



Dimensions (mm)



Dimensions (mm)



### Benefits

- Excellent multipath rejection
- Increased system accuracy
- Excellent signal to noise ratio
- Great out of band signal rejection
- Ideal for harsh environments
- RoHS compliant





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## TW2710 / TW2712 Magnet Mount Multi-Constellation Antenna Specifications

Vcc = 3V, over full bandwidth, T=25°C

### Antenna

Architecture	Dual, Quadrature Feeds
2 dB Bandwidth	49 MHz
Antenna Gain (with 100mm ground plane)	4.75 dBic
Axial Ratio at Zenith over full bandwidth	<2 dB typ, ≤3 dB max

### Electrical

Architecture	One LNA per feed line, mid section SAW filter		
Filtered LNA Frequency Bandwidth	1557 to 1606 MHz		
Polarization	RHCP		
LNA Gain	TW2710: 28 dB min. TW2712: 26dB		
Gain flatness	+/- 2 dB, 1557 to 1606 MHz		
Out-of-Band Rejection (TW2710)		TW2710	TW2712
	<1500 MHz	>40 dB	>60dB
	<1540 MHz	>20 dB	>45dB
	>1640 MHz	>45 dB	>45dB
VSWR (at LNA output)	<1.5:1 typ. 1.8:1 max.		
Noise Figure	≤1 dB typ.		
Supply Voltage Range (over coaxial cable)	+2.5 to 16 VDC nominal (12VDC recommended maximum)		
Supply Current	15 mA typ., 22mA max. (@85°C)		
ESD Circuit Protection	15 KV air discharge		

### Mechanicals & Environmental

Mechanical Size	57 mm dia. x 15 mm H
Connectors	Please refer to Ordering Information, below
Cable	RG174
Operating Temp. Range	-40°C to +85°C
Enclosure	Radome: ASA Plastic, Base: Zamak white metal
Weight	110g
Attachment Method	Magnet or permanent (pre-tapped 4 x 6-32 UNC)
Environmental	IP67 and RoHS compliant
Shock	Vertical axis: 50G, other axes: 30G
Vibration	3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3G

### Ordering Information

TW2710 – Multi-Constellation antenna,	33-2710-xx-yyyy
TW2712 – Pre-filtered Multi-constellation antenna	33-2712-xx-yyyy
Where xx = connector type and yyyy = cable length in mm	

Please refer to the Ordering Guide (<http://www.tallysman.com/wp-content/uploads/Current-Ordering-Guide.pdf>) for the current and complete list of available connectors.

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Rev 3.5





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## A Tallysman Accutenna® TW7872 Magnetic Mount Dual Band GNSS Antenna

The TW7872 is precision tuned dual band, *Accutenna*® technology antenna for reception of GPS L1/L2, GLONASS G1/G2, BeiDou B1, Galileo E1 and is especially designed for precision dual frequency positioning. The TW7872 provides superior multi-path rejection and axial ratio, a linear phase response, and tight Phase Centre Variation (PCV), while protecting against intermodulation and saturation caused by high level cellular 700MHz signals. This antenna is ideal for precision agriculture, autonomous vehicle tracking and guidance, and other applications where precision matters.

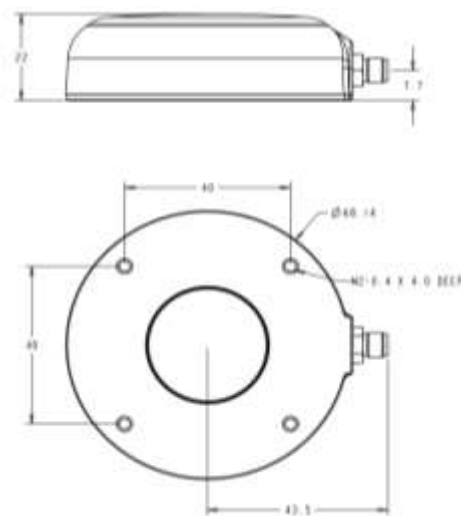
The TW7872 features a precision tuned, twin circular dual feed, stacked patch element. The signals from the two orthogonal feeds are combined in a hybrid combiner, pre-filtered to minimize interference from out of band signals such as Cellular LTE then amplified in a wide-band LNA and band-split for additional filtering and amplification stages prior to recombination at the output.

The TW7872 provides reception for signals in the bands 1213MHz to 1261MHz and 1557MHz to 1606MHz. It is housed in a magnetic mount, weather-proof enclosure.

This product is also available in an OEM format (TW3867 for 28dB and TW3872E for 35dB)



TW7872 Dimensions (mm)



### Applications

- Precision GPS position
- Dual Frequency RTK systems
- Mission Critical GPS Timing
- Military & Security

### Features

- Very low Noise Preamp, < 2.5dB
- Axial ratio: <2dB typ.
- Tight Phase Center Variation
- LNA Gain 32 dB typ.
- Low current: 24mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC

### Benefits

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





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## A Tallysman Accutenna®

### TW7972 Triple Band GNSS Antenna + L-band Correction Services

The TW7972 is precision tuned triple band, *Accutenna*® technology antenna for reception of GPS L1/L2/L5, GLONASS G1/G2/G3, BeiDou B1/B2, Galileo E1/E5a+b plus L-band corrections signals. The TW7972 provides superior multi-path rejection and axial ratio, a linear phase response, and tight Phase Centre Variation (PCV), while protecting against intermodulation and saturation caused by high level cellular 700MHz signals. This antenna is ideal for precision agriculture, autonomous vehicle tracking and guidance, and other applications where precision matters.

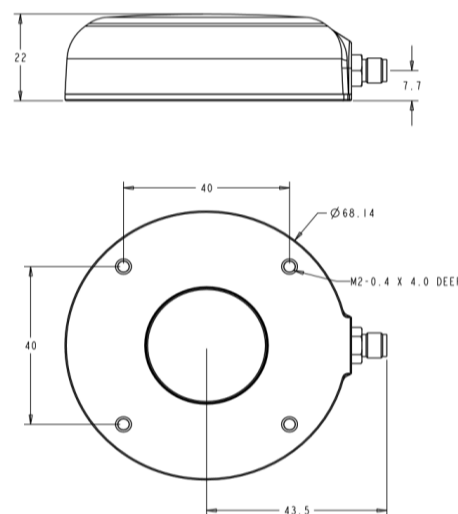
Architecturally, the TW7972 features a dual feed circular stacked patch element. The signals from the two orthogonal feeds are summed in quadrature, pre-filtered in a low loss filter to protect against a wide range of potentially interfering signals, amplified in high linearity, wide-band LNA, then band-split, tightly filtered and amplified prior to signal recombination at the output.

The TW7972 provides reception for signals in the bands 1164MHz to 1254MHz and 1525MHz to 1606MHz. It is housed in a magnetic mount, weather-proof enclosure.

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



TW7972 Dimensions (mm)



#### Applications

- Precision GPS position
- Triple Frequency RTK systems (base and rovers)
- Positive Train Control (PTC) systems
- Military & Security

#### Features

- Very low Noise, Pre-filtered Preamp, 2.5dB
- Axial ratio: <2dB typ.
- Tight Phase Center Variation
- LNA Gain 32 dB typ.
- Low current: 24mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC

#### Benefits

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





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## TW7972 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 Min at Zenith		
E5b/G3 Gain (100mm ground plane)	2.5 dBic Min at Zenith		
L2 Gain (100mm ground plane)	4.0 dBic Min at Zenith		
G2 Gain (100mm ground plane)	2.5 dBic Min at Zenith		
E1 Gain (100mm ground plane)	4.0 dBic Min at Zenith		
L1 Gain (100mm ground plane)	4.0 dBic Min at Zenith		
G1 Gain (100mm ground plane)	3.0 dBic Min at Zenith		
Typical Axial Ratio @ zenith			
L5/E5ab	<2dB	L2/B2	<1.5dB
G2	<2dB	L-Band	<1dB
L1/E1	<1dB	G1	<1.5dB

#### Electrical

Bandwidth	L2/L5: 1164MHz-1254MHz (Filter bandwidth) L-band/L1: 1525 MHz-1606MHz (Filter bandwidth)		
Overall LNA Gain	32dB typ,		
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	24mA 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 >30dB
	<1125 MHz	>30 dB	>1690 MHz > 30dB
	>1350 MHz	>35 dB	>1730 MHz > 40dB

#### Mechanicals & Environmental

Mechanical Size, Ground Plane	69mm (dia) x 22mm (H)
Operating Temperature Range	-40°C to +85°C
Enclosure	Radome: EXL9330, Base: Zamak White Metal
Weight	180 g
Attachment Method	Magnetic Mount. Four-threaded holes (#6x32, 4mm deep in the base allow for screw mounting.
Environmental	IP67, RoHS and REACH compliant
Shock	Vertical axis: 50 G, other axes: 30 G
Vibration	MIL STD 810D

#### Ordering Information

TW7972 – Triple Band GNSS antenna with L-Band Correction 33-7972-xx-yyyy

Where xx = connector type and yyyy = 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 connectors.

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