



## A Tallysman Accutenna®

### TW3870 / TW3872 GPS L1/L2 + GLONASS G1/G2 + BeiDou B1 + Galileo E1

The TW3870/ TW3872 employ Tallysman's unique *Accutenna* technology providing dual band GPS L1/L2, GLONASS G1/G2 + BeiDou B1 + Galileo E1 coverage and is especially designed for precision dual frequency positioning.

The TW3870/TW3872 features a precision tuned, 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 TW3870/TW3872 offers excellent axial ratio and a tightly grouped phase center variation.

The TW3870/TW3872 covers GPS L2 (1227.6MHz), GLONASS G2 (1248MHz centre), GPS L1/WAAS/EGNOS/MSAS (1575.42MHz), GLONASS G1 (1602MHz, centre), BeiDou B1 and Galileo E1. (1561 and 1589 MHz).

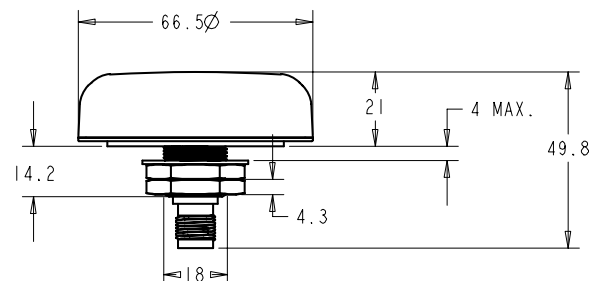
The TW3872 has a pre-filter which increases the antenna's immunity to high amplitude interfering signals, such as LTE and other cellular signals.

The TW3870/TW3872 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 formats (TW3865, TW3870E, TW3872E, and TW3868)



TW3870 Dimensions (mm)



### Applications

- Precision GPS position
- Dual Frequency RTK receivers
- Mission Critical GPS Timing
- Military & Security
- Network Timing and Synchronization

### Features

- Very low Noise Preamp, < 2dB
- Axial ratio: <2dB typ.
- Tight Phase Center Variation
- LNA Gain 35 dB typ.
- Low current: 24 mA typ.
- ESD circuit protection: 15 KV
- Invariant performance from: +2.5 to 16VDC

### Benefits

- Ideal for L1/L2 RTK surveying systems
- Great multipath rejection
- Increased system accuracy
- Great signal to noise ratio
- IP67, REACH, and RoHS compliant



## TW3870 / TW3872 GPS L1/L2 + GLONASS G1/G2 + BeiDou B1 + Galileo E1

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

#### Antenna

Patch Architecture	Circular, Dual Feed, Dual Stacked Patch
L2 Gain (100mm ground plane), 1227.6-1246MHz	3.8 dBic Min at Zenith on 100mm Ground Plane
L1 Gain (100mm ground plane), 1575.42MH-1606MHz	4.5 dBic Min at Zenith on 100mm Ground Plane
Axial Ratio, over full bandwidth, both L1 & L2	≤ 2dB typ., 1 dB max. at Zenith, 3dB max at horizon
1dB Bandwidth,	L2: 1227MHz-1250MHz    L1: 1557MHz-1606MHz
Polarization	RHCP,

#### Electrical

Bandwidth	L2: 1213MHz-1261MHz (Filter bandwidth)	L1: 1557 MHz-1606MHz (Filter bandwidth)
Overall LNA Gain	35dB typ, 32 dB min, each of L1 and L2 Bands,	
Gain Variation with Temperature.	3dB max over operational temperature range	
LNA Noise Figure	1.5dB typ at 25°C (TW3870) 2.5dB typ @25°C (TW3872)	
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, 25mA max at 75°C.	
ESD Circuit protection	15 KV air discharge.	
Out-of-Band Rejection	<b>L1</b>	<b>L2</b>
	<1450 MHz    >40 dB	<1130 MHz    >40 dB
	<1520 MHz    >30 dB	<1190 MHz    >30 dB
	>1650 MHz    >35 dB	>1284 MHz    >32 dB

#### 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

TW3870 – GPS L1/L2 + GLONASS G1/G2 + BeiDou B1 + Galileo E1	33-3870-xx-yy-zzzz
TW3872 - GPS L1/L2 + GLONASS G1/G2 + BeiDou B1 + Galileo E1	33-3872-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/wp-content/uploads/Current-Ordering-Guide.pdf>) for the current and complete list of available radomes and connectors.

### Tallysman Wireless Inc

36 Steacie Drive  
Ottawa ON K2K 2A9 Canada  
Tel +1 613 591 3131      Fax 613 591 3121      [sales@tallysman.com](mailto:sales@tallysman.com)

The information provided herein is intended as a guide only and is subject to change without notice. This document is not to be regarded as a guarantee of performance. Tallysman Wireless Inc. hereby disclaims any or all warranties and liabilities of any kind. © 2010 Tallysman Wireless Inc. All rights reserved. Rev 4.3

