



A Tallysman Accutenna™ TW3870 GPS L1 & L2/GLONASS G1 & G2 Antenna

The TW3870 employs Tallysman's unique *Accutenna™* technology providing dual band GPS L1 & L2 and GLONASS G1 & G2 coverage and is especially designed for precision dual frequency positioning.

The TW3870 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 offers excellent axial ratio and a tightly grouped phase center variation.

The TW3870 covers GPS L2 (1227.6MHz), GLONASS G2 (1248MHz centre), GPS L1/WAAS/EGNOS/MSAS (1575.42MHz) and GLONASS G1 (1602MHz, centre).

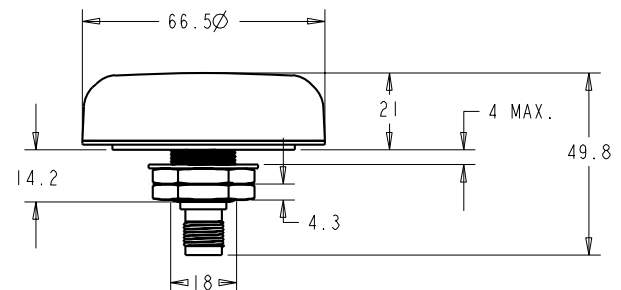
The TW3870 is housed in a through-hole mount, weather-proof enclosure for permanent installations. L Bracket or Pipe Mount (part numbers 23-0040-0, 23-0065-0 respectively) are available for non-rooftop installation. A 100mm ground plane is recommended for non-rooftop installations.

This antenna has been calibrated by NGS.

This product is also available in an OEM format.



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: 25 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 and RoHS compliant



TW3870 GPS L1 & L2/GLONASS G1 & G2 Antenna

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 dBic Min at Zenith on 100mm Ground Plane
L1 Gain (100mm ground plane), 1575.42MHz-1606MHz	4.5 dBic Min at Zenith on 100mm Ground Plane
Axial Ratio, over full bandwidth, both L1 & L2	<1dB typ., 2 dB max. at Zenith
1dB Bandwidth,	L2: 1227MHz-1250MHz L1: 1570MHz-1606MHz
Polarization	RHCP,

Electrical

Bandwidth	L2: 1213MHz-1261MHz (Filter bandwidth) L1: 1570MHz-1614MHz (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	2dB 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	25mA typ. at 25°C, 30mA max at 75°C.								
ESD Circuit protection	15 KV air discharge.								
Out-of-Band Rejection	<table border="0" style="width: 100%;"> <tr> <td style="text-align: center;">L1</td> <td style="text-align: center;">L2</td> </tr> <tr> <td><1500 MHz</td> <td>>50 dB</td> </tr> <tr> <td><1550 MHz</td> <td>>36 dB</td> </tr> <tr> <td>>1640 MHz</td> <td>>60 dB</td> </tr> </table>	L1	L2	<1500 MHz	>50 dB	<1550 MHz	>36 dB	>1640 MHz	>60 dB
L1	L2								
<1500 MHz	>50 dB								
<1550 MHz	>36 dB								
>1640 MHz	>60 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: ASA Plastic, 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

Ordering Information

TW3870 – GPS L1/L2 + GLONASS G1/G2 antenna

33-3870-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/orderingguide.php>) for the current and complete list of available radomes and connectors.

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