

A Tallysman AccutennaTM

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

The TW3870 employs 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 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 wideband 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.

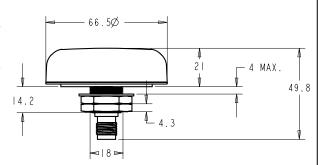
The TW3870 covers GPS L2 (1227.6MHz), GLONASS G2 (1248MHz centre), GPS L1/WAAS/EGNOS/MSAS (1575.42MHz), GLONASS G1 (1602MHz, centre), BeiDou B1 and Galileo E1. (1561 and 1589 MHz),

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-roof-top installations.

This product is also available in an OEM format (TW3866)



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: 20 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 GPS L1/L2 + GLONASS G1/G2 + BeiDou B1 + Galileo E1

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

Antenna

Patch Architecture L2 Gain (100mm ground plane), 1227.6-1246MHz L1 Gain (100mm ground plane), 1575.42MH-1606MHz Axial Ratio, over full bandwidth, both L1 & L2

1dB Bandwidth, Polarization

Circular, Dual Feed, Dual Stacked Patch 3 dBic Min at Zenith on 100mm Ground Plane 4.5 dBic Min at Zenith on 100mm Ground Plane ≤ 2dB typ., 1 dB max. at Zenith, 3dB max at horizon L2: 1227MHz-1250MHz L1: 1557MHz-1606MHz RHCP,

Electrical

Bandwidth L2: 1213MHz-1261MHz (Filter bandwidth) L1: 1557 MHz-1606MHz (Filter bandwidth)

L2

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 <1.5:1

VSWR (at LNA output)

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 20 mA typ. at 25°C, 25mA max at 75°C.

ESD Circuit protection 15 KV air discharge.

Out-of-Band Rejection L1

> <1500 MHz >40 dB <1184 MHz >50 dB <1550 MHz >20 dB <1200 MHz >30 dB >1640 MHz >45 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

Radome: EXL9330, Base: Zamak White Metal Enclosure

Weight 185 g

Attachment Method Permanent 34" (19mm) through hole mount

Environmental IP67, RoHS and REACH compliant Shock Vertical axis: 50 G, other axes: 30 G

3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G Vibration

MIL-STD-810F Section 509.4 Salt fog / spray

Ordering Information

TW3870 - GPS L1/L2 + GLONASS G1/G2 + BeiDou B1 + Galileo E1 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/wp-content/uploads/Current-Ordering-Guide.pdf) for the current and complete list of available radomes and connectors.

Tallvsman Wireless Inc

106 Schneider Road, Unit 3

Ottawa ON K2K 1Y2 Canada Tel 613 591 3131 Fax 613 591 3121 sales@tallysman.com

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