# TW3805 GPS L1 & L2/GLONASS G1 & G2 OEM Antenna

The TW3805 by Tallysman Wireless is a high precision dual feed dual band GPS L1 & L2 & GLONASS G1 & G2 antenna, especially designed for precision dual band positioning in an OEM format.

The TW3805 features a precision tuned, circular stacked patch element with dual feeds. The two orthogonal feeds are combined in a hybrid combiner and the combined signal is band-split in a diplexer for pre-filtering prior to amplification in separate Low Noise Amplifiers (LNAs) for each band.

The TW3805 also offers a tightly grouped phase center over elevation angles from zenith to 0 Degrees (horizon).

The TW3805 covers GPS L2 (1226.6MHz), GLONASS G2 (1248MHz centre), GPS L1/WAAS/EGNOS/MSAS (1575.42MHz) and GLONASS G1 (1602MHz, centre).

The OEM TW3805 is supplied with a standard 60mm diameter circular ground plane, with a coaxial cable terminated with a connector (right angle MCX is shown in the drawing). Mounting holes are provided for attachment to larger ground planes. Custom tuning and ground plane options may be available, depending on purchase level commitment.
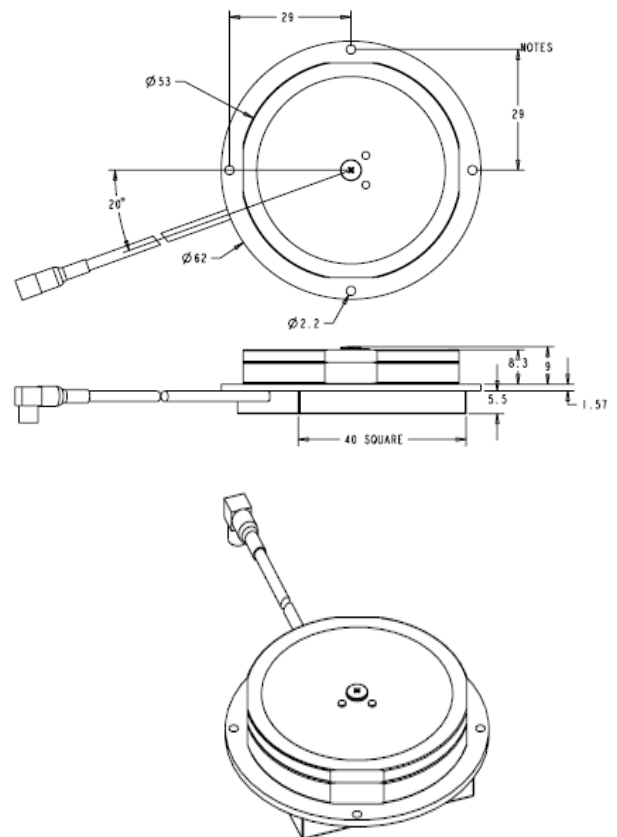
Applications
- Anti-Jamming GPS
- Mission Critical GPS Timing
- Military & Security
- Network Timing and Synchronisation

Features
- Very low Noise LNA, < 2 dB
- Axial ratio: 1dB typ, at zenith.
- Mid range LNA gain: 35 dB typ.
- Low current: 25 mA typ.
- ESD circuit protection: 15 KV
- Wide voltage input range: +2.5 to 16 VDC

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

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Specifications

At Vcc = 3V, and Temperature=25°C

Antenna

Patch Architecture	Circular, Dual Feed, Dual Stacked Patch
Gain (100mm ground plane), 1227.6-1246MHz	3 dBic Min at Zenith on 100mm Ground Plane
(100mm ground plane), 1575.42MH-1606MHz	4.5 dBic Min at Zenith on 100mm Ground Plane
Axial Ratio, over full bandwidth, both L1 & L2	<3 dB at 90°
L2, 1dB Bandwidth,	1227MHz-1250MHz
L1, 1dB Bandwidth,	1575MHz–1606MHz
Polarization	RHCP, L1 and L2

Electrical

Bandwidth at L2	1213MHz-1261MHz (Filter bandwidth)
Bandwidth at L1	1571MHz-1614MHz (Filter bandwidth)
Overall LNA Gain	35dB typical, 32 dB min, each of L1 and L2 Bands,
Gain Variation with Temperature.	3dB 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 16 VDC nominal, up to 50mV p-p ripple
EMI Immunity	50V/Meter, excepting L1+/-100MHz and L2 +/- 100MHz
Supply Current	25mA typ. at 25°C.
ESD Circuit protection	15 KV air discharge.

Out-of-Band Rejection	**L1**		**L2**	
	<1500 MHz	>50 dB	<1184 MHz	>50 dB
	<1550 MHz	>36 dB	<1200 MHz	>30 dB
	>1640 MHz	>60 dB	>1284 MHz	>32 dB

Mechanicals & Environmental

Mechanical Size, Ground Plane	60mm diameter, 0.75mm thick, see mechanical drawing
Operating Temperature Range	-40°C to +85°C
Weight	150 g
Attachment Method	Through hole screws in ground plane
Environmental	RoHS compliant
Shock	Vertical axis: 50 G, other axes: 30 G
Vibration	3 axis, sweep = 15 min, 10 to 200 Hz sweep: 3 G
Warranty	One year – parts and labour

Ordering Information

TW3805   32-3805-xx-yyyy-zz

  Connector: xx = 00 SMA male ,   01 = TNC male   02 = MCX male   03 = MMCX male   04 = SMB male
  05 = MCX right angle male   06 = MMCX right angle male   07 = SMA female   08 = H.FL (call for pricing)
  09 = U.FL   10 = SMA R/A (add $2.95 to unit price) 11 = Reverse polarity SMA (add $5.00 to unit price)
  Cable length: yyyy = cable length in mm   Custom Tuning: zz = Assigned by Tallysman

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