Tallysman Wireless

When precision matters.™

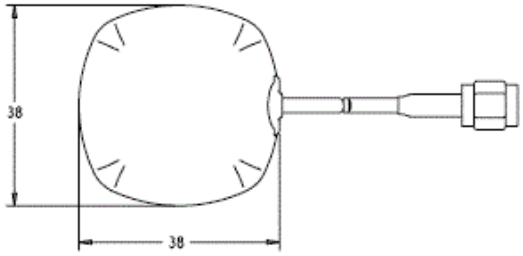
TW4027/TW4029 Low Power GPS Antenna

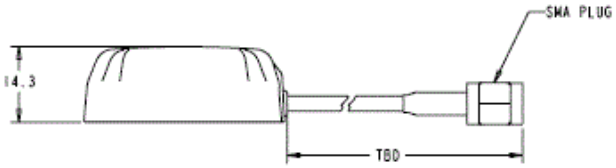
The TW4027/TW4029 is a very low power, commercial grade GNSS antenna covering the GPS L1, frequency band. This antenna features an LNA with a nominal current consumption of just 2mA, with constant performance from 2.5V to 15V supply voltage, and includes protection against close proximity L-band transmitting antennas such as Iridium™ and Globalstar™

The TW4027/TW4029 has among the lowest power consumption available, yet still provides 21dB nominal gain and an excellent Noise Figure. The TW4027.TW4029 patch has 40% wider bandwidth for better axial ratio and has 15 KV ESD circuit protection. The LNA has a +/- 10MHz bandwidth that covers the full GPS L1 signal plus the SBAS (WAAS /EGNOS/MSAS) frequency band (1572.5 to 1578 MHz).

The TW4029 variant provides a "Brick-Wall" pre-filter to protect against saturation by high level sub-harmonics and L-Band signals.

It is housed in a compact IP67 magnetic mount enclosure, and comes standard with 3 metres of cable and a SMA connectors.





Applications

- Battery operated monitoring
- Covert Surveillance
- Fleet Management & Asset Tracking
- Satcom based AVL solutions

Features

- Nominal 2mA current draw
- Invariant response, 2.5 to 16 VDC Supply
- Low Noise 1.0dB/3.5dB Typ. (TW4027/TW4029)
- Axial ratio: 4 dB max (GPS)
- TW4122 "Brick-Wall pre-filter option
- High gain: 24dB/21dB Typ. (TW4027/TW4029)
- IP67 weather proof housing

Benefits

- Longer battery life
- Excellent signal to noise ratio
- RoHS compliant
- Ideal for harsh environments
- Excellent out of band signal rejection

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Specifications

Antenna

Architecture	Wideband Single Feed Patch
1 dB Bandwidth	31 MHz
10dB Return Loss Bandwidth	45MHz
Antenna Gain (with 100mm ground plane)	4.5 dBic
Axial Ratio over Bandwidth	4dB @ Fcenter
Polarization	RHCP

Electrical

Architecture		TW4027:Patch -> LNA1->SAW -> LNA2 TW4029: Patch -> Pre-filter SAW-> LNA1> SAW -> LNA2,	
Gain @ 1575.42 MHz		24dB Typ, 21dB Min (TW4027); , 21dB Typ,18dB Min (TW4029)	
Gain flatness		+/- 2 dB	
Out-of-Band Rejection	<1500 MHz	>32 dB (TW4027)	>50dB (TW4029)
	<1550 MHz	>25 dB	>50dB
	>1640 MHz	>35 dB	>70dB
VSWR (at LNA output)		<1.5:1	
Noise Figure		1 dB typ. (TW4027)	3.5dB typ. (TW4029)
Supply Voltage Range (over coaxial cable)		+2.5 to 16 VDC nominal	
Supply Current		2mA typical, 2.2mA max,	
Operating Supply Voltage		2.5V to 16V DC.	
ESD Circuit Protection		15 KV air discharge	

Mechanicals & Environmental

Mechanical Size	38mm x 38mm dia. x 14.3mm H
Cable	RG174
Operating Temp. Range	-40 to +85 °C
Enclosure	Radome and base: ASA plastic
Weight	73g (enclosure 34gm, 3m cable 39gm)
Attachment Method	Magnetic
Environmental	IP67 and 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

TW4027 – Low Power GPS Antenna, 32-4027-xx-yyyy
TW4029 – Low Power GPS Antenna with pre-filter, 32-4029-xx-yyyy
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

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Rev 2.0