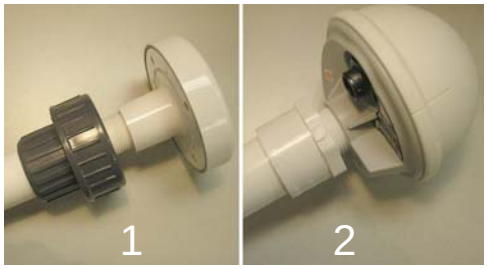
Spectracom Antennas



Spectracom provides one of two different standard GPS antennas with certain GPS-equipped products. These are the Model 8225 **(1)** antenna and the TSAT dome antenna **(2)** (the product number of which varies depending on the board-level timing product with which it ships). Each antenna is shipped with a mast and clamps for affixing the antenna to an appropriate structure. The antenna components themselves are simply screwed together (the appropriate components are threaded). Refer to the installation instructions herein for proper positioning of your GPS antenna.

NOTE: A free-standing base is sold separately. Contact Spectracom to order a base for your antenna mast.

The Model 8225 is an active GPS antenna tuned to receive 1575.42 MHz L1 band satellite transmissions. The received signals are passed through a narrow bandpass filter and a preamplifier within the antenna. The active antenna circuitry provides 30dB of gain and requires +5 VDC at 27 milliamps (provided by a Spectracom GPS receiver over the antenna cable).

The TSAT dome antenna receiver is is an active GPS antenna/receiver operating on the 1575.42 MHz L1 band. It provides continuous tracking with an update rate of 1 Hz and generates a pulse-per-second (PPS) output syncrhonized to UTC within 15 nanoseconds. It also outputs a serial protocol at RS-422 levels. The receiver requires +5 VDC at 50 milliamps (provided by a Spectracom board-level product over multi-conductor cable).

INSTALLING THE ANTENNA

The GPS antenna must be installed outdoors with an unobstructed view of the sky (to 20° elevation from the horizon). An unobstructed line of sight to the sky allows the antenna to locate and track the maximum number of satellites throughout the day. Installations with obstructed views may still prove functional, but the equipment may experience reduced reception quality or be unable to track simultaneously the maximum number of satellites. Make sure the antenna is installed somewhere that it will not be buried in loose or drifting snow, or obstructed by growing foliage. Whenever possible, avoid placing the GPS antenna in close proximity to broadcast antennas.

To connect the antenna, run the antenna cable through the mast if desired or feasible **(4, 8)**, into the antenna slot up through the end of the mast if not feasible **(5)**, or simply to the antenna dome **(9)**. The 8225 antenna connection is made inside the housing and the collar screwed down to secure it **(3-6)**. The TSAT dome antenna is screwed in **(7-9)**.

8225 ANTENNA CABLE

Spectracom recommends using LMR-400 low loss type cable for the GPS antenna cable. To simplify the installation process, Spectracom offers GPS cable assemblies terminated with Type N Male connectors in standard lengths. If the antenna cable is purchased locally, select coax suitable for outdoor use. Consider the cable's weather ability, temperature range, UV resistance, and attenuation characteristics.

Do not allow the antenna cable to be placed in standing water, as water may permeate through the coax jacket over time. On flat roof installations, the coax can be suspended by cable hangers or placed in sealed PVC conduit. Apply a weather proofing sealant or tape over all outdoor connections. Spectracom offers a weatherproofing kit for use with the 8225 antenna.

Installation of a surge protection device in the 8225 antenna line is recommended to protect the GPS receiver and connected devices from lightning damage. Spectracom offers an Impulse Suppressor to shunt potentially damaging voltages on the 8225 antenna coax to ground. Spectracom also offers a Surge Protector Grounding Kit that serves as a single point ground connection for the Surge Suppressor. Contact our Sales and Customer Service departments for more information.

NOTE: The maximum recommended antenna cable length when installed without a preamplifier is 300 feet of LMR 400 or equivalent cable with a maximum attenuation (loss) of 16 dB. When selecting alternate antenna cable sources, the attenuation characteristics at the GPS L1 frequency must be known. To ensure optimum receiver performance, the total antenna cable attenuation must not exceed 16 dB regardless of cable length. Cable attenuation of greater than 16 dB requires the use of a Spectracom Inline Amplifier. Contact Spectracom's Sales and Customer Service departments for more information.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SPECIFICATIONS:	***8225 ANTENNA***	***TSAT DOME ANTENNA***
Type:	Active	Active
Frequency	1575.42 ± 15 MHz (L1)	
Temperature Range:	-55° to 85° C (-67° to 185°F)	-40° to 85° C (-40° to 185°F)
Gain:	33 dB (L1) (8225 only)	
Connector:	N type, female	12-pin round
Diameter:	3.50 in. (8.9 cm)	3.74 in. (9.5 cm)
Weight:	6.8 oz. (191 g)	5.4 oz. (154 g)

Revision Level	*ECN Number*	*Description*
A	**2213**	Document created to include both the 8225 and the TSAT dome antenna, obsoleting Man8225.