Polar Mast Overview

326 Beth Bartel July 28, 2021 Antenna Masts and Monument Pins 2373

Polar Mast

Back to comparison table	Mount Commonly Used	Stability	Cost	Install Time	Labor	Substrate	
	Included in mast	med-high	$500	1hr	1	BR	

The 'polar' mast consists of a lightweight aluminum mast fitted with a custom antenna mount. The mast is bolted with four expansion bolts onto bedrock or cement. Height may vary; shown here is a 1-meter mast, but 0.5-meter and 2-meter masts (e.g. for deep snow or populated areas) have also been produced. This style of mast has been used by the TAMDEF project in Antarctica, the POLENET project in Greenland and Antarctica, and other remote CGPS sites including Mauna Loa, Hawaii.

Pros

- Materials are lightweight and portable
- Can be installed with a battery-powered drill
- Small footprint, low-profile
- Short installation time (<1 hr)
- Can be installed on a rooftop or other stone or cement structure

Cons

- Can only be installed in solid material

Design and Construction

A custom jig is used for drilling the bolt holes.

Documents

- Installation instructions (.pdf)

Installation Photos

Eric Kendrick of Ohio State University works to install a mast using the custom jig on Moody Nunatak, Antarctica, as part of the WAGN network.

Approximate Cost

$680

Supplier: https://www.tech-2000.com/

This cost is for the monumentation only.

Materials

- 4 expansion bolts
- mast
- 12 washers
- 12 nuts
- antenna mount and set screw
- epoxy (e.g. Hilti HIT-HY-150) or quick-setting, expansive concrete
- Loctite or other glue (incl. epoxy) for threads (optional)

Tools

- custom drill jig
- measuring tape or measuring stick
- chisel
- mallet or hammer
- battery-powered drill and drill bits
- tape to mark drill
- tube to blow rock flour out of the holes
- protective cap for the threaded bolts
- level
- wrench

- compass

Mount Commonly Used

The ability to level the antenna and align it to north is included in the design of the polar mast.

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