



## Instructions for Installing 40 ft Guyed Poles

### Introduction

Erecting wind monitoring masts can be a difficult business. We have made monitoring up to 40 ft easy and safe using telescopic fiberglass poles.

Fiberglass poles have the following advantages over other materials:

- Light and easy to erect
- Electrically non-conductive
- Not a lightning conductor
- Flexible and forgiving
- Will not rust or corrode
- Adjustable for any height up to 40 ft

Our 40 ft telescopic poles consist of six sections, each ranging in length from 6 to 8 feet long. The base section is 2" outside diameter (OD) and 1 3/4" inside diameter (ID). The top section is 3/4" OD and just over 1/2" ID (0.56").

Once extended, the sections lock together using threaded rings. These should not require any more than hand tightening.

Even if the base of the 40 ft pole is in concrete, guying is required. The fully extended pole is somewhat flexible, like a giant fishing rod. Without guying, the pole is likely to bend over and to move excessively with the wind.

### Foundation Options

The pole manufacturer recommends burying the bottom two feet of the pole in concrete for permanent installations. There is a plastic pipe sleeve provided with the pole for use with concrete foundations.

For temporary installations, we recommend two options:

#### 1. A 1 1/2" pipe base and single guying.

Obtain 5 ft of 1 1/2" (one and a half inch) galvanized iron water pipe. The 1 1/2" size refers to the ID of the pipe; the OD is approximately 1 3/4".

Using a post hole digger or other means, sink 3 ft of the pipe into the ground, leaving 2 ft exposed. If driving the pipe, place a piece of wood over the pipe so that it is not deformed by hammer blows. Use a level to ensure that this metal supporting pipe is vertical.

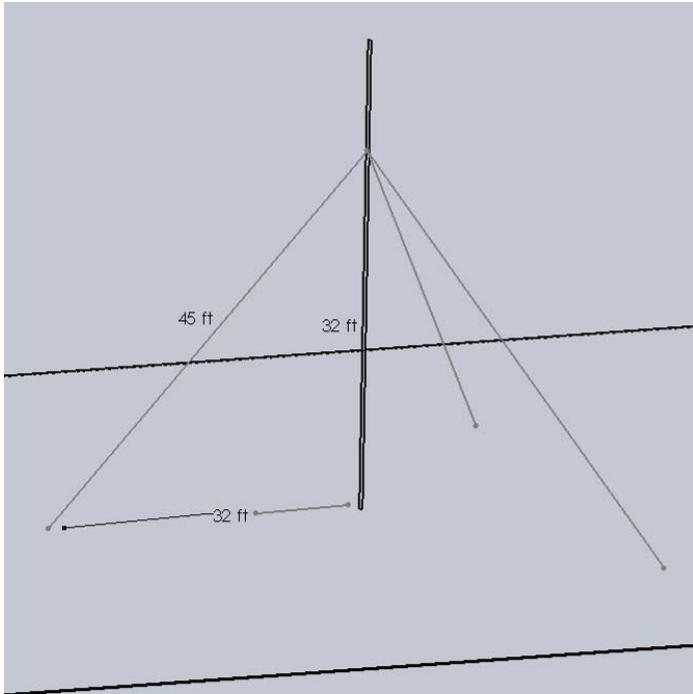
Once the hole is backfilled and firmly tamped, lift the fiberglass pole up and place the 2" OD base section over the metal pipe.

A disadvantage of this method is that the pole locking rings end up 10 feet in the air. A small ladder is needed to raise the mast.

The pipe base mount provides enough rigidity so that single-guying is sufficient to support the pole.

## 2. Shallow burial of the base and double guying.

A quick and simple alternative is to dig a shallow hole for the pole base (to stop it moving around). This can be just 4-6 inches deep. Then use double guying to provide support for the pole



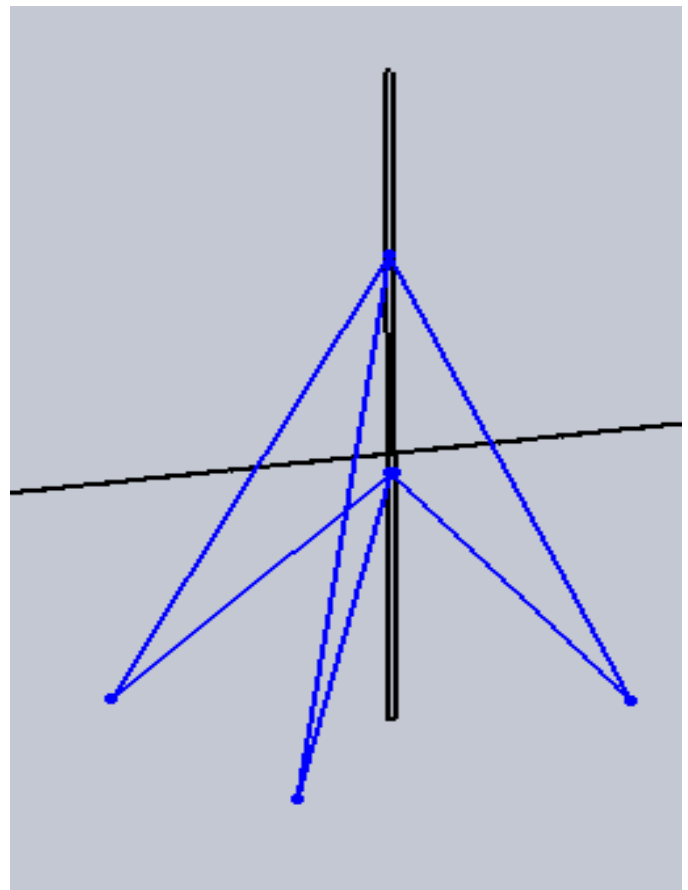
## Guying Options

**Single guying** involves spacing three guy ropes at 120 degree intervals around the tower.

The top of each guy is held by a stainless steel hose clamp against the topmost tightening ring.

It is important to tie each guy top to the clamp – don't rely on clamp tension alone.

On a level surface, approximately 45 ft of rope is needed per guy to achieve an optimal angle of 45 degrees to the ground stakes. We use 7/32" braided polyester rope. It is low stretch, weather resistant, and remains flexible in the cold.



**Double Guying** involves two sets of guys, one to topmost tightening ring, and another set to the tightening ring at the top of the third pipe section (approx 20 ft from the ground). For this arrangement, move the ground stakes in to about 26 ft from the tower base, so the top guys are steeper, and the bottom guys are not so flat.

It is possible to fasten a single 100 ft length of rope to the upper and lower guying points, and to pass the loop through the eye-bolt in the ground stake. This allows flexibility in siting without having to cut the cord.

For very windy locations, using 4 rather than 3 guys can help tower stability. WindMonitoring can supply the extra rope and ground stakes for a nominal charge.

## Stake Assembly & Installation

The tower guy kit includes three 20 inch x 3/4" stakes. These are drilled to take eye bolts and locking nuts which are provided. You will need a small wrench to tighten the nuts.

The stakes are easy to drive in to most soil types. Wear eye protection when driving with a hammer.

## Fastening Guys to the Pole

We provide two stainless steel hose clamps for attaching the guys to the pole (the second one is for double-guying). It is important to tie the rope to the clamp, and not to rely solely on compression to keep things connected (the clamp could walk up the tightening ring). Melt the ends of the rope to prevent fraying. A good knot to use is a bowline. If you don't know how to tie one, find a sailor and ask how.



easier however if the tower is held vertically and telescoped up.

## Support

If you have any questions monitoring towers or other aspects of your WindMonitor, please contact customer service at [info@WindMonitoring.com](mailto:info@WindMonitoring.com), or 603-878-2720.



## Fastening Guys to the Pole

Pass a loop of rope through the eye bolt. The loop can be fastened back on itself with a couple of half hitches.

## Attaching Anemometers and Wiring

Mount your anemometer to the top of the upper pole section. A second level, if used, is best mounted at about the 30 ft mark. Spiral the anemometer cables down the mast, and tape with electrical tape. (Spiraling results in less wind-chatter and less wear on the cables). For permanent installations, it is possible to feed the top anemometer cable into the center of the tower, and to drill small entrance and exit holes in the tubing. This makes for a very clean installation, however cables passing into lower mast sections may eliminate the ability to telescope the tower.

## Erection

The fiberglass pole is so light and strong that it can be fully extended on the ground and tilted up. A one person erection is