

Mounting Adaptors, Hardware, Masts and Junction Boxes

A range of mounts and adaptors are available to simplify fixing of our anemometers and windvanes to a mast.

Mounting Anemometers/Windvanes when the highest accuracy and First Class performance is required (i.e. "Site/Wind-Assessment" and "Wind Turbine Testing" applications):

Use of the correct type of mounting adaptor, pole-diameter and boom is critical in ensuring that First Class Performance and highest accuracy measurements are achieved from an A100 Series Anemometer.

For quoted/highest accuracy and "First Class" performance (and for MEASNET calibrations) A100 series anemometers must be mounted using 405 or 405/27P mounts.

405 Single mast mounts for anemometers and windvanes are the preferred solution, but if mounting both sensors at the same height, there will be some interference to the airflow which will reduce accuracy of reading, depending on the mast top diameters and separation distance.

For best accuracy in all applications, it is preferable to mount the anemometer in such a way that the mast/structure (and/or other anemometers/windvanes/instruments) do not interfere with the airflow "seen" by the anemometer.

The IEA-11 and IEC 61400-12-1 standards have guidance on masts, booms, and anemometer/windvane mounting to obtain the best results in wind assessment and wind turbine testing applications.

Typical recommendations in those documents include mounting the top-most anemometer on an upright thin round pole at least 6 mast-diameters (15 to 25 mast-diameters preferred) above the main structure of the mast. In the case of instruments mounted part-way up the mast, guidance is to mount on side booms (with an upright pole at the end having a round cross-section) such that the instruments are at least 6 mast-diameters (15 to 25 diameters preferred) away from the mast structure while also taking into account the prevailing wind direction - the upright round pole should be thin and typically around 0.75m long.

To ensure the rated "First Class" performance of our A100 Series Anemometers is maintained, the "upright thin round pole" sections referred to above must be approximately 1 inch outside diameter (i.e. in the range 23.0mm to 27.4mm outside diameter) with a circular/round cross-section, and our 405 or 405/27P mounts must be used to fix the anemometer to the end. The anemometer cable should pass through the slot/groove in the 405 or 405/27P mount and then be tightly secured to the pole for at least the first 150mm/6ins below the anemometer (preferably recessed into a groove/slot in the pole over that 150mm/6ins length, and/or tightly secured down the "mast side" of the pole in the case of mounting on a boom). Boom designs using horizontal arms with either circular or rectangular tubular cross-sections have both been used successfully in many installations, however the boom must be strong enough to support the anemometer weight (roughly 0.5Kg) and stiff enough to avoid causing errors due to excessive vibration (or resonances) in the boom. Consult a specialist or the standards mentioned above for full details, many mast manufacturers can offer suitable booms and advice.

We do **not** advise the use of booms with 0.5 inch diameter ends (or 0.75 inch diameter tubes/poles) as used by some other anemometer manufacturers. The use of these smaller diameter poles/booms will compromise the anemometer classification as the pole/mount size/shape can noticeably affect the airflow around the anemometer/rotor itself and affect response/calibration of the instrument. We also believe that many of these small-diameter booms are **not** strong/stiff enough to support our A100 Series Anemometers (as they are larger/heavier than the anemometers originally intended for those booms). Using upright mounting poles which are "off centre" with respect to the centre axis of the anemometer (when the anemometer is fitted to the pole) is not recommended either.

Note that the calibration data we supply with an anemometer/rotor assumes the use of a 405 or 405/27P mount and a pole in the range 23.0 to 27.4mm outside diameter - use of a different mount/pole can alter the calibration slightly and can reduce the accuracy of the measurement results obtained. MEASNET calibrations are also normally carried out using a 25 to 27mm diameter pole and 405 or 405/27P mount - using a different mount/pole to that stated on the MEASNET calibration certificate when installing the anemometer will render the MEASNET calibration invalid for that installation.

Mounting Anemometers/Windvanes when the highest accuracy and First Class performance is not essential (i.e. "General" applications):

405-1 Dual mounting arms are also available, but are not suitable for wind assessment applications due to the relatively close spacing of the instruments and the likelihood of interference. Better results may be obtained by mounting the anemometer on a pole at the top of the mast while mounting the windvane on a **side-arm** or boom lower down the mast.

Many mounting adaptor variants are available (not all are shown on this site) to suit different mast sizes for "General" applications - please [contact us](#) if you cannot find a suitable adaptor here.

We do not manufacture masts however we would be pleased to recommend a selection of mast manufacturers should you need something larger or more sophisticated"

The choice of a mast and the **positioning and siting of the wind measuring instruments** usually depends upon a number of factors, and is normally some sort of compromise...

- The reason for making the wind measurements ... (i.e. what wind actually needs to be measured: general wind conditions or wind close to a roof for example).
- The availability of a mounting/installation site and strong anchoring points.
- Security and resistance to vandalism.
- Lightning protection requirements. ...these points are discussed in our [Siting Guidelines](#) and [Lightning Protection Guidelines](#). The effect of lightning protection measures (e.g. rods) and guy-wires on the airflow should be considered when deciding on a mounting arrangement.
- For guidance on masts/booms in wind assessment (or wind turbine power performance testing) applications, refer to [IEA-11 and IEC 61400-12-1](#).

Several types of [Junction Box](#) are available for joining instrument cables and/or extension cables, however many customers prefer to have long cables fitted (up to 100m) to their anemometers and windvanes at the time of manufacture instead for increased reliability. As an alternative, we now also offer the **CJK1 cable jointing kit** which can be used to connect an extra length of cable to an instrument with a weatherproof permanent joint (this is included in our /PRO Bundles).