

TIPS & ADVICE

AIS and VHF installation

VHF and AIS have different properties and requirements for installation, both are mainly there for safety on board but also provide the opportunity for non-competitors to follow a race sailing via the reporting of passages or AIS tracking (eg SailRaceToday, TracTrac).

Control & Maintenance

An antenna installation in a boat is considered a "fresh product". It must be checked and maintained every year. It is mainly cables and connectors that take off and these should be reviewed and maintained annually. Lubricate contacts with eg petroleum jelly to protect them from corrosion and wear and measure so that you do not have a short circuit in your antenna cable. Also make an ocular inspection of your cable harness so that it is not broken at joints, penetrations (in the mast, for example, it is easy for the cable hanging down in the mast not to be relieved properly at the top and thus damaged on eg a sharp edge in the bushing) or oxide at the connectors.

Don't forget to relieve your cable in the masthead. 15-20 m cable weighs a lot and must therefore be relieved properly up there so as not to be cut off. Connectors on cables should preferably be pressed together and not soldered or screwed. Finally, it is important to use an antenna that is tuned for the VHF band frequencies.

Choice and placement of cable and antenna

There are many types of cables and often are more expensive equal to better performance, but as racing sailors often strive for low weight, it can become conflict when high-performance cabling often has a higher weight. Nowadays there is a good compromise for lengths over 15 m (15-25 m) where a low-loss cable of type LNR can be used with advantage. It has significantly better performance than a lightweight and inexpensive RG-58 cable, which should only be used for lengths below 10 m.

Many sailors want to compromise on their safety and get small, short and easy antennas in the mast top that are often not adapted for VHF. The best solution for racing sailors is instead a 1 m stainless steel omnidirectional sailboat antenna that can withstand a lot of ironing with vibrations and loads found in the mast top.

The above principles apply to both an AIS and a VHF installation, but on a sailing boat it is a great advantage to let its AIS and VHF share the same antenna (VHF antenna) for communication. In addition to this, an AIS needs its own GPS antenna because you have to send it out position. The GPS antenna should not be mounted in the mast, but can advantageously be mounted on deck only if it has a clear view of the sky.

It is important to know that carbon fiber in eg hull, mast or sail can interfere with the performance of the GPS signals.

A VHF must be connected to GPS if it has so-called. DSC (Digital Selective Calling) functionality but it usually happens via data messages (NMEA) and not via a direct antenna connection. Also, be sure to ensure that the cable for the power supply is of the right dimension and both AIS and VHF can be connected to a separate group, preferably directly to the battery. Both equipment must be properly secured in order to be protected. AIS with 3 Amps and VHF depending on manufacturer.

Check & Measure

With an AIS product from True Heading comes an analysis and test program called proAIS 2. Follow the instructions carefully in the manual so you can easily make an initial analysis of how good your installation is. For AIS there is a standing wave measurement which is a certain indication of antenna, cabling and contact quality. Values are TX forward (Higher value the better) that should be between 110 and 150 and TX Reverse (Lower value the better) that should be under 40 with splitter and below 10 without splitter. Then there is also a disturbance index called RSSI value. RSSI 1 and RSSI2 should be between 40-60 to be good values.

Download proAIS 2 here » <https://trueheading.se/downloads/>

Service in Oxelösund

True Heading will be in place in Oxelösund to be able to help with the final equipment controls and easier troubleshooting.

Checklist:

- Check VHF antenna cables and connectors.
- If necessary, lubricate contacts with petroleum jelly and remove oxide.
- Use the correct tools when changing contacts.
- Use low loss cable at lengths above 15 m (not RG58).
- Relieve the cables properly in the mast.
- Use a proper antenna tuned for the VHF band.
- Share the VHF antenna with your AIS in the masthead.
- AIS needs its own GPS antenna.
- Carbon fiber can interfere with GPS performance.
- VHF with DSC function must have position data.
- Select the correct power supply cable.
- Secure the VHF and AIS equipment properly at the right level.
- Get VHF subscriptions (Requirements).
- Make sure you have VHF training.
- Make sure you have a call sign and an MMSI number for AIS and VHF.
- Check your VHF by making connection tests.