

A typical HF radio package consists of:

The Icom M802 comes preprogrammed with both Marine SSB and Ham/amateur Radio frequencies. The M802's flexible three-piece design makes it easy to install: mount the separate control head & speaker at your nav/helm station where space is scarce, and squirrel-away the main radio unit in a more seldom used locker or cubby hole up to 16-feet (5 metres) away. Both the control head and speaker have a generously wide bezel, making a professional-looking "flush mount" installation a snap, even for skippers who aren't expert wood workers (requires optional MB-75 flush Mount Kit).

Must Haves:

1. [Icom M802](#) marine HF SSB transceiver (incls hand mic, power cable, manual, remote head controller, radio body, cables and connectors) (\$2,299 price covers this only)
2. [Icom AT-140](#) Antenna Tuner (mounted as close to your grounding point / grounding plate as is possible)
3. [Icom OPC-1147N](#) tuner control cable (10M - 30+Feet) (runs from M802 radio to AT140 antenna tuner)
4. [RG-8 coaxial cable](#) with soldered connectors installed on both ends (12', 12', 18', 25', 50', 75', or 100' available)*(runs from radio to antenna tuner)
5. [Backstay \(RopeAntenna\)](#) - commercially manufactured, various lengths available or [Marine HF whip antenna](#)
6. [Copper RF grounding strip](#) (heavy-duty - keep run from tuner to grounding plate as short as possible)
7. [Antenna feeder cable](#) (runs from antenna tuner to feedpoint of backstay antenna or marine whip - keep as short as possible)
8. [Grounding Plate](#) (professional grade) with mounting kit (mounted to the underside of hull)
9. [Technical support](#) - for installation provided free of charge via email / telephone with purchase of the Icom M802.

Nice to haves:

1. [T-4-500](#) "common mode" coaxial RF Choke with double male coaxial connector (inserted between radio and coaxial cable to eliminate potential radio interference)
2. [RF chokes - FairRites](#) (two XL type-31 snap-on). (clip onto cables for any other electronic devices at the helm that maybe effected by radio interference - ie pactor modem cables)
3. [Icom MB75 flush mount kit](#) (for flush mounting the M802 remote head controller)
* Call or e-mail if your coaxial cable length is not listed.
4. [Pactor Modem](#) - send / receive emails via your HF radio, decode weatherfax, download grib files, plot your boat position on the internet for friends and family to track your course.

HF SSB INSTALL GUIDE FOR THE ICOM M802 HF RADIO

(the install process for the Icom M710 and other HF radios are the same except for the fact that a second DSC antenna is not required for these non DSC equipped radios).

Download the M802 installation diagram by clicking [here](#) (Installation PDF)

This is not intended as a complete installation guide - but rather an installation description to aid you in determining what you need to buy from us to do the job right. The process is not complicated - if you can follow step by step instructions then you can get this job done.

A comprehensive marine installation incorporating HF SSB radio, antenna system and Pactor Modem (for email at sea) is shown in the "Installation PDF" downloaded above.

The pactor modem installation is highlighted in grey and can be disregarded if you do not require email at sea capabilities.

Starting from the top left hand corner, you have the remote head controller and speaker for the Icom m802 (both included with radio purchase). Both of these plug into the front of the M802 radio body using the cables supplied (with the m802). The remote head controller is what you use to operate the radio. The radio body can be tucked out the way - but must still have adequate ventilation for heat dissipation.

A GPS (not supplied) can also be plugged into a port on front of the radio body.

Moving to the bottom left of the picture, we show the rear of the M802 radio body where the following connections need to be made:

- OPC-1147N (optional accessory available from us [here](#)) - is the antenna tuner control cable (10 metres long) - when you press the "tune" button on the radio - this cables carries the signal to your Icom AT-140 tuner (sold by us [here](#)) to tell it to tune / stop tuning etc.
- You have 2 coaxial cables jacks - jack 1 is for attaching your coaxial cable (sold in varying lengths [here](#)) which carries your radio signal to the antenna tuner and beyond.
- Jack 2 is for your DSC antenna. The DSC antenna is used to receive DSC calls from other vessels that maybe in distress. Your m802 actually has 2 receivers - this is so you can receive DSC emergency calls on DSC emergency channels whilst at the same time talking on a marine net using the main receiver. The DSC antenna is only used to receive DSC signals - when you transmit your own DSC message the main antenna (jack 1) is utilised. A random length of wire - > 3 metres, a RopeAntenna or marine whip can be used as a DSC receive antenna.
- The power cable (OPC-1107A) is supplied with the radio and is attached to your vessel DC power system. We recommend connecting straight to your battery as the vessel circuit board is a source of electrical noise which will diminish your ability to receive weaker radio signals.

The Icom AT-140 antenna tuner is mounted as close to your ground plate / shoe (sold [here](#)) as is possible. This is the most critical distance (to keep short) in the whole installation and it is best to start your installation plan here - ie the tuner must be as close to the ground plate as is possible (no more than 1 metre) - this accordingly determines the location of the tuner (ie next to the ground plate).

The installation a of a high quality ground system cannot be overestimated. Your antenna system will simply not work if you have not installed a good quality ground plate on the underside of your vessel. The larger the surface area of the plate (in contact with the sea water) the better the sytem will work. The tuner is bound to the ground plate using [copper strip \(preferred\)](#) or [tinned copper braid](#) (cheaper alternative).

The grounding system can be further improved by installing a counterpoise system - this is easy to do - and will pay off in reduced receiver noise and faster / more efficient tuning of your antenna. Ladder-line can be purchased to make up your own counterpoise system. Run the longest lengths of ladderline (fanned out from the ground terminal on your antenna tuner) as your boat layout will allow. Ladderline can be purchased from us [here](#)

Recommended antenna for sailing vessels (ie boat with a mast) is the RopeAntenna (see it on our webpage [here](#))

Alternately you can make your own backstay antenna or for vessels without a mast you can install a marine whip antenna (sold by us [here](#))

Backstay antennas will outperform whip antennas - for HF radio, height and length are the key drivers of antenna performance.

The antenna tuner is attached to your chosen antenna by high voltage feeder cable which you can purchase from us [here](#). It is best to also keep this length as short as is possible (ie less than 3 metres).

You should also consider purchase of the following:

DC Block / Blocking Capacitors

If you have a metal boat - then the vessel itself can act as your ground (ie no need for a grounding plate). You do however need to install a DC block (sold by us [here](#)) or as a minimum, cut a gap in your copper strip / grounding braid and bridge the gap with filtering capacitors (sold by us [here](#)). Stray DC currents create electrolysis which can eat away your ground plate and even worse, your metal hull - the DC block / or capacitors will filter out these DC currents.

Radio interference prevention

Your radio signal can interfere with other electronic equipment on board. To minimise the risk of this we recommend:

- Installing a Line Isolator between in the coaxial line between the radio and tuner (we sell this [here](#))
- Clip ferrite beads onto the cables attaching to your other other equipment - ie pactor modem, GPS etc (we sell these [here](#)).

Recommended ferrite bead locations are detailed in the diagram [here](#):

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