ZCG

Model

HM212

Marine deck mount vertical radiator antenna - 3.7 metre

HF Radio 2 – 30 MHz

requires Antenna Tuning Unit (A.T.U.)

2.1 dBi Gain

Includes the MM2 stainless steel folding deck mount swivel base

- Mounts to any flat surface at any angle using 4 stainless steel screws or bolts.
- 5 metres of high voltage 20 kV feed cable.
- 250 watts P.E.P. maximum input power.

INSTALLATION GUIDE

www.zcg.com.au

ANTENNA DESCRIPTION

The HM212 deck mount antenna is suitable for all HF marine communications in the 2-30 MHz frequency range.

Standing 3.7 metres tall, the single piece fibreglass radome is fully sealed and packed tight with closed cell foam to protect the internal copper radiator wire, prevent rattles and maximise service life in harsh marine conditions. The copper radiator terminates via 5 metres of high voltage (20kV) feed cable side exiting from the chromed brass mount ferrule. The antenna is rated for up to 250 Watts P.E.P. maximum input power.

A detailed specification sheet is available to download from **www.zcg.com.au**

ANTENNA TUNING UNIT (A.T.U.)

The antenna is designed to couple with your marine HF radio transmitter via an Antenna Tuning Unit. (A.T.U.)

The A.T.U. will match the impedance of your HF radio to the antenna and feeder cable, in this case 50 Ohms. Since tuning limits are determined by the A.T.U., It is wise to verify in advance the ability of your particular A.T.U. to match shorter radiators at the lowest frequency. The vessel's earthing system may also affect the A.T.U. tune range.

SELECTING THE MOUNTING POSITION

To achieve best performance from your antenna, these are the important principles you should consider when selecting the mounting point:

1. ***Mount the antenna in as high a place as possible.***
2. ***Mount the antenna as far away from other antennas and metallic objects as possible to avoid interference and distortion of the 360^{o} omnidirectional pattern. At least 350 mm side clearance is desirable, preferably more.***
3. ***For optimum performance the antenna must be in a vertical position, not at an angle.***

FOLDING DECK MOUNT SWIVEL BASE

The premium quality MM2 316 stainless steel folding deck mount base supplied, folds down in two directions and also swivels in the opposite plane by loosening the stainless steel pivot bolt. This versatility allows the antenna to be mounted in a variety of positions on any flat surface and at any angle using four screws or bolts.

Use the base as a template to mark the position of the 4 holes required to secure the deck mount base.

If mounting to a solid wooden surface, ensure your surface is structural for your installation, you will require 4 stainless steel 6 mm countersunk heavy gauge wood screws which are at least 40mm long. Use a good sealant, such as silicon, to reduce the likelyhood of rot or osmosis setting in.

Otherwise use 4 stainless steel 6 mm bolts with stainless steel spring washers and nuts, or flat washers if using nyloc nuts.

The antenna can be folded down flat when not required.

VESSEL EARTH SYSTEM

A good earth system is the essential key to achieving the optimum transmit and receive performance.

The HF antenna must be isolated from the vessel's earth system. The antenna feeder cable attaches to your ATU, and it is the Antenna Tuning Unit which must be connected to the vessel's earth system. Refer to the installation instructions which came with your A.T.U.

The vertical radiation pattern for this HF radio antenna is largely influenced by the size, shape and nature of the ground plane under the antenna, as well as the polarisation of the antenna in a vertical position.

Symmetrical, balanced, as well as low resistance earthing is needed for a good omnidirectional radiation pattern.

The length and placement of the feedline also has a large effect on pattern formation, with modelling indicating a long feedline at right angles to the antenna causes the pattern to vary greatly from omnidirectional.

Keep all leads as short as posible and joints in the earth system fully soldered or securely crimped. Earthing system problems may also cause the DC feed wiring to become an active radiator.

ROUTING THE CABLE

5 metres of 20kV single core cable side exits from the chromed brass mount ferrule.

Route the cable carefully to your HF radio. Ensure that the cable is not stretched excessively and there are no sharp kinks.

If using cable ties, then we highly recommend the 316 stainless steel type 8117 series for the harsh marine environment. They will require a cable tie tensioner tool P/N 8125 for correct tension mounting.

Do not pull the cable ties so tight as to crush the cable.

A damaged feeder cable is a cause of high VSWR and reduced performance.

SEALING CONNECTIONS

For the marine environment, it is vital that all connections be well sealed with at least two layers of self-amalgamating tape, or Mastic Tape with a top layer of PVC electrical tape for UV protection. All installation accessories are available separately.

PVC electrical tape alone will not be adequate to protect your terminations.

MAINTENANCE

This antenna has been designed for high reliability and low maintenance.We recommend that you conduct a routine annual mechanical inspection of the antenna, feeder cable, mounting and connections/terminations.

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