

HF230L-N

HF loop antenna, NVIS, shipboard, 2 m, 1.6–30 MHz
Naval Antennas and Systems: Shipboard



Description

The HF230L-N is a compact HF antenna for naval applications operating over a frequency range of 1.6 to 30 MHz. It is designed to provide superior Near Vertical Incident Skywave (NVIS) performance at distances from 0 to 500 km compared to a 10 m whip and allows continuous communications in ground-wave, NVIS and skywave applications.

The HF230L-N is a magnetic dipole antenna which can be placed at any appropriate top-side position on the ship. The magnetic characteristics of the antenna means the antenna has a far superior signal-to-noise ratio compared to whip antennas as it decoupled from the near field electrostatic noise sources.

This compact antenna is recommended for multiple antenna top-side applications, both because of its small size and because it reduces co-site interference with all V/UHF whip antennas.

The HF230L-N has been designed to give superior performance and easier installation at a far lower cost compared to other naval HF NVIS antennas.

Electrical Specifications

Frequency Range	1.6 - 30 MHz
Impedance	1 to 1000 Ω 50 Ω nominal
Power Rating	500 W PEP and average
Gain	-10 dBi @ 3.5 MHz -4 dBi @ 10 MHz
Radiation Pattern	See diagrams overleaf
Power Supply	18-32 VDC, normally supplied from power amplifier
Connector	10 mm stud for RF MIL-C-5015, 7pin for interface to ATU and supply voltage
Interface	The antenna has two digital inputs and one output, and a RS485 serial port. Software is then configured depending on radio system

Mechanical Specifications

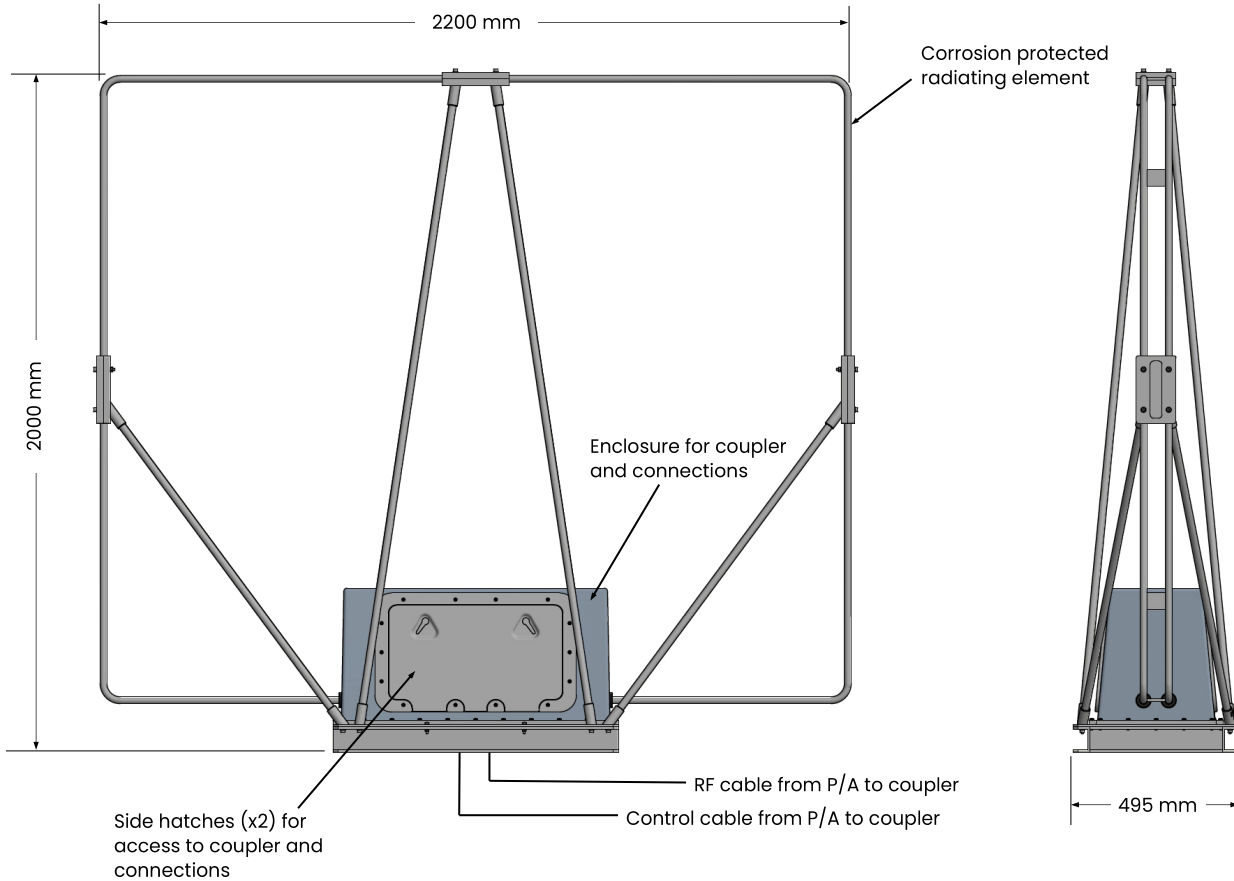
Design	Double 20 mm aluminium radiating element with 8 support rods. Enclosure made from fibreglass.	
Size	Enclosure:	80 x 40 cm (H x W)
	Radiating loop:	2 x 2 m
Weight	Total: < 40 kg	
Wind Rating	55 m/s = 201 km/h	
Finish	Polyurethane lacquer, normally grey	
Environmental	Test Method:	Per MIL-STD-810F
	Shock and Vibration:	Ship
	Water Resistance:	IP67
	Temperature Range:	- 40°C to + 71°C
Installation	See installation drawing	

Interface Description

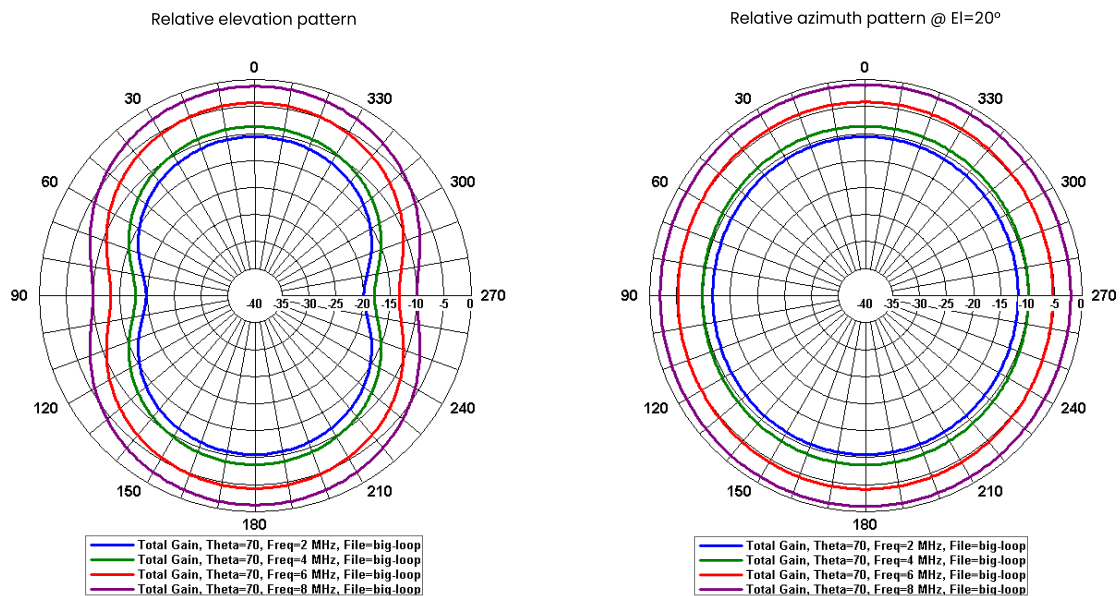
The antenna interfaces directly to the coupler of many popular HF radios. Frequency information is obtained using an internal frequency counter or received in digital format through an RS485 line. The antenna is fully compatible with Fixed Frequency, MIL-STD-188-141A ALE and 3G ALE/data modes. The antenna works with systems up to 500 Watts.

The HF230L-N has a low physical profile that helps reduce antenna placement problems and has been designed for severe naval military environmental conditions.

The antenna is designed so that the coupler can sit inside the enclosure (see drawing below). This ensures that all the main connections are well protected from corrosion.



Radiation Patterns



Antenna Kit List

Article number	NATO codification	Description
NATO codification and exact part number varies according to radio/coupler system.		Radiating element consisting of: 1 loop element in four parts 8 support rods Fixings
		Tuning tower and coupler enclosure
		Installation kit consisting of: Coupler mounting structure (manufacturer specific) Coupler to antenna cable interfaces Shock mounting kit (option - see below)
		Control and RF cables to the enclosure are customer supplied

Options

It is recommended that the HF230L-N is mounted to the ships structure using suitable shock/vibration mounts. Comrod can supply a shock mount kit for the HF230L-N that has been fully qualified (shock and vibration tested). The kit contains 4 x shock mounts together with all fixings to secure them to the base of the HF230L-N. Fixings between the shock mount and ships structure are not supplied.



Typical Installation



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All specifications are subject to change without notice
The information contained herein is for reference only and does not constitute a warranty of performance

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