HF230L-B

HF NVIS Loop Antenna - Base Station

Description

The HF230L-B is a compact HF antenna for rapid deployment to create a base station working from 1.6 to 30 MHz. It is designed to provide superior Near Vertical Incident Skywave (NVIS) performance at distances from 0 to 500 km and allows continuous communications in ground-wave, NVIS and skywave applications.

The communications characteristics of the antenna are similar to a wire antenna mounted on a 10m mast.

The HF230L-B is a direct replacement for existing mast mounted HF base station antennas with the important advantage of only requiring a fraction of the time and space to install. The mounting of the system only takes a few minutes and requires no special installation equipment.

This new-generation HF antenna is difficult to detect because of its small size and, most importantly, it reduces co-site interference with other HF and all V/UHF whip antennas.

Electrical specification

Frequency range	1.6- 30MHz
Impedance	1 to 1000 ohm, 50 ohm nominal
Power rating	400 W PEP and average
Gain	-10dBi @ 3.5MHz, -4dBi @ 10MHz
Radiation pattern	Omnidirectional for NVIS
Power supply	18 - 32VDC, normally supplied from Power Amplifier
Connector	10mm 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

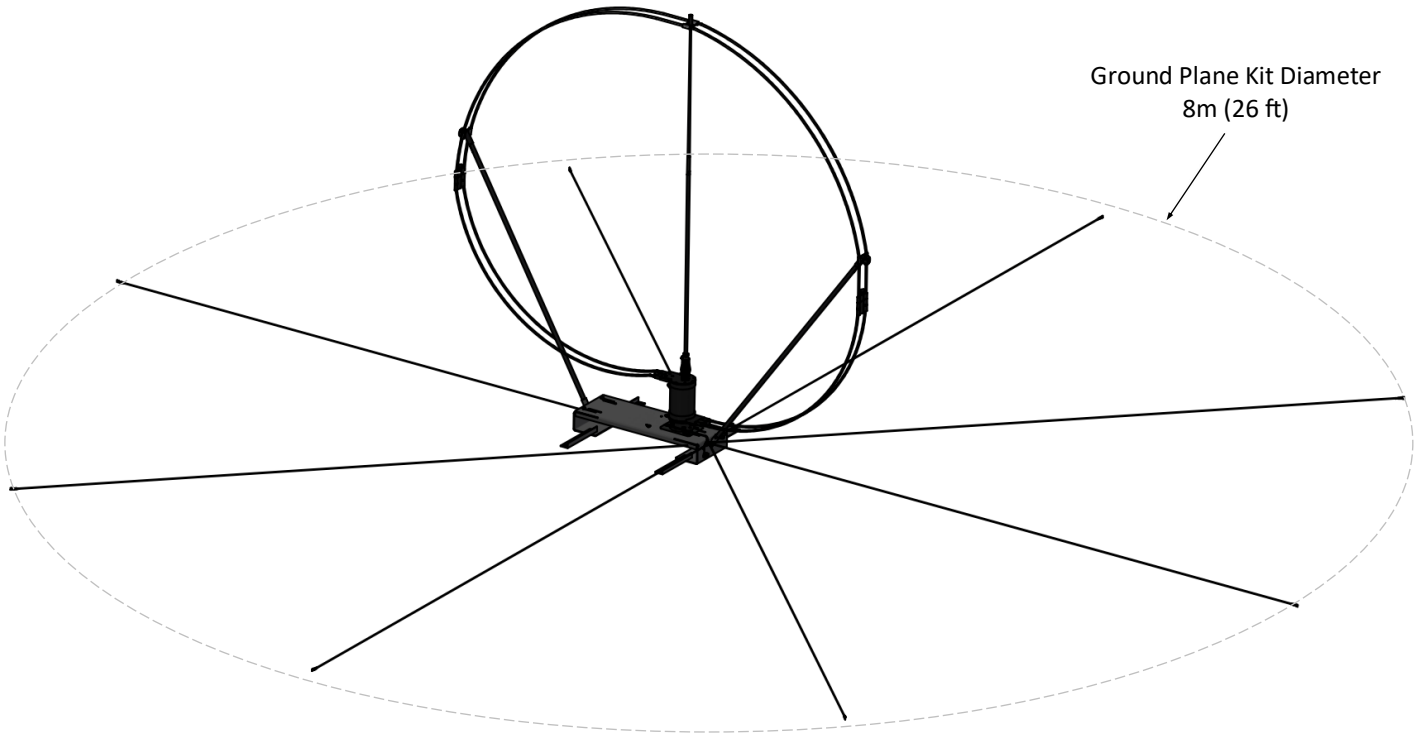
Mechanical specification

Design	Copper braided fibreglass collapsible radiating loop. Feed tower made from aluminium and fibreglass.	
Size	Base plate: Radiating loop:	See outline drawing See outline drawing
Weight	approx.	17Kg, without ATU
Wind rating	55 m/s = 125 mph	
Finish	Anodize, Black. Radiating element covered with black heat shrink tube	
Environmental	Test method: Shock & Vibration: Water resistance: Temperature range:	Per MIL-STD-810F Transportation IP67 -40° to +71°C
Installation	See Comrod installation manual	

Assembly

The baseplate is used to mount the antenna tower and associated coupler (not supplied). The mounting plate contains hole patterns to fit several of the most popular couplers. The mounting of the antenna is fully described in the user manual. Please contact Comrod for additional information.

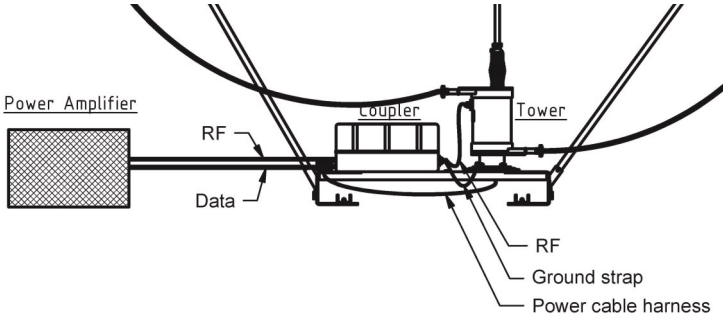
There are two loop supports as shown to give stability to the loop system. The baseplate has foldable support arms that allow it to be staked to the ground. The ground plane kit is then attached to the mounting plate and the eight legs deployed as shown below.



Interface Description

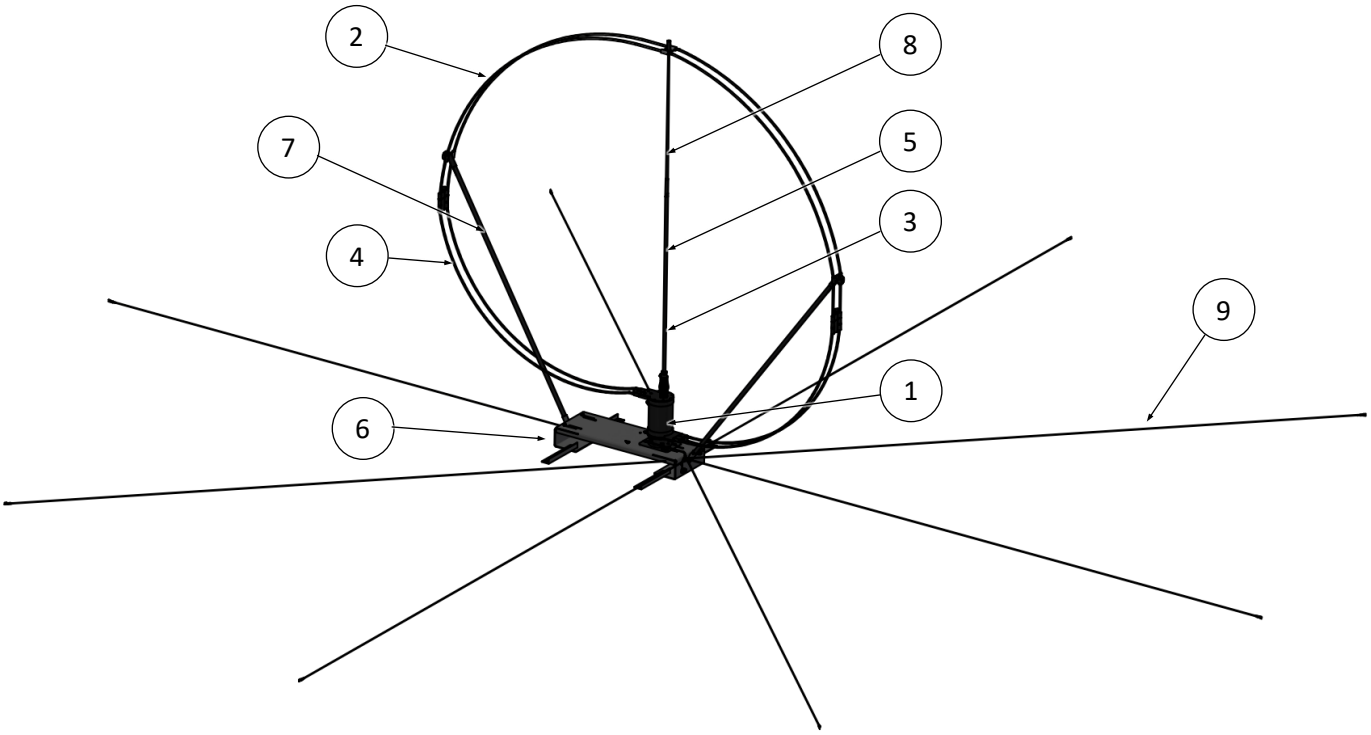
The antenna interfaces directly to the coupler of many popular HF radios. Frequency information is obtained using an internal frequency counter or received in digital format through an RS485 line. The antenna is fully compatible with Fixed Frequency, MIL-STD-188-141A ALE and 3G ALE/data modes. The antenna works with systems up to 400 Watts.

The HF230L-B is lightweight and has a low physical profile that helps reduce antenna placement problems and is fully ruggedized for use in severe environmental conditions.



The antenna includes an easily assembled fibre-glass radiating loop element, a support rod with spring which gives mechanical support, a low-profile tower unit which adapts the impedance for high efficiency tuning by the coupler, an interface cable, an RF cable and a ground plane kit.

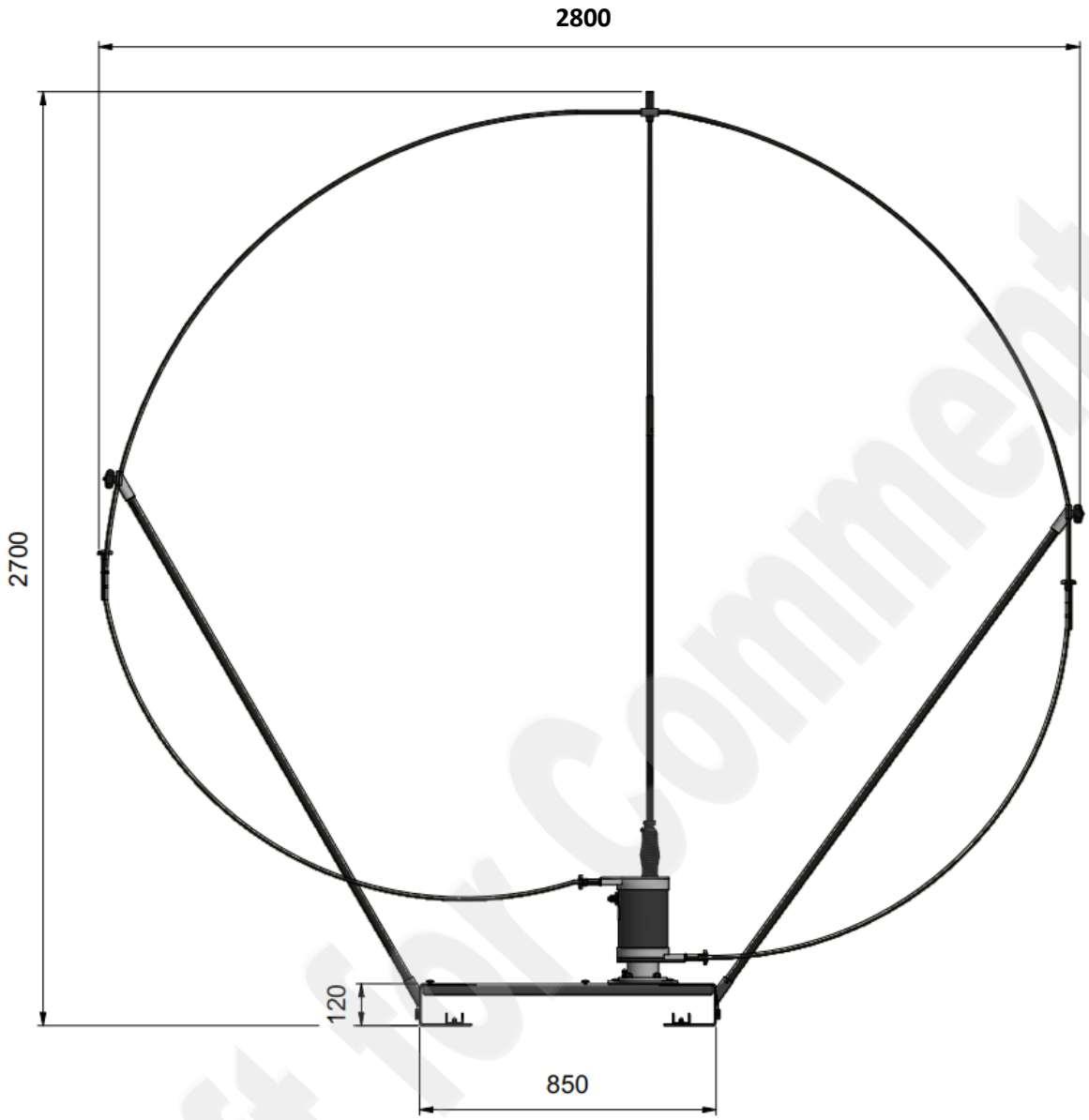
Kit List (main parts only)



Description	Qty	Item
HF230L/OTM - HF Vehicle antenna (see datasheet HF230L-OTM)	**1**	
Tuning tower	1	1
Loop element	1	2
Loop support		3
HF230L/B Kit 1 - HF loop extension kit	**1**	
Loop extensions	2	4
Loop support extension	1	5
HF230L/B Kit 2 - HF loop base station kit	**1**	
Base plate + mounting plate	1	6
Side supports	2	7
Loop support upper	2	8
Ground radial kit (8 x 4m wires)	1	9

Please contact Comrod for full kit details

Outline Drawing



Ground Plane kit Diameter
8m (26 ft)