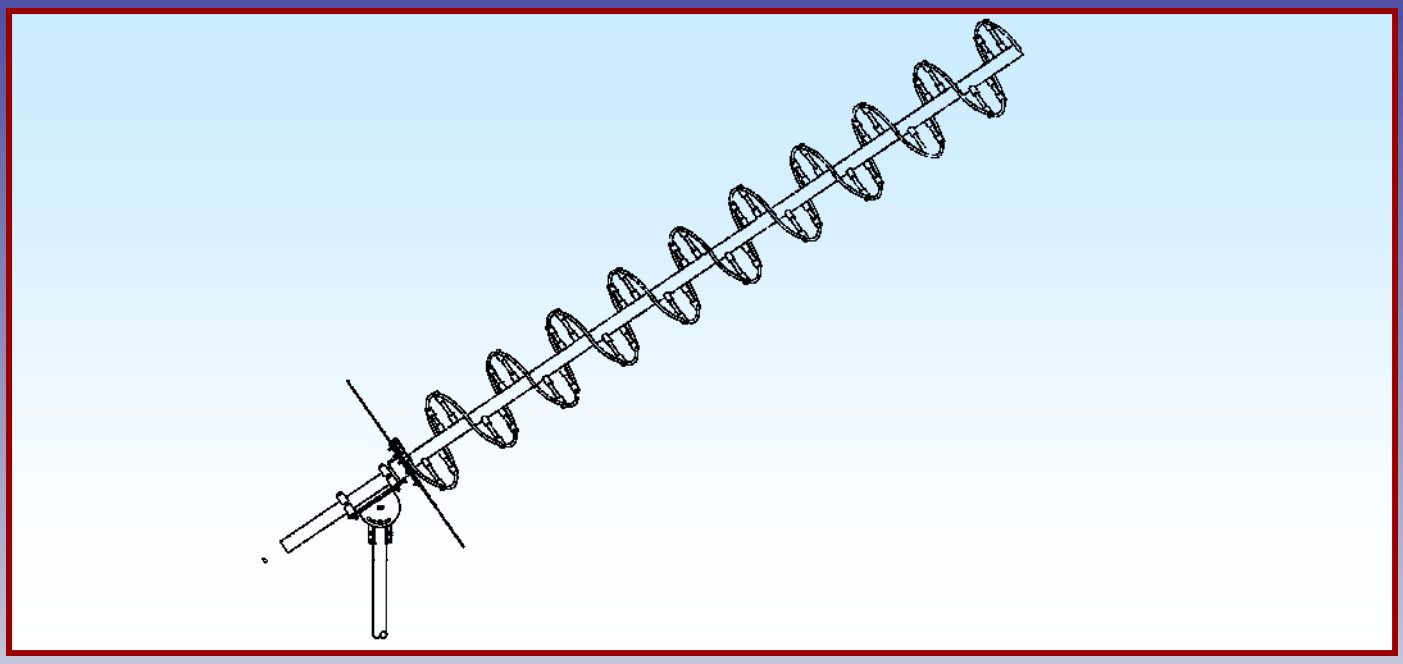
M2 Antenna Systems, Inc.
Model No: 450-800-12 HELICAL ANTENNA



SPECIFICATIONS:

Model	450-800-12
Frequency Range	390 To 650 MHz
*Gain	12 To 13 dBi
Front to back	20 dB Nominal
Beamwidth	46° Nominal
Feed Impedance.	50 Ohms
Maximum VSWR	1.5:1
Input Connector	"N" Female
Power Handling	1 kW
Polarity	RHCP or LHCP
Mounting	Adjustable AZ-EL on 2"
Operating Temperature	-50 F To 130 F
Wind area / Survival	100 MPH
Weight / Ship Wt.	35 Lbs.

***Subtract 2.14 from dBi for dBd**

FEATURES:

The M2 450-800-12 Helix antenna offers performance characteristics for specialized fixed and rapid deploy operations within the 400 to 600 MHz band. It is perfect for either terrestrial or satellite applications. The antenna is supplied with a manually adjustable Azimuth / Elevation mount and a counter weight. The antenna is shipped with the helix assembled less ground plane. Finishes are optional. The steel adjustable mounting fixture and counterweight are zinc plated. Optional arrays of 2 or more are available. Other frequency ranges and gains are also available down to 100 MHz. Complete motorized, computer controlled AZ-EL systems are also manufactured by M2.

Where circular polarity is not required but high bandwidth is, M2 offers a line of various log periodic antennas from 5 to 1300 MHz. If it is antenna related, we probably have made it. Call us with your requirements.

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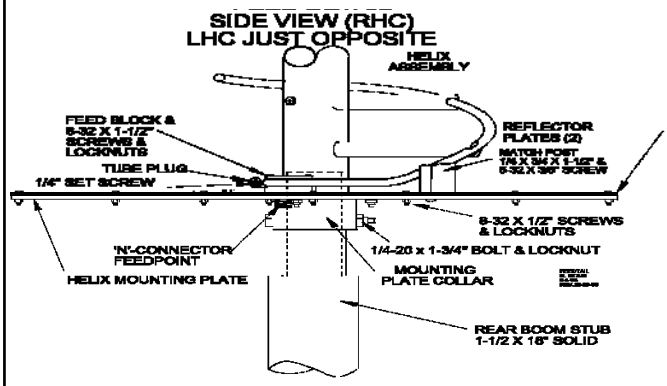
12/15/15
Rev.01

450-800-12 HELICAL ASSEMBLY MANUAL

TOOLS REQUIRED: #2 Phillips head screwdriver, 11/32 nut driver and 7/16" socket open end wrench.

1. Unpack the factory assembled HELICAL antenna, the CENTER REFLECTOR PLATE, and the two (2) REFLECTOR HALVES. Attach the Reflector halves to the Center Reflector Plate using 8-32 x 1/2" screws and locknuts. Lightly lubricate the rear end of the helix center tube and inside the collar. Then slide the assembly up to the end of the helix element. Align the holes of the helix assembly with that of the mounting plate collar and secure with a 1/4-20 x 1-3/4" bolt and locknut. Slide the 'N'-connector block assembly on the helix and rotate the connector down through the large hole in the plate. Secure the block to the plate with four (4) 8-32 x 1-1/2" screws and locknuts Now install the 1/4-20 x 1/4" set screw in the round end of the feed block assembly and tighten, using the supplied 1/8" Allen wrench. Finally mount the matching block and rotate it so it is parallel to the helical tube. The final position can be adjusted for best match at a specific frequency if desired..



2. Assemble the Elevation Bracket hardware as shown on the assembly drawing. For the time being set the elevation angle to 0 deg. (mast bracket perpendicular to the antenna). Attach the 1" saddle adapter plate to the elevation bracket. Next, using four 1/4-20 x 1-1/2" bolts and locknuts, attach the four saddles loosely to the saddle adapter plate. Now slide the entire assembly onto the back of the boom, position right up against the mounting plate collar, and set the feed connector to the desired rotational orientation. Tighten the four saddle bolts.

3. With an associate, slide the antenna onto the top of a 2" support pole. Point the antenna to the proper azimuth and elevation angles, and tighten all of 1/4-20 hardware on the mast clamp bracket.

This completes the assembly.

450-800-12 HELICAL ANTENNA PARTS LIST

DESCRIPTION	QTY
HELIX AND MAIN BOOM	1
CENTER MOUNTING PLATE, WELDED	1
REFLECTOR PLATE	2
FEED BLOCK W/ "N" CONN	1
MATCHING POST, 1/4X3/4X1-1/2"	1
SADDLE ADAPTER PLATE	1
SADDLES, 1-1/2"	4
ELEVATION BRACKET	1
MAST BRACKET (2 halves)	1
REAR BOOM STUB, 1-1/2 X 18" ALUM.	1
COUNTER BALANCE 4" DIA	1
ASSEMBLY MANUAL	1

HARDWARE BAG

DESCRIPTION	QTY
BOLT, 1/4-20 x 3/4" SS	7
BOLT, 1/4-20 x 1-1/2" SS	4
BOLT, 1/4-20 x 1-3/4" SS	1
BOLT, 1/4-20 x 2" SS	1
BOLT, 1/4-20 X 2-1/2",SS	4
BOLT, 1/4-20 X 4-1/2".SS	1
SET SCREW, 1/4-20 x 1/4" SS	1
FLATWASHER, 1/4", SS	4
LOCKNUT, 1/4-20, SS	7
SCREW, 8-32 X 1-1/2", SS	4
SCREW, 8-32 X 3/4", SS	12
SCREW, 8-32 X 3/8", SS	1
LOCKNUT, 8-32 SS	16
LOCKWASHER, #8 SPLIT RING , SS	1
1/8 ALLEN WRENCH	1

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450-800-12 HELICAL ASSEMBLY MANUAL

PHOTOS OF RANGE TEST SETUP AND CLOSE UPS OF THE FEED SYSTEM AND THE MANUAL TILT MECHANISM.