# Model LPD-12 225-400 

## General description.

The LPD-12 225-400 is a twelve element log periodic dipole antenna covering the frequency range $225 \mathrm{MHz}-400 \mathrm{MHz}$. The antenna is designed for cantilever rear mounting to masts up to 3" O.D. to provide vertical polarization.

## Theory of operation.

The antenna is comprised of twelve dipole elements connected to a parallel pair of $11 / 4$ " aluminum crossarms that form the antenna transmission line. To accomplish end fire log periodic operation the elements are tapered from the front of the antenna to the back and successive dipole halves are transposed along the antenna transmission line. An internal cable in one of the crossarm sections functions as a balun to convert the balanced 50 ohm input at the front of the antenna to 50 ohm unbalanced coaxial " N " type connector mounted at the rear of the antenna. This internal "balun" effectively chokes off the surface currents normally associated with a balanced feed and eliminates transmission line radiation.

The entire antenna is maintained at d.c. ground potential through the grounding of the crossarms at the rear of the antenna. A ground wire attended to the crossarm mounting or the cable fitting will drain off static build up and provide lightning protection.

## ELECTRICAL CHARACTERISTICS (TYPICAL)




## ELECTRICAL

| FREQ. RANGE (MHz) | $225-400 \mathrm{MHz}$ |
| :--- | :--- |
| GAIN (dBi, Min.) | 8.5 |
| POLARIZATION | VERTICAL |
| HPBW (Nom., deg) | E-PLANE 55 DEG. <br> H-PLANE 75 DEG. |
| VSWR (MAX.) | $1.5: 1$ |
| TERMINAL: TYPE <br> : IMPEDANCE | "N" <br> 50 <br> OHM |
| MAX. POWER | 500 WATTS |

MECHANICAL

| LENGTH | $79.50 \mathrm{IN} .(201.93 \mathrm{CM})$ |
| :--- | :--- |
| LONGEST ELEMENT | $26.75 \mathrm{IN} .(67.95 \mathrm{CM})$ |
| WEIGHT | 14 LBS. $(6.35 \mathrm{KG})$ |
| MOUNT <br> (MAST DIA.) | Up to 3.00 in. $(7.62 \mathrm{~cm})$ |
| WINDLOADING <br> (85 Knot with <br> $1 / 2$ in. 1.27 cm$)$ <br> Radial 1 ce | $109 \mathrm{lbs} .(49.44 \mathrm{~kg})$ |

## Antenna Mounting

1. Loosely assemble the two $3 / 8$ " diameter U-bolts into the mounting clamps.
2. Slide the U-bolts over the end of the support mast, orient the antenna to the desired azimuth and tighten U-bolts securely.


## FIGURE 2

Downlead.

1. RG-213/U cable is recommended for the downlead.
2. Assemble a UG-21B/U connector to the cable.
3. Thread the connector onto the antenna connector.
4. Loop the cable up and around to the support mast. Cable may either be routed down the outside of the mast or through the mast.

## SAFETY PRECAUTIONS

To protect your antenna and receiver from lightning, you should ground your equipment.

1. To ground the antenna attach a ground wire under the head of the $3 / 8-16 \times 31 / 4 \mathrm{in}$. long hex head screw at the mounting bracket (see Figure 2). Run the ground wire down the mast to a ground rod driven at least 4 feet into the ground.
2. Keep the antenna and cable a safe distance from any power lines.

Horizontal Mounting Bracket Detail



LPD-12 REPLACEMENT PARTS

| ITEM | DESCRIPTION | QTY/UNIT | PART NUMBER |
| :---: | :--- | :---: | :---: |
| 1 | Crossarm Assembly | 1 | $28829-501$ |
| 2 | Element $6.85 \mathrm{in}$. | 2 | $21910-040$ |
| 3 | Element $7.30 \mathrm{in}$. | 2 | $21910-041$ |
| 4 | Element 7.80 in. | 2 | $21910-042$ |
| 5 | Element 8.35 in. | 2 | $21910-043$ |
| 6 | Element $8.95 \mathrm{in}$. | 2 | $21910-044$ |
| 7 | Element $9.60 \mathrm{in}$. | 2 | $21910-045$ |
| 8 | Element $10.30 \mathrm{in}$. | 2 | $21910-046$ |
| 9 | Element 11.05 in. | 2 | $21910-047$ |
| 10 | Element $11.85 \mathrm{in}$. | 2 | $21910-048$ |
| 11 | Element $12.80 \mathrm{in}$. | 2 | $21910-049$ |
| 12 | Element 13.75 in. | 2 | $21910-050$ |
| 13 | Element 14.85 in. | 2 | $21910-051$ |
| 14 | Mounting Bracket, Vertical | 2 | $28859-501$ |
| 15 | U-Bolt | 2 | $20041-001$ |
| 16 | Mounting Bracket, Horizontal | 1 | $28860-501$ |

*Spare hardware for these items is included for the installers convenience.

