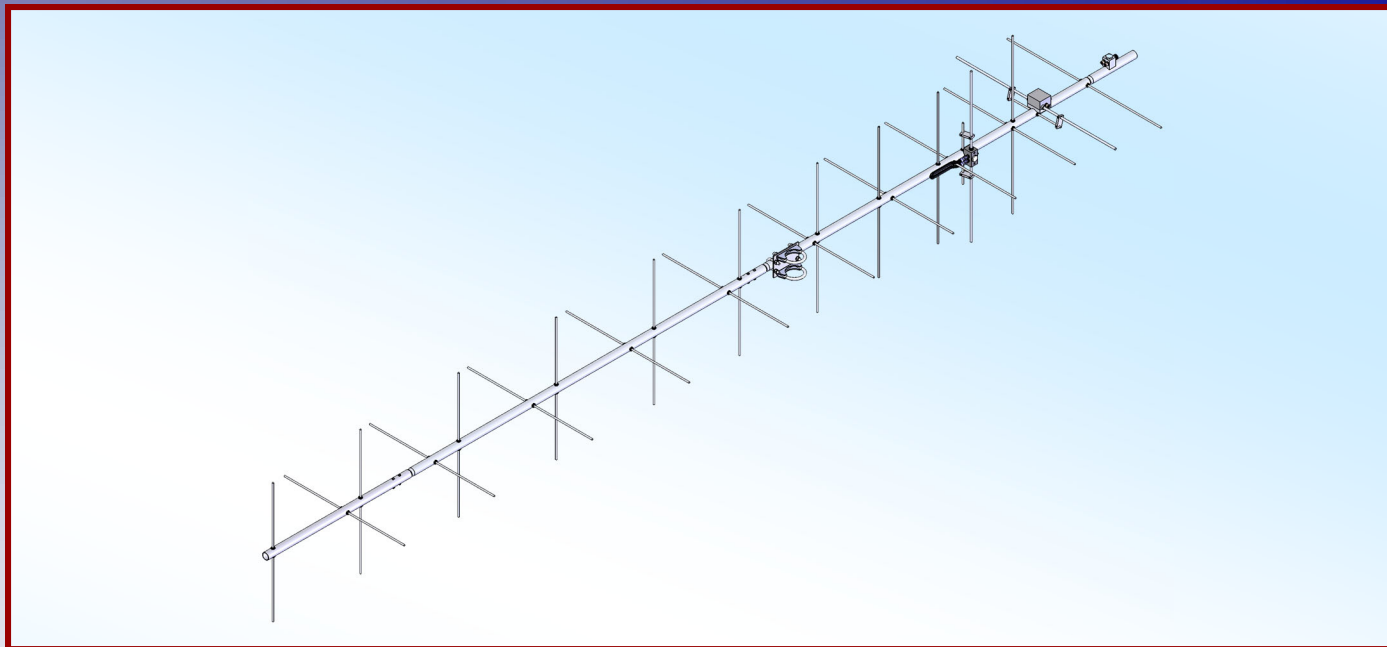




M2 Antenna Systems, Inc.

Model No: 248XP22



SPECIFICATIONS:

| | | | |
|----------------------|--------------------|-----------------------------|------------------------|
| Model | 248XP22 | Boom Length / Dia..... | 136" / 1" |
| Frequency Range..... | 235 To 260 mHz | Maximum Element Length..... | 25" |
| *Gain | 14.37 dBi | Turning Radius: | Call |
| Front to back | 22 dB Typical | Stacking Distance..... | Call |
| Feed type | "T" Match | Mast Size..... | 1-1/2" to 2" Nom. |
| Feed Impedance..... | 50 Ohms Unbalanced | Wind area / Survival | 0.93 Sq. Ft. / 100 MPH |
| Maximum VSWR..... | 1.5:1 Typical | Weight / Ship Wt..... | 7 Lbs. / 9 Lbs. |
| Input Connector..... | "N" Female | | |
| Power Handling..... | 1.5 kW | | |

***Subtract 2.14 from dBi for dBd**

FEATURES:

The 248XP22 is high performance cross polarized antenna with a remarkably clean pattern. The pattern is important in order to match the antenna's noise temperature with modern low noise preamps. This antenna is ideal for satellite work but is also excellent for terrestrial uses.

The CNC machined driven element module is O-ring sealed and weather tight for low maintenance and long-term peak performance. Internal connections are encapsulated in a space-age silicone gel that seals out moisture and improves power handling. The 3/16" 6061-T6 rod elements are centered to minimize interaction and maintain good ellipticity. Insulators are UV stabilized and locked in place with stainless keepers. Rugged construction, uncompromising performance for the boom length.

248XP22 DIMENSION SHEET

248XP22 ASSEMBLY MANUAL

Tools required: Flat blade screwdriver, 11/32 end wrench or “spin tight”, 7/16” and 1/2” end wrench or socket.

Note: This antenna can be assembled from the details on the DIMENSION SHEET, however the written instructions put the assembly in the most expeditious order and present hints and helpful comments.

1. Assemble the boom per the DIMENSION SHEET using 8-32 x 1-1/4” screws and locknuts.
2. ELEMENT INSERTION: NOTE: This antenna is two complete and identical antennas on one common boom. One set of elements is shifted ahead of the other by a quarter wavelength so to keep from getting confused just do one set of elements at a time. Start with the longest element first. Install one black button insulator near the center and insert the rod end into the rear hole of the boom and install the second button insulator. Don't bother centering the element yet. Wait till the whole set is in. The next element is the driven element and this antenna is fed with a “T” match. A short 6.5 inch rod is inserted into the second hole using the same black button insulators. The machined block with the connectors and the 1/4” rods mounts next with the “N” connector facing forward. Use a single 8-32 x 1-1/4” screw. Continue adding the nine director rods on down the boom.
3. CENTERING THE ELEMENTS: Center each element by simply equalizing the amount sticking out on each side of the boom. Do all the centering in this plane of elements. Then “sight” down the element tips looking for anything grossly unusual and correct if found.
4. INSTALLING THE KEEPERS: A 3/8” x 3” “PUSH TUBE” has been included in the kit to push on the stainless steel keepers. Hold the tube in your favorite hand so the end just protrudes between your thumb and forefinger. Now place a keeper, dished down, on the end of the tube and hold with your thumb and forefinger. Now insert the keeper onto the end of the rear rod. Now with your other hand, grasp the boom and element and “preload” the element to prevent it from slipping through the button insulators. Push the keeper up against the insulator. Now add the second keeper on the other side. If the element slips off the center during installation of the first keeper just remove the element, remove the keeper by pushing it forward off the element and start over. After a couple of element, this operation becomes quite straightforward. Continue installing keepers until one whole set of elements are complete.
5. ADDING THE SECOND SET OF ELEMENTS: Repeat steps 2 through 5 in the forward set of elements.
6. COMPLETING THE DRIVEN ELEMENTS: You should have already installed the 6.5 inch rod and the main driven element block. Install two 8-32 x 1/4” set screws into the shorting blocks and mount the blocks to the dimensions shown on the dimension sheet. Tighten the set screw securely. Next locate two gold nuts with a neoprene seal on one face. Install the nut seal out on the two small connectors on the center connector block. Now attach the 20 inch long half wave balun cable between these connectors. Tighten the nuts GENTLY with a 7/16” end wrench. Then use your fingers to run the seal nuts up against the face of the connectors. Finger tight is usual adequate to achieve a seal however gentle tightening with a 1/2” end wrench while holding the connector nut with a 7/16” will assure the seal to water proof the connectors.
7. MOUNTING THE BOOM TO MAST PLATE: Using two small 1 inch U-bolts attach the plate to the antenna boom at or near the physical balance point. Remember the rear will get a little heavier when the two feedlines are added. Two 1-1/2” U-bolts and cradles are provided for attaching the antenna to the 1-1/2 inch diameter fiberglass riser.

ATTACHING THE FEEDLINES: The feedlines provided are phase matched and are all the same. Mark one cable with a felt pen or tape on both ends so you know which antenna feedlines to combine at the two port power dividers. The most ideal routing would be off the back of the boom to completely avoid having one feedline cut the field lines of the other antenna on the same boom. However a second option is to run both feedlines together down the boom toward the boom to mast plate securing the cables with nylon ties. Then break both cable away from the boom in between the two cross polarized element sets and onto the fiberglass riser. The antenna element should be oriented in a X configuration for this to work.

THIS COMPLETES THE ANTENNA ASSEMBLY

248XP22 PARTS & HARDWARE

| DESCRIPTION | QTY. |
|--|------|
| Boom Section, 1" x .058 x 55" SOE..... | 1 |
| Boom Section, 1" x .058 x 60" SOE..... | 1 |
| Boom Section, 1" x .058 x 23" Plain | 1 |
| Boom to Mast Plate, 3/16" x 3" x 4" | 1 |
| Driven Element..... | 2 |
| Balun, RG-6U | 2 |
| Element Set, 3/16" Rod see DIMENSION SHEET | 1 |
| Assembly Instructions..... | 1 |

HARDWARE BAG #1

| | |
|---------------------------------|---|
| U-bolt and cradle, 1-1/2" | 2 |
| U-bolt, 1" no cradle | 2 |
| Nut, 1/4-20 SS | 4 |
| Lockwasher, 1/4-20 | 4 |
| Nut, 5/16-18 ss | 4 |
| Lockwasher, 5/16" ss | 4 |

IN HARDWARE BAG #2

| | |
|---|----|
| Button insulators, 3/16" black | 40 |
| Shaft Retainers, 3/16" ss | 40 |
| Screw, 8-32 x 1-1/4" pan head,ss | 6 |
| Set Screw, 8-32 x 1/4" ss | 8 |
| Locknut, 8-32 ss | 4 |
| Seal nuts, 3/8-32 gold zinc | 4 |
| Allen wrench, 5/64" | 1 |
| Push tube, 3/8 x 3" (for retainer installation) | 1 |
| Nylon cable ties, 8" | 4 |

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