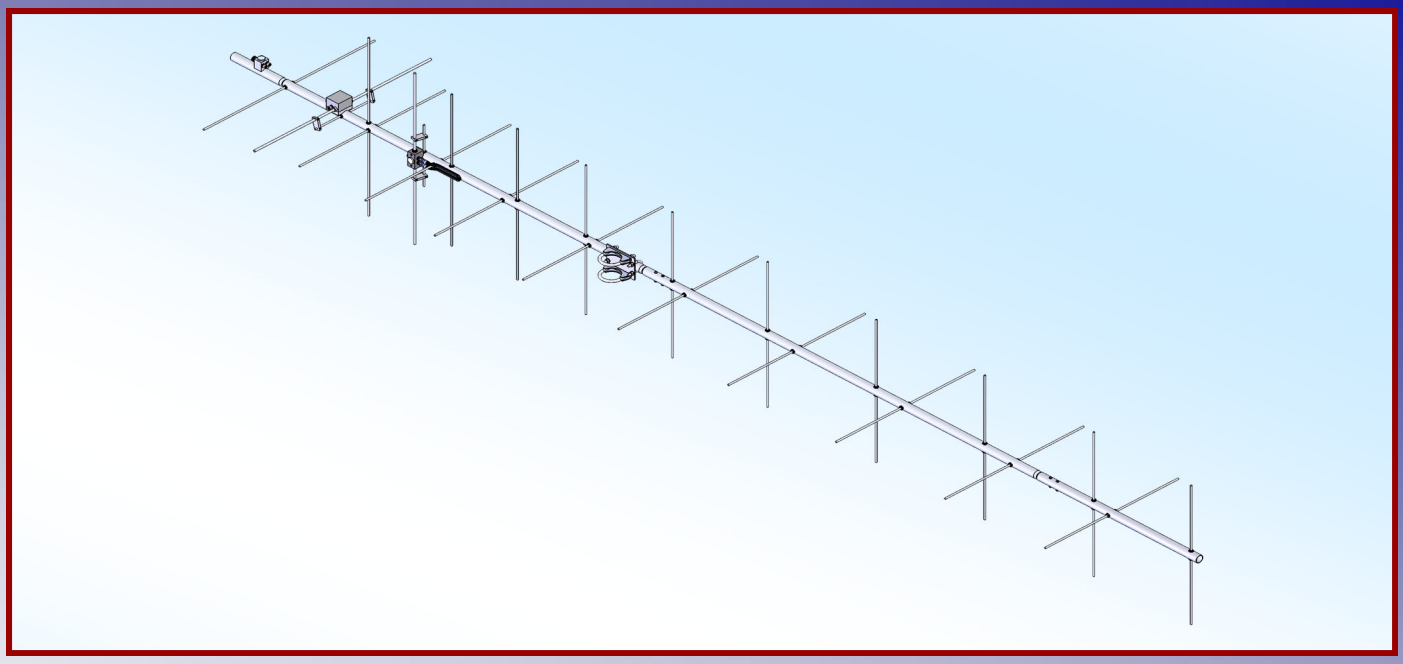
M2 Antenna Systems, Inc.
Model No: 138XP18



SPECIFICATIONS:

Model	138XP18
Frequency Range	137 To 139 MHz
*Gain	16.46 dBi
Front to back	20 dB Typical
Feed type	“T” Match
Feed Impedance.	50 Ohms Unbalanced
Maximum VSWR	1.5:1 Typical
Input Connector	“N” Female
Power Handling	1.5 kW
Boom Length / Dia	162” / 2”
Maximum Element Length	43”
Turning Radius:	Call
Stacking Distance	Call
Mast Size	1-1/2” to 2” Nom.
Wind area / Survival	1.4 Sq. Ft. / 100 MPH
Weight / Ship Wt.	45 Lbs. / 65 Lbs.

***Subtract 2.14 from dBi for dBd**

FEATURES:

The 138XP18 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 like ATV, repeater operation, and long haul tropo DX.

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 3/8” 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: that’s the M^2 138XP18 !

M2 Antenna Systems, Inc. 4402 N. Selland Ave. Fresno, CA 93722
Tel: (559) 432-8873 Fax: (559) 432-3059 Web: www.m2inc.com

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138XP18 DIMENSION SHEET

138XP18 ASSEMBLY MANUAL

TOOLS REQUIRED FOR ASSEMBLY: Phillips screwdriver, 11/32 nut driver or wrench, 7/16” and 1/2” end wrenches and pliers.

ASSEMBLING THE HORIZONTAL ELEMENTS

1. Separate 3/8” TUBE elements by length into two identical sets, “H” and “V”. Position the “H’ element set along the boom length and spacing as shown in the DIMENSION sheet. Start with the REFLECTOR (longest) element. Balance it on your finger to find rough center and push on a black button insulator to about 1” off center. Push the element through the holes 1” from the rear of the boom and install the second button, snugging it up into boom. DO NOT BOTHER CENTERING the element at this time and DO NOT INSTALL the stainless steel SHAFT RETAINERS yet. It is easier to do it after all the horizontal elements are installed in the boom.

2. Install the 3/8” DRIVEN ELEMENT as you did the reflector and then the DIRECTORS.

3. Now begin centering the elements. Use a tape measure to EQUALIZE the amount the element sticking out on each side of the boom. Once you have all the elements centered, sight down the element tips form the rear comparing each side. Look for any obvious discrepancies and correct if found.

4. Begin installing the stainless SHAFT RETAINERS. Use thumb and index finger to hold a retainer over end of the 3/8” x 3” push tube (keeper dished into tube). Hold the element firmly and start the retainer onto the rod by applying pressure with the push tube. Push the retainer until up tight against the button insulator (Locking pliers, lightly clamped up against opposite button insulator will help maintain center reference and keep you from pushing the first retainer too far). Repeat for the opposite side. Continue installing retainers until all elements are locked in place.

138XP18 ASSEMBLY MANUAL

5. Mount the HORIZONTAL DRIVEN ELEMENT BLOCK / 1/4" ROD ASSEMBLY to the TOP of the boom using a 1/4-20 x 2-1/4" bolt. Orient the block with the two balun connectors facing to the rear.

6. Install the 8-32 x 1/4" set screws (internal Allen head - tool supplied) into the SHORTING BARS. Slide the bars onto the 1/4" Driven Element Block Rods and the 1/4" driven element rods. Position the Shorting Bars flush with the tips of the 1/4" Driven Element rods. Aling the rods parallel and the bars with each other and tighten the set screws.

7. Coil the coax baluns one time using a gentle radius so the coax is not kinked or bent and the connectors exit in the same direction. Install a balun to each driven element block connector. Form the balun coax closely to the boom and secure with a nylon tie. It is normal for the balun to loop around an element in the other polarity.

8. Repeat steps #2 through #7 for the Vertical elements, using the Dimension Sheet as your guide to lengths and spacing. Note the vertical driven element block can be mounted to either side of the boom. The two connectors for the balun face to front. On some models, balun may loop around a horizontal director. This is OK. Keep balun close to boom.

9. The boom to mast plate is normally mounted at the balance point. Keep plate at least 1/2" from nearby elements. Use two 2" U-bolts and the stainless nuts and lock washers provided. DO NOT OVER TIGHTEN. 2" U-bolts are also provided for mounting the antenna to your NON-CONDUCTIVE 2" mast or crossboom. Since the feed lines represent significant weight it is best to have them attached and fastened to the boom with cable ties before final mounting the plate.

10. Use good quality coax and "N" connector for your feedlines. Use a nylon tie to secure feed coax near connector on each Block, to provide stress relief, route to rear of boom and secure again. Allow coax to hang in a loop between the rear end of the boom and the reattachment point (at least 12" beyond element tips) on the mast or crossboom. ***Do not route feedline to boom to mast plate as exiting antenna here will adversely affect field.***

11. The 138XP18 is a cross polarized antenna that creates fields in both H and V planes. Mounting on a metal (conductive) mast or crossboom can severely affect the performance of the elements in the same plane. A 2" mast or crossboom of any NON-CONDUCTIVE material should be used. Fiberglass is the prime choice for its strength and weather resistance. Mount the antenna so that element tips are at least 12" from any conductive material (mast, tower, feedline, etc)

THIS COMPLETES THE ANTENNA ASSEMBLY

M^2 ANTENNA SYSTEMS, INC.
4402 N. SELLAND AVE.
FRESNO, CA 93722
(559) 432-8873 FAX: 432-3059
www.m2inc.com Email: sales@m2inc.com

138XP18 PARTS & HARDWARE

DESCRIPTION	QTY
BOOM SECTION, 2 X .125 X 162”	1
ELEMENTS, 3/8 TUBE x Dimension Sheet	18
DRIVEN ELEMENT BLOCK	2
BALUN	2
BOOM TO MAST PLATE, .188 X 6” X 4”	1
U-BOLT AND CRADLE, 2”	4
ASSEMBLY MANUAL	1

IN HARDWARE BAG:

SHORTING BAR	4
BUTTON INSULATOR, 3/8”	36
SHAFT INSULATOR, 3/8” SS	36
NUT, 5/16-18 SS	8
LOCKWASHER, 5/16” SS	8
BOLT, 1/4-20 X 2-1/4” SS	2
SET SCREW, 8-32 X 1/4” SS	8
CABLE TIE, NYLON	6
ALLEN HEAD WRENCH	1
PUSH TUBE, 3/8” X 3”	1

Carefully Manufactured by
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