



# User Guide

For

Model – Alpha Loop (Sr)

Manufactured by:  
Alpha Antenna  
1.888.482.3249

Website: <http://AlphaAntenna.com>

User Guide Version 2.5  
December 27, 2017

## **Table of Contents**

Purpose .....	4
Introduction .....	4
Safety Tips .....	5
Product Overview .....	6
Antenna Parts List .....	6
Antenna Assembly Instructions .....	7
Antenna Operation .....	10
Set Mic Gain for SSB Mode .....	10
APPENDIX A – OPTIONAL BOOSTER CABLE.....	11
A.1 – Image .....	11
Support Contacts .....	12

### **REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail or email us a marked copy to the contact information on the last page of this manual.

### **REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)**

If your Alpha Multiband Antenna needs improvement, let us know. You, the user, are the only one who can tell us what you don't like about your equipment. Mail or email us an EIR to the contact information on the last page of this manual.

# **α ALPHA ANTENNA®**

## **Excess RF Exposure Warning**

In the United States, the Federal Communications Commission has established guidelines for human exposure to Radio Frequency (RF) electromagnetic fields. The commission's requirements are detailed in parts 1 & 2 of the FCC's rules and regulations {47 CFR, 1.1307(b), 1.1310, 22.1091, 2.1093}. It is the responsibility of the owner/operator of this device to follow all applicable warnings and precautions regarding human exposure to RF fields.

The FCC Office of Engineering Technology (OET) Bulletin 65, Supplement B, Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields directly concerns the use and operations of all Alpha Antenna systems. This bulletin establishes safe operating distances from antennas associated power levels in order to permit the operator and persons who may be impacted by operation to exist in a safe environment. Guidelines for Maximum Permissible Exposure, or MPE, are defined in Supplement B of the bulletin.

## **IMPORTANT NOTE:**

Refer to the above mentioned Supplement B along with FCC OET Bulletin 65, Version 97-01. The information in the supplement provides additional details that are used for evaluating compliance of amateur radio stations with FCC guidelines for exposure to radio frequency electromagnetic fields. Supplement B users should, however, also consult Bulletin 65 for complete information on FCC policies, guidelines, and compliance related issues. Definitions of terms used in this supplements appear in Bulletin 65. Bulletin 65 can be viewed and downloaded from the FCC's Office of Engineering and Technology's web site at: <http://www.fcc.gov/oet/rfsafety> and <http://www.arrl.org/rf-exposure>

# $\alpha$ ALPHA ANTENNA®

## Purpose

Alpha Antenna designs easy use systems for modern day challenges. As the first line of contact or last line of resort; Alpha Antenna is your small business manufacturer for Alpha Antenna systems.

## Definition

**Multiband System:** A multipurpose antenna system, which can be positioned to launch your signal as circumstances require.

**Purpose:** Targeted Deployment for purpose driven missions.

**Deployment Options:** A) Tripod deployment, B) Mobile deployment, C) EMCOMM deployment, D) Tactical deployment.

## Introduction

Thank you for purchasing the Alpha Loop Antenna. We hope that you will enjoy using this product, as we continue to receive written testimonials from Amateur Radio Operators (Hams) who are surprised by the antenna's ability to make many long distance contacts, using relatively low power.

The Alpha Loop is a magnetic loop antenna that is relatively easy to tune and offers coverage for 40, 30, 20, 17, 15, 12, & 10 meter bands. The antenna is approximately 3 feet 1 inches in diameter and has a built-in tuner at the base of the antenna. This antenna is so efficient that it can be used from a porch or balcony with only a 2-3db reduction in performance. It can also be used indoors, where the structure will impact how much reduction in performance is realized (typically 3-5db on a wood structure, 5-8db on rebar reinforced concrete structures, and 8-12db in steel buildings).

# $\alpha$ ALPHA ANTENNA®

## Safety Tips

*When installing or operating this antenna or any other antenna/tower, please observe the following safety tips.*

**NOTE – High voltages are present when transmitting, no matter how much or little power is applied. Do not touch any part of the antenna while transmitting.**

*WARNING: INSTALLATION OR OPERATION OF THIS PRODUCT NEAR POWER LINES IS DANGEROUS! FOR YOUR SAFETY, FOLLOW THE ENCLOSED INSTALLATION DIRECTIONS. THOUGH THIS ANTENNA IS CONSTRUCTED OF INSULATED WIRE, PROPER CARE MUST BE TAKEN DURING INSTALLATION. INSTALLER ASSUMES ALL LIABILITY FOR PROPERTY AND LIFE SAFETY.*

### **YOU, YOUR ANTENNA, AND SAFETY**

Each year, hundreds of people are killed, mutilated, or receive severe and permanent injuries when attempting to install an antenna. In many of these cases, the victim was aware of the danger of electrocution, but did not take adequate steps to avoid the hazard. For your safety, and to help you achieve a good installation, please **READ** and **FOLLOW** the safety precautions below. **THEY MAY SAVE YOUR LIFE!**

1. If you are installing an antenna for the first time, please, for your own safety as well as others, seek PROFESSIONAL ASSISTANCE.
2. Select your installation site with safety, as well as performance, in mind. **REMEMBER:** ELECTRIC POWER LINES AND PHONE LINES LOOK ALIKE. FOR YOUR SAFETY, ASSUME THAT ANY OVERHEAD LINES CAN KILL YOU.
3. Call your electric power company. Tell them your plans and ask them to come take a look at your proposed installation. This is a small inconvenience, considering **YOUR LIFE IS AT STAKE.**
4. Plan your installation procedure carefully and completely *before* you begin. Successful raising of a mast or tower is largely a matter of coordination. Each person should be assigned a specific task, and should know what to do and when to do it. One person should be designated as the leader/coordinator of the operation to call out instructions and watch for signs of trouble.
5. When installing your antenna, **REMEMBER: DO NOT USE A METAL LADDER. DO NOT WORK ON A WET OR WINDY DAY. DO DRESS PROPERLY:** shoes with rubber soles and heels, rubber gloves, long sleeved shirt or jacket.
6. If the assembly starts to drop, get away from it and let it fall. Remember, the antenna, mast, cable and metal guy wires are all excellent conductors of electrical current. Even the slightest touch of any of these parts to a power line completes an electrical path through the antenna and the installer – **THAT'S YOU!**
7. If ANY PART of the antenna system should come in contact with a power line, **DON'T TOUCH IT OR TRY TO REMOVE IT YOURSELF. CALL YOUR LOCAL POWER COMPANY.** They will remove it safely. If an accident should occur with the power lines, call for qualified emergency help **IMMEDIATELY.**

# α ALPHA ANTENNA®

## Product Overview

The Alpha Loop Antenna is designed to operate continuously from 10 through 40 meters, which includes the 10, 12, 15, 17, 20, 30, and 40 Meter amateur radio bands. It will accept up to 30 Watts (PEP) of transmitter power on SSB on these bands.

## Additional Details

- Antenna Weight: 1.5 pounds
- Tripod Weight: 1 pound
- Duffle bag Weight: .6 pounds
- Antenna Configuration: Circular Loop
- Frequency Coverage: 7 MHz to 29.700 MHz
- Maximum Power Rating: 30 Watts PEP SSB (15 Watts CW or 10 Watts Digital)
- Diameter of Alpha Loop Antenna system: Approximately 3 feet

## Antenna Parts List


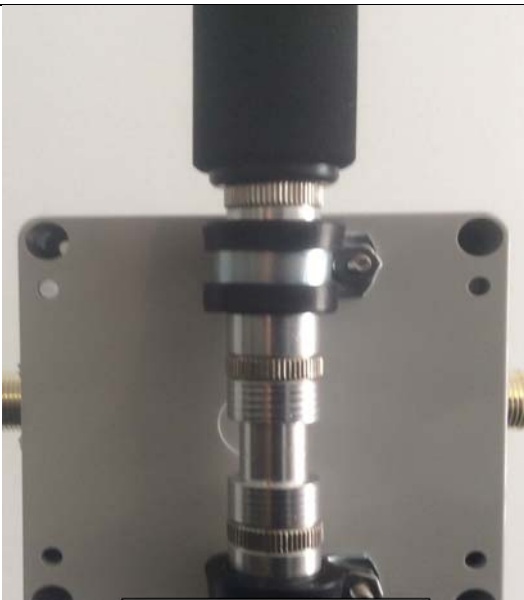
The following parts are included with this antenna. Please contact our support line if you discover that parts are missing or damaged.

Item	Description	Qty.	Comment
1	Outer Loop	1	Continuous frequency coverage from 7 to 29.7 MHz using crimped & soldered Silver Plated PL-259s, which is the same technique used to build MIL-SPEC connections for the U.S. Military
2	Selfie Stick	1	The inner loop should remain installed on the selfie stick.
3	Mount	1	Integrated mount with 3/8x24 & 1/4x20 threads
4	Inner Loop	1	Specially constructed & not just a length of coax.
5	Silver Plated SO-239s	1	Occasional cleaning with a light detergent is recommended.
6	Alpha Match Enclosure	1	NEMA High-voltage box
7	Duffel Bag	1	Optional
8	Tripod	1	Optional


# α ALPHA ANTENNA®

## Antenna Assembly Instructions

Please follow the steps listed below to assure proper operation and deployment.



Step	Assembly	
1	<p><b>Locate the <u>Selfie Stick</u>:</b></p> <p>Extend the sections and take note of the hole on the bottom (Figure 1). This hole is where the screw on top of the grey Alpha Match box will attach.</p>	 <p data-bbox="1019 1003 1317 1052"><b>Figure 1</b></p>
2	<p><b>Locate the <u>grey Alpha Match box</u>:</b></p> <p>Place the screw from the top of the back support bracket on the grey Selfie Match box into the bottom hole on the Alpha Stick (Figure 2) and turn till it is secure</p> <p>Note - There is a 1/4 - 20 threaded hole on the bottom of the support bracket that can be used to mount the antenna on an optional tripod.</p>	 <p data-bbox="997 1703 1300 1751"><b>Figure 2</b></p>

# $\alpha$ ALPHA ANTENNA®

Step	Assembly
3	<p><b>Locate the <u>large Coaxial Loop element</u>:</b> Straighten this Alpha Coaxial Loop Element to form an approximate circle that is slightly larger than 3 feet in diameter. Take note of the approximate center for this run of coax. This is where the smaller Coaxial Loop element will be attached using the included fastener.</p>
4	<p><b>Locate the <u>smaller Coaxial Loop element</u>:</b> Attach this coax with the fastener to the top and center of the large Coaxial Loop element. (Note – When the antenna is Vertical, the smaller Loop will be located inside the Outer (larger) Loop.</p>
5	<p><b>Locate the <u>Mount and Thumb Screw</u>:</b> Mount the coax as depicted in Figure 3, and then secure the thumb screw till it is finger tight.</p>  <p data-bbox="1015 1186 1274 1228"><b>Figure 3</b></p>



# α ALPHA ANTENNA®

Step	Assembly	
6	<p>a) Use the Top Clamp on the Selfie Stick to secure the Coaxial Loop Elements at their center by removing the securing screw, inserting the coax as depicted in Figure 4.</p> <p>b) Adjust the placement of the coaxial loops so that the larger element PL-259 ends are near the Alpha Match box.</p> <p>c) Attach the PL-259 connectors on the larger Coaxial Loop Element to the SO-239 connectors on the grey Alpha Match box per Figure 5.</p>	 <p data-bbox="802 751 1023 785">Figure 4</p>  <p data-bbox="1114 743 1393 802">Figure 5</p>
7	<p>Connect your coaxial feed line to the SO239 on the T-Connector that is installed between the PL259s on the smaller Coaxial Loop element, then run that coax to your radio.</p>	

# $\alpha$ ALPHA ANTENNA®

## Antenna Operation

The Alpha Loop antenna has a built in tuning knob, which is black, on the Alpha Match. It is with this knob that you tune the antenna to the lowest SWR of less than 1.9:1 on any frequency from the 10 Meter through the 40 Meter band. The following technique has proven to be the easiest method for tuning the Alpha Loop in nearly all scenarios:

- 1) After attaching your coax, turn your radio on & to SSB, then to the frequency you would like to operate, and adjust the volume so you can hear it while standing at the antenna.
- 2) Turn the black knob on the Alpha Match very slowly till you hear the loudest noise level coming from the speaker.
- 3) Return to your rig and set it to the **lowest power output available**, then set the meter on your transmitter to show SWR upon transmit. You may also use an external SWR Meter/Analyzer. If using an analyzer, simply tune for the lowest SWR using the black knob on the Alpha Match. Otherwise, set your rig to FM or CW mode and transmit while turning the black knob very slowly for the lowest SWR.

Hint – It is easier to learn how to tune the Alpha Loop on 40 meters.

OPTIONAL REVERSE TUNING (How to account for hand capacitance while tuning)

- a. To compensate the effect of hand capacitance that might occur, a technique called reverse tuning can be used. To reverse tune a magnetic loop, tune for minimum SWR while touching the Black Knob on the Alpha Match, say 1.9:1; and then when you remove your hand you might see 4.3:1 for example; then all you have to do is tune for 4.3:1 while your hand is on the knob to achieve an SWR of 1.9:1 when you remove your hand.

**NOTE – High voltages are present when transmitting, no matter how much or little power is applied. Do not touch any part of the Alpha Loop except the black knob while transmitting.**

## Set Mic Gain for SSB Mode

The factory default setting for Mic Gain on many rigs is seldom, if ever, correct. This is because each person's voice is different. So how do you know where to set your Mic Gain? Some manuals will include a section on Mic Gain, which indicates the most efficient way to run the rig in SSB mode is to ensure that your audio does not cause your rigs 'needle' to exceed the scale limits of the ALC meter. Basically, the receiving party will hear distortion or "clipping" without the proper Mic Gain setting. So set your Mic Gain where the ALC moves up the scale just a bit on voice peaks. Essentially, ALC is reactive and not pre-emptive, so without the proper Mic Gain setting, you may produce distortion each time you peak your ALC meter.

**HINT** – Start at 1% when adjusting your Mic Gain, and if you have a deep or loud voice, you might find that a setting from 4% to 6% is perfect for you; depending upon your rig.

# α ALPHA ANTENNA®

## APPENDIX A – OPTIONAL BOOSTER CABLE

The Alpha loop Booster Cable enables your 10-40 meter Magnetic Loop Antenna to transmit and receive on 40, 60 & 80 meters at 20 watts PEP SSB. The Alpha loop Booster Cable also increases the efficiency for 80 through 40 meters.

The Booster Cable consists of a specially tuned section of Times Microwave LMR-400 coax plus a double-female SO239/UHF connector that connects to either PL259 on your 10-40 meter outer loop, resulting in a 120% increase in a double loop configuration. The Booster Cable is easily installed or uninstalled with Velcro straps.

Step 1 – Setup your 10-40 Meter Alpha Loop per that products manual

Step 2 – Disconnect one PL259 from the outer loop on the 10-40 Meter Alpha Loop

Step 3 – Screw the disconnected PL259 into one side of the SO239 barrel connector included with the Booster Cable, so that the outer loop and Booster Cable are in Series

Step 4 – Double the newly formed loop around twice so the Booster Cable's unused PL259 comes in contact with open the SO239 on the grey Alpha Match box

Step 5 – Screw the PL259 on the Booster Cable into the SO239 on the grey Alpha Match box

Step 6 – Affix the loops together with the included Velcro straps at the 1, 4, 7, & 11 o'clock positions

Step 7 – Attach your coax from your radio to the SO239

Step 8 – Return to the 10-40 Meter Alpha Loop manual for tuning instructions

### A.1 – Image





## **Support Contacts**

If you have questions about your antenna, please feel free to contact us.

Email: [support@alphaantenna.com](mailto:support@alphaantenna.com)

Phone: 1-888-482-3249

WEB: [www.alphaantenna.com](http://www.alphaantenna.com)