



Portable Carbon Fiber Masts (CHA CFM-16 and CHA CFM-34) Operator's Manual

Nevada - USA

WWW.CHAMELEONANTENNA.COM



VERSATILE – DEPENDABLE – STEALTH – BUILT TO LAST

Rev. 9/19/2025

Table of Contents

Introduction	3
Parts of the Mast.....	3
Deployment Procedure.....	4
Recovery Procedure.....	5
Compatible Antennas.....	6
Antenna Examples	6
HYBRID MICRO / MINI Lazy “L” Antenna	7
EMCOMM III PORTABLE Sloping Wire Antenna.....	7
LEFS 4010 EFHW Sloper Antenna.....	8
AZ-1 End Fed Inverted “V” Antenna	9
AZ-2 Linked Dipole Antenna.....	9
Accessories.....	10
Specifications	10
CHA CFM-34	10
CHA CFM-16	10
Chameleon Antenna™ Products.....	11



WARNING! Never mount this mast, or any antenna near power lines or utility wires! Any materials: ladders, ropes, or feedlines that contact power lines can conduct voltages that kill. Never trust insulation to protect you. Stay away from all power lines.

- Photographs and diagrams in this manual may vary slightly from current production units due to manufacturing changes that do not affect the form, fit, or function of the product.
- All information on this product and the product itself is the property of and is proprietary to Chameleon Antenna™. Specifications are subject to change without prior notice.

Introduction

Thank you for purchasing and using the Chameleon Antenna™ Portable Carbon Fiber 16 and 34 foot Masts (CHA CFM-16 and CHA CFM-34). The CHA CFM-16 is 16 ft. 5 in. tall, collapses to 17 in., and weighs 18.9 oz. The CHA CFM-34 is 34 ft. 7 in. tall, collapses to 23 ½ in., and weighs 2 lbs. 9 oz.

The masts are self-supporting (no guying required) and can be used as a support for many of Chameleon's portable wire antennas; in places where there are no trees or where putting antennas in trees is not permitted. A unique feature of these masts is the 3/8-24 stud at the base, enabling the mast to be mounted on our ground Spike Mount (CHA SPIKE MOUNT) or Universal Clamp Mount (CHA UCM).

The incredible light weight and ability to collapse to a short length make the CHA CFM-16 and 34 the perfect packable mast for any outdoor radio adventure, including Parks on the Air (POTA), Summits on the Air (SOTA), backpacking, camping, biking, and RVing. The dark carbon fiber material makes them stealthy and strong enough to support manpack EMCMM.

Please read this operator's manual so that you may maximize the utility you obtain from your portable carbon fiber masts.

Parts of the Mast

The CHA CFM is comprised of the following components, as shown in plate (1).

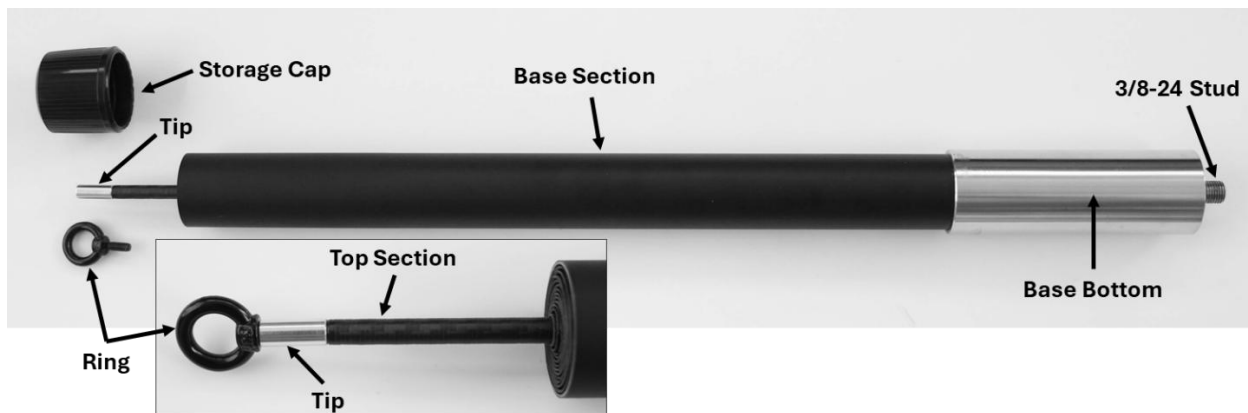


Plate 1. CHA CFM Components.

Deployment Procedure

Deployment of the CHA CFM is very easy. Use the following procedure to deploy the mast.

1. Remove the Mast from the bag.
2. Remove the Storage Cap from the top of the Mast. Place the Storage Cap in the bag to keep from losing it.
3. Thread the Ring into the Tip of the Top Section of the Mast until snug. *Do not overtighten or use tools.*
4. Drive the Spike Mount into the ground or clamp the Universal Clamp Mount (UCM) to the object where the Mast will be erected. *Any 3/8-24 mount may be used, but the Spike Mount and UCM are two of the best choices and are used here as examples.*
5. Carefully thread the 3/8-24 stud on the base of the Mast into the mount and turn the Mast to tighten until it is snug in the mount. *Do not overtighten or use tools.*

IMPORTANT: There must not be any gap between the bottom of the mast base and the top of the mount, like that shown in figure (1). The bottom of the mast base must touch the top of the mount otherwise stress will cause the 3/8-24 stud to be bent. Fill any gap with one or more 3/8 in. fender washers, as shown.

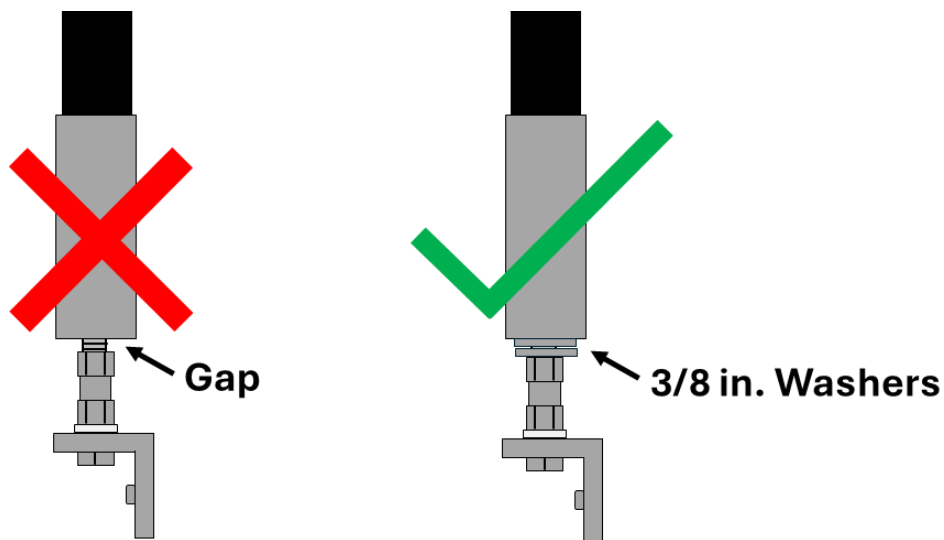


Figure 1. No Gap Between Mast and Mount.

6. Attach the Antenna to the Ring on the Tip of the Mast. *Do not exceed the weight limit in the specifications.*
7. Extend the Mast, one section at a time, from the top section to the bottom section. Pull each section out until you feel friction with the next section and it stops coming out. *Don't use excessive force when pulling.*

Note: Carbon Fiber has some electrical conductivity which creates a coupling effect that can disrupt antenna performance through detuning, altered radiation pattern, and resistive losses. The best mitigation for this phenomenon is physical isolation between the antenna wire and mast. Configurations with only tangential contact like the Sloper, Sloping Wire, Inverted “V”, or Dipole will have minimal disruptions in antenna performance. Configurations with a section of the antenna wire adjacent to the mast, such as the Lazy “L”, have the potential for more coupling.

Recovery Procedure

To recover the CHA CFM, perform the following steps:

1. Lower the Mast, one section at a time, from bottom to top by pushing down on the section until it falls into the lower section.
2. When the last section has been lowered, disconnect the antenna.
3. Unscrew the Mast from the mount.
4. Unscrew the Ring from the Tip. *Take care, this is a critical component and is easy to lose. Consider attaching a high-visibility lanyard to the Ring when it is not screwed into the Tip of the Mast.*
5. Place the Ring next to the Tip and put the Storage Cap on top of the Mast. The Ring will be under the Storage Cap ready for next use.
6. Wipe any dirt or moisture from the Mast.
7. If needed, apply a small amount of Permatex Anti-Seize Lubricant (#80078) to the 3/8-24 stud to prevent galling of threads.
8. Store Mast in bag ready for next deployment.

Compatible Antennas

Table (1) shows the antennas that are compatible with the CHA CFM-16 and 34 masts.

ANTENNA	COMPATIBILITY NOTES
MPAS 2.0	<ol style="list-style-type: none"> 1. Use Antenna Wire instead of MIL WHIP & MIL EXT. 2. CHA HUB required for strain relief attachment point. 3. HYBRID MICRO / MINI on ground and not suspended from mast (<i>see examples</i>).
MPAS LITE	<ol style="list-style-type: none"> 1. Use Antenna Wire instead of Telescopic Whip. 2. CHA HUB required for strain relief attachment point. 3. HYBRID MICRO / MINI on ground and not suspended from mast (<i>see examples</i>).
EMCOMM III PORTABLE	Matching Transformer Assembly on ground and not suspended from mast (<i>see examples</i>).
EMCOMM II V2	Matching Transformer Box on ground and not suspended from mast.
EMCOMM III BASE	Matching Transformer Box on ground and not suspended from mast.
LEFS 8010	End Assembly on ground and not suspended from mast.
LEFS 4010 EFHW	<ol style="list-style-type: none"> 1. End Assembly can be suspended from mast (<i>see examples</i>). 2. Must use RG-316 Coaxial Cable.
LEFS 4010 WARC DIPOLE SET	<ol style="list-style-type: none"> 1. Center feedpoint of antenna can be suspended from mast. 2. Must use RG-316 Coaxial Cable.
LEFS 4010 LINK-D and LINK-D15	<ol style="list-style-type: none"> 1. Center feedpoint of antenna can be suspended from mast. 2. Must use RG-316 Coaxial Cable.
LEFS 4010 "FEATHER"	This antenna is designed to have the end feedpoint near the ground. Suspend the far end or center of the antenna wire from the mast.
OCF40	<ol style="list-style-type: none"> 1. "Center" feedpoint of antenna can be suspended from mast. 2. Must use RG-316 Coaxial Cable.
AZ-1	This antenna is designed to have the end feedpoint attached directly to the transceiver. Suspend the far end or center of the antenna wire from the mast (<i>see examples</i>).
AZ-2	<ol style="list-style-type: none"> 1. Center feedpoint of antenna can be suspended from mast (<i>see examples</i>). 2. Must use RG-316 Coaxial Cable.

Table 1. CHA CFM Compatible Antennas.

Antenna Examples

Almost any wire antenna can be used with the CHA CFM, if the mast is used to hold up the middle or end of the wire and not the feedpoint. The exceptions to this are the LEFS 4010, LEFS 4010 "Feather", OCF40, AZ-1, and AZ-2 ultra-light antennas, which can be supported at the feedpoint by the CHA CFM.

Below are five examples of antenna configurations using only the CHA CFM for support. They are used as examples because they each have different feedpoint components.

HYBRID MICRO / MINI Lazy “L” Antenna

Using the Hybrid Micro or Mini and the 60 ft. Antenna Wire from the MPAS 2.0 and MPAS Lite antenna systems with the CHA CFM, you can create a self-supporting Lazy “L” antenna (see figure [2]). You will need a CHA HUB to attach the Key Ring Shackle as a strain relief point, as shown in the inset of figure (2). The Hybrid Micro / Mini Matching Transformer is too heavy to be suspended directly from the mast, but the antenna could also be configured as an End Fed Inverted “V” or Sloping Wire antenna.

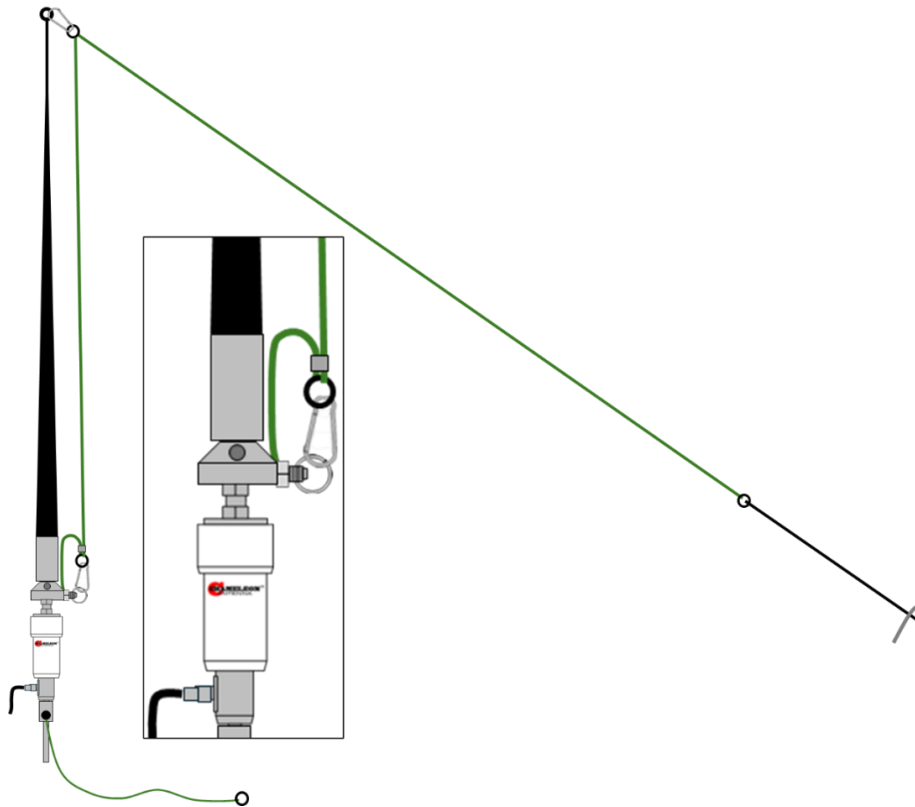


Figure 2. Hybrid Micro / Mini Lazy “L” Antenna.

EMCOMM III PORTABLE Sloping Wire Antenna

Using the EMMCOM III Portable with the CHA CFM, you can create a self-supporting Sloping Wire antenna (see figure [3]). The EMMCOM III Portable can also be configured as an end-fed Inverted “V” or Lazy “L” with the mast in the middle of the antenna wire attached to the floating Isolation Ring. The Matching Transformer Assembly is too heavy to be suspended directly from the mast.

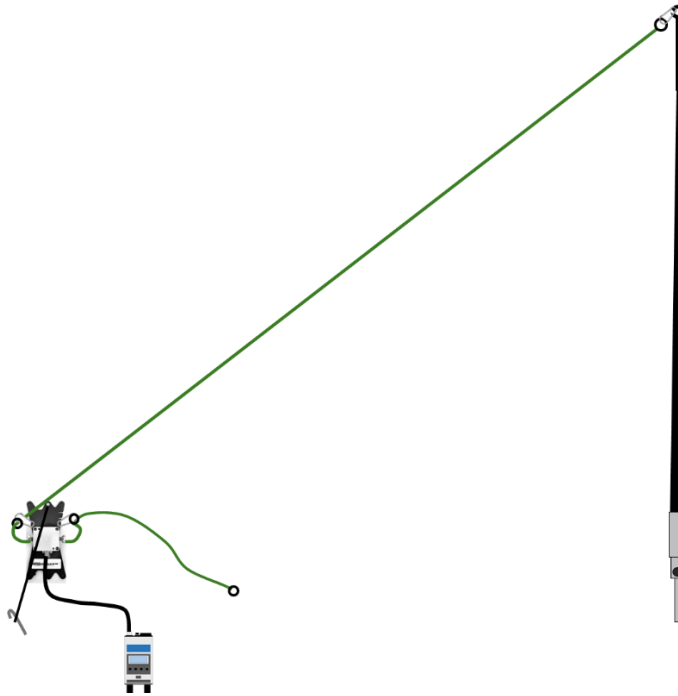


Figure 3. EMCOMM III Portable Sloping Wire Antenna.

LEFS 4010 EFHW Sloper Antenna

The Lightweight End Fed Sloper (LEFS) 4010 is an End Fed Half Wave (EFHW) Sloper antenna that is light enough to be suspended directly by the CHA CFM (see figure [4]). This antenna could also be configured as an Inverted "V".

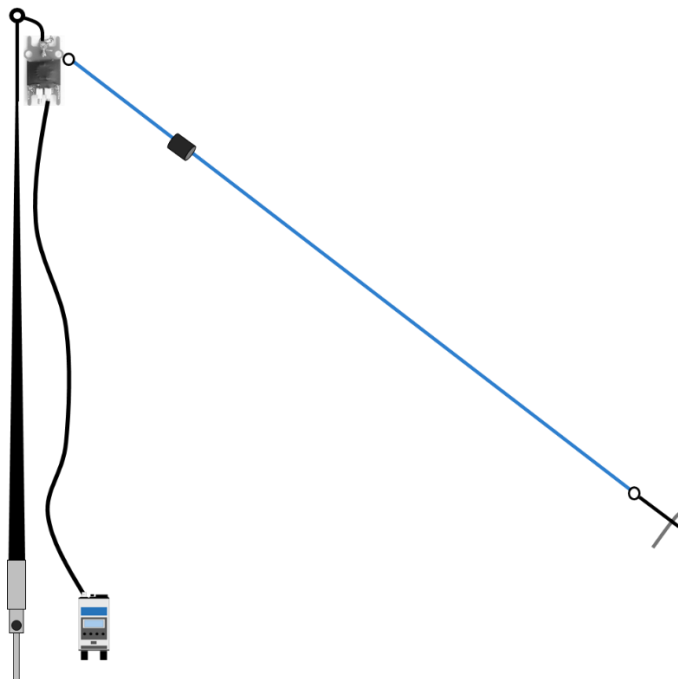


Figure 4. LEFS 4010 EFHW Sloper Antenna.

AZ-1 End Fed Inverted "V" Antenna

The Activation Zone Model 1 (AZ-1) antenna can be used with the CHA CFM, either as a Sloping Wire (with the end suspended from the mast) or as an End Fed Inverted "V", as shown in figure (5). Note: The AZ-1 is sold exclusively by DXEngineering.

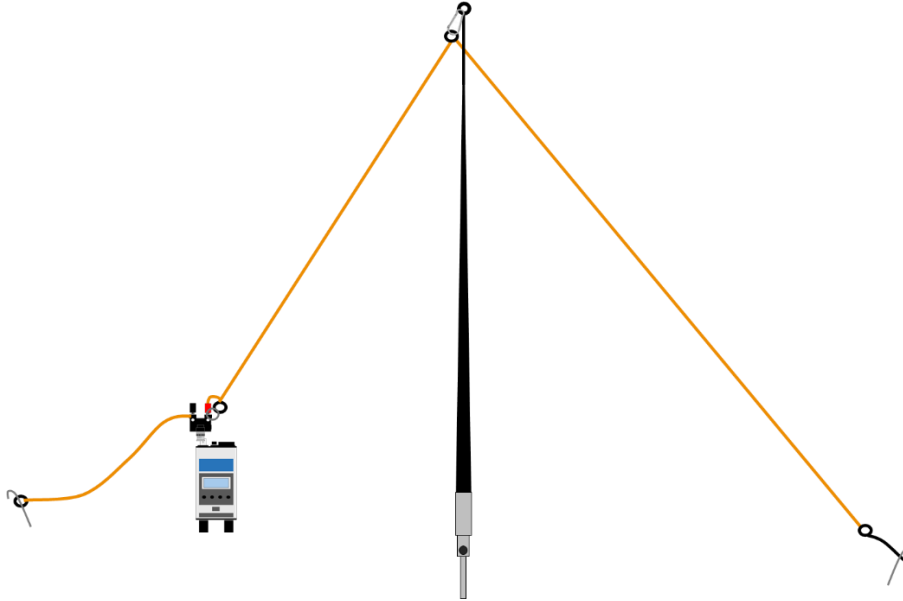


Figure 5. AZ-1 End Fed Inverted "V" Antenna.

AZ-2 Linked Dipole Antenna

The Activation Zone Model 2 (AZ-2) Linked Dipole antenna can be used with the CHA CFM, as shown in figure (6). Note: The AZ-2 is sold exclusively by DXEngineering.

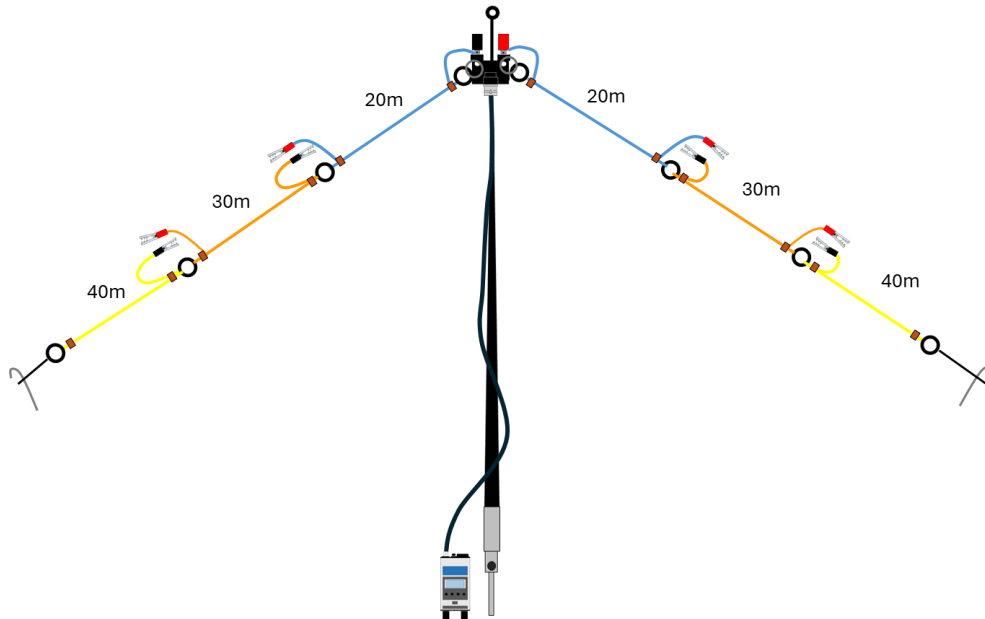


Figure 6. AZ-2 Linked Dipole Antenna.

Accessories

The following accessories are recommended for use with your antenna. They are available from www.chameleonantenna.com or your great dealer.

- **Spike Mount.** The Spike Mount (CHA SPIKE MOUNT) is a ground spike mount available in either 15 in. or 21 in. lengths that will support the carbon fiber masts when driven into the ground.
- **Universal Clamp Mount.** The Universal Clamp Mount (CHA UCM) is a heavy-duty clamp style mount designed to attach to a picnic table, fence post, balcony rail, or any other horizontal rectangular shaped object.

Specifications

CHA CFM-34

- Weight Limit: 1 lbs.
- Length (extended): 34 ft. 7 in.
- Length (collapsed): 23 ½ in.
- Sections: 20
- Weight: 2 lbs. 9 oz.
- Diameter (base): 1 13/16 in.
- Diameter: (tip): 7/32 in.
- Color: Flat Black.
- Base: 3/8-24 Stud
- Tip: ¾ in. Ring

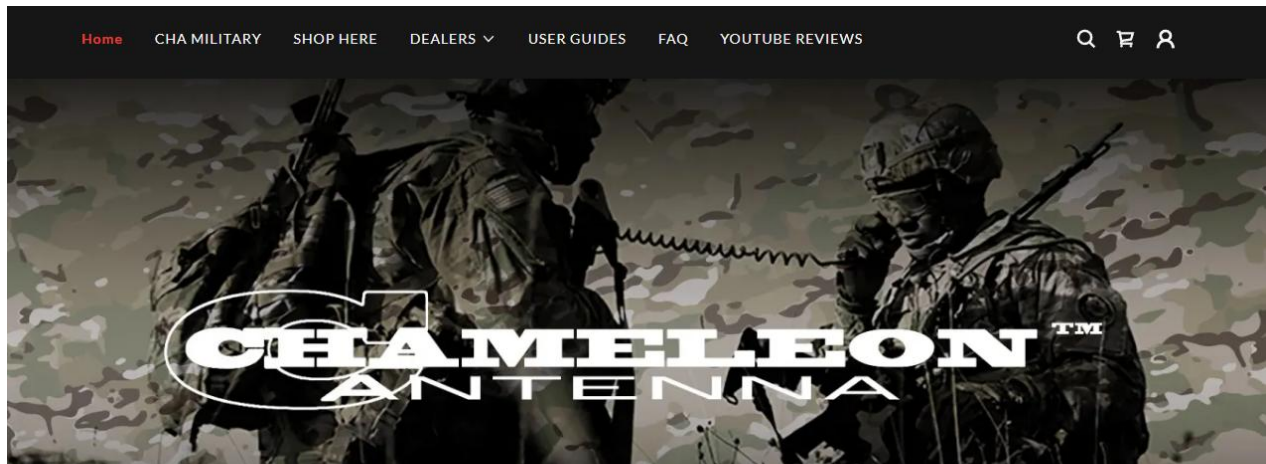
CHA CFM-16

- Weight Limit: 1 lbs.
- Length (extended): 16 ft. 5 in.
- Length (collapsed): 17 in.
- Sections: 14
- Weight: 18.9 oz.
- Diameter (base): 1 5/16 in.
- Diameter: (tip): 7/32 in.
- Color: Flat Black.
- Base: 3/8-24 Stud
- Tip: ¾ in. Ring

Chameleon Antenna™ Products

Go to <http://chameleonantenna.com> for information about quality antenna products available for purchase from Chameleon Antenna™ – The Portable Antenna Pioneer.

Warranty information is available at <http://chameleonantenna.com>.



THE PORTABLE ANTENNA PIONEER BECAUSE GREAT RADIOS
DESERVE GREAT ANTENNAS

Chameleon Antenna™ products are available from these great dealers:

HRO
DX ENGINEERING
GIGAPARTS
WIMO
MOONRAKER
RADIOWORLD UK
R&L ELECTRONICS
ML&S MARTIN LYNCH
PILEUPDX
LUTZ-ELECTRONICS
RADIOWORLD CANADA
GPS CENTRAL
PASSION-RADIO.COM
LIMMARED
RADIO MADE EASY
CHATT RADIO