

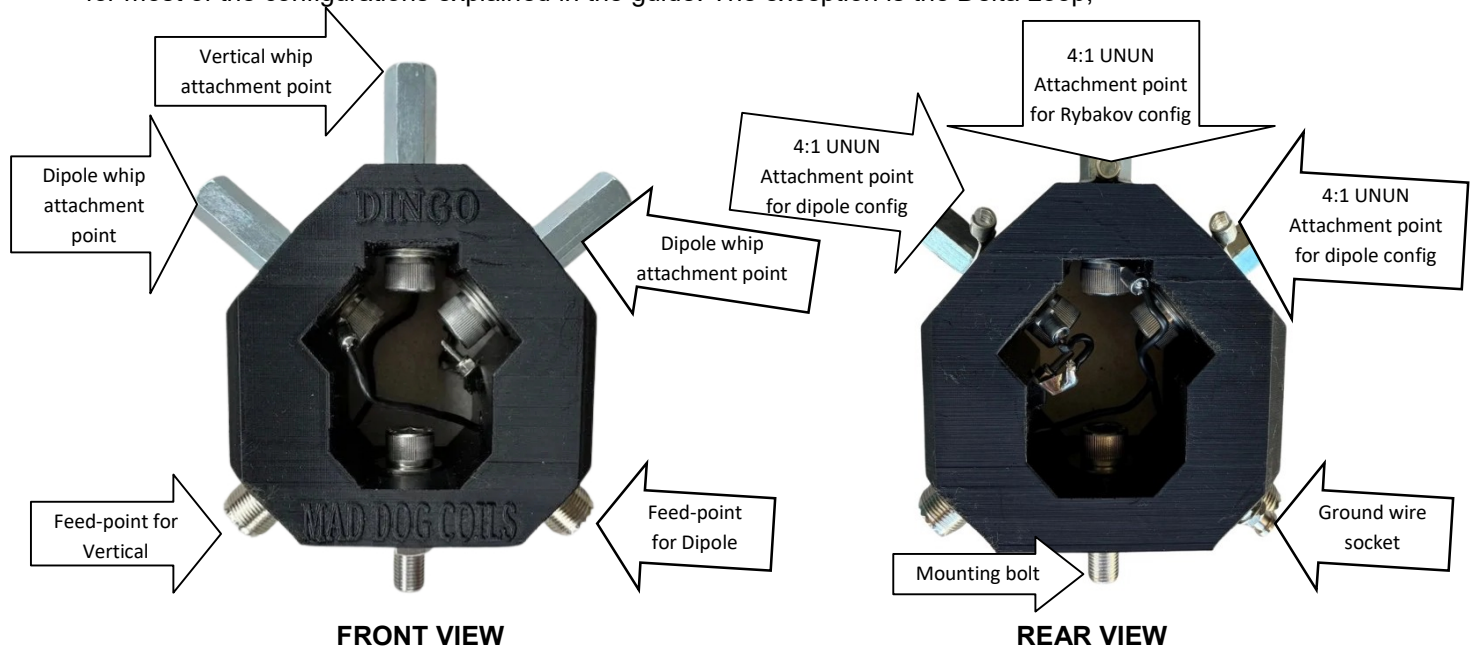
Mad Dog Coils Dingo User Guide

The Dingo is a 3-D printed HF antenna base and feed point designed to enable V-dipole and vertical antenna configurations using telescopic or military whips. Loading coils including the Mad Dog Coils Big Dog, Little Dog and Tiny Dog can be placed between the Dingo mount and the whips to enable tuning to the lower HF bands. By connecting the tips of the V-dipole whips with a horizontal wire a delta loop antenna is formed. Each of these configuration types is explained in more detail later in the user guide.

The angle of the dipole V is 95 degrees. For convenience a centre hole with hardware is provided for vertical mounting of whip and coil. As the Vertical mount and Dipole mounts have their own individual SO-239 feed-points both styles of antenna can be setup at the same time but not operated at the same time. A coax switch could be used to quickly change between the vertical and dipole antennas. (note: Vertical antenna cannot be used when the dipole is setup as a delta loop)

The Dingo is designed to be mounted on a sturdy tripod such as a surveyor's tripod, ideally with the Dingo at least 5 feet off the ground for the dipole and delta loop configurations. The height of the vertical configuration can either be low to the ground or also up around 5 feet. The Dingo is 3D printed from PETG plastic. The holes are 10mm diameter so 10mm and 3/8 bolts fit snug.

A 1:1 Choke balun should be part of the feed line located no more than 1.6 ft (0.5m) from the Dingo feed point for most of the configurations explained in the guide. The exception is the Delta Loop,



Specifications

Hardware: either 3/8-24 or 10mm

Feed points: two SO-239 sockets (one for the vertical and one for the dipole)

Ground/counterpoise wire connection point: 4mm banana plug socket

Power Rating (if using an inductor coil you should also be guided by that coils power rating):

SSB: 200 W

CW: 100 W

AM/FM/Digital: 100 W

Maximum whip lengths

Vertical: 25 Feet (7.6m) (i.e. the chameleon SS25)

Dipole: 17 Feet (5.2m) each side (i.e. the chameleon SS17)

Delta Loop: 17 Feet (5.2m) each side (i.e. the chameleon SS17) with a 19.7 feet (6m) joining wire between the tips of the two whips.

Vertical Configuration

The vertical whip attachment point is at the centre top of the Dingo mount. A whip can be mounted directly to the top coupler nut or a coil can be used with a whip on top of the coil. If using a Mad Dog coil then use the lower bypass socket on the coil to bypass the coil feed point. By doing this the feed point on the Dingo mount labelled "Vertical" will be active. Ground / counterpoise wires will need to be connected to the 4mm banana plug socket located next to the SO-239 feed point socket. I recommend 5 wires at around 15 ft (4.5 meters) long all soldered to a banana plug.

The antenna is tuned by adjusting the length of the vertical whip, the inductance of the coil by moving the collar up or down (if used) and the layout positioning of the ground / counterpoise wires.

The image to the right shows a MDC Big Dog coil on top of the Dingo mount with a 25 ft telescopic whip on top.



Dipole Configuration

The Dipole whip attachment points are at each side of the Dingo mount. Two whips can be mounted directly to these coupler nuts or two coils can be used with whips on top of the coils. If using Mad Dog coils then the lower bypass socket on each coil needs to be used to bypass the coil feed point. By doing this the feed point on the Dingo mount labelled "Dipole" will be active.

The antenna is tuned by adjusting the length of the whips and the inductance of the coils by moving the collar up or down (if used).

The first image below shows two MDC Big Dog coils on the Dingo mount with a 17 ft telescopic whip on top of each coil. The second image below shows two MDC Little Dog coils on top of the Dingo mount with a 17 ft telescopic whip on top of each coil. Two Tiny Dog Coils could also be used but the lowest band would be 40 meters.



Typical tuning results for dipole configuration (using either Tiny Dog, Little Dog or Big Dog coils with 17 ft whips)

Band	Coil inductance required	No Inductance (Use top bypass socket on Little and Big Dog Coils)
80	1:1.2	
40	1:1.1	
30	1:1.1	
20		1:1.6
17		1:1.4
15		1:1.3
12		1:1.1
10		1:1.1
6		1:1.1

YouTube Video Link for dipole setup <https://youtu.be/u70Jlyu-Ejw>

Combined Vertical and V-Dipole Setup

As the Vertical and Dipole mounts have their own individual SO-239 feed-points both styles of antenna can be setup at the same time but not operated at the same time. A coax switch could be used to quickly change between the vertical and dipole antennas. (note: Vertical antenna cannot be used when the dipole is setup as a delta loop)

Delta loop Configuration

Similar to the V-dipole configuration using two 17 ft whips, the loop is created by using a wire between the tips of the two telescopic whips. Suggest using stainless steel rope wire 1.5mm thick and 19.7 ft (6m) long. To increase bandwidth two stainless steel wires running parallel 40mm apart can be used.

A 4:1 UNUN transformer is required between the coax and the feed point of the delta loop.

The Coax Feed line needs to have a 1:1 in-line choke balun at the 21.3 ft (6.5 meter) point from the antenna, then another 43 ft (13 meters) or more coax to the transceiver. These coax length measurements are based on RG58U coax. If another type of coax is used, then the location of the 1:1 choke balun may need to be altered and experimentation by the user to achieve best SWR on the 40 meter band. The 21.3 ft (6.5m) coax should be laid out and not bundled up.

Note :The 21.3 ft (6.5m) of Coax between the antenna and 1:1 choke is only required for an acceptable tune on 40 metres. If 40 meters is not being used, then this section of coax is not required and the 1:1 choke can be moved close to the feed point,

Tuning results (Using 6.5m of coax to 1:1 choke balun):

Band	Coil inductance required	No Inductance (Use top bypass socket on Little and Big Dog Coils
40	1:1.4	
20	1:1.2	
17		1:1.5
15		1:1.9
12		1:2.0
10		1:2.0
6		1:2.0

NOTE: If using cheap Chinese made whips it is recommended not to extend the last section of the whip as it is too thin and may snap in delta loop configuration. This will shorten the overall whip length but the delta loop will still work well.



Two stainless steel link wires in parallel instead of one wire will increase bandwidth.

Note: The 30 meter band is 1:3.0 SWR. A tuner can be used to provide an acceptable match



The first two images below of the delta loop configurations are cut off at the top and do not show the link wire joining the tips of the telescopic whips. Tuning for the 40 and 20 meter bands can be done by using either one or two coils with adjustable sliding collars. The 4:1 UNUN is used as the feed point. The first image shows a 4:1 in a box that is attached to the lower part of the whips by alligator clips. The second image shows a different style 4:1 that easily connects to the Dingo mount by banana plugs.



The image to the right shows the delta loop configuration where the whips are cut off at the top and does not show the link wire joining the tips of the telescopic whips. The coil used here is the Mad Dog Coils Tiny Dog which is designed to be used with the Dingo mount as the Tiny Dog does not have a coax feed point. Two Tiny Dog coils would also work well in V-Dipole configuration.

YouTube Video Link for Delta Loop setup <https://youtu.be/JTtqDnbfiNQ>



Rybakov Vertical Configuration

This configuration uses a 25 ft (7.6m) whip such as the Chameleon SS25 and is fed via a 4:1 UNUN. In the image to the left shows the Rybakov configuration with a SS25 and a 4:1 UNUN. The 4:1 UNUN upper left connection is attached to the socket at the base of the vertical whip. The upper right connection goes to the ground/counterpoise wires. The UNUN is fed by coax with a 1:1 choke close to the antenna.

Here are the SWR results (without a tuner) using three 20 ft ground radial wires. The placement of these ground wires has an effect on tuning so the user needs to move them around to achieve lowest SWR. For most bands a Rybakov antenna does need an antenna tuner to achieve an acceptable antenna match.



Band	SWR
40	1:2.1
30	1:1.3
20	1:2.8
17	1:3.5
15	1:2.9
12	1:2.0
10	1:1.1
6	1:1.2

I hope you get many years of use and enjoyment out of your Mad Dog Coils product.

73' Marty VK4KC

* Disclaimer * : It should be noted that the Mad Dog Coils Dingo should only be used in accordance to our specifications and within our stipulated intended use. All details of intended use are detailed in the documentation that is shipped with the product. We accept no liabilities for such uses outside of our intended use and stipulations.