

Mad Dog Coils “Robo Dog” – User Guide

The Robo Dog is a remote-controlled antenna switching device designed to be used with a remote controlled transceiver service such as “Remote TX”. The relay board has three relays that are used to switch in and out up to three antennas. These relays are controlled from a Raspberry Pi (user supplied) via GPIO output.

The remote TX service provides three buttons in the web based software to control specific Raspberry Pi GPIO pins which provide an on/off output states to control the antenna switching relays.

The Robo Dog comes packed in a 3D printed enclosure. There are three red LED indicators on the top of the enclosure (Figure 1) which illuminate based on which relay is active. The enclosure has an internal mounting location for a Raspberry Pi (Figure 2).

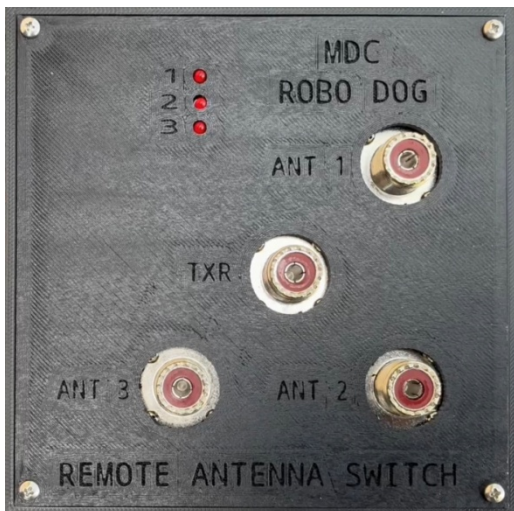


Figure 1

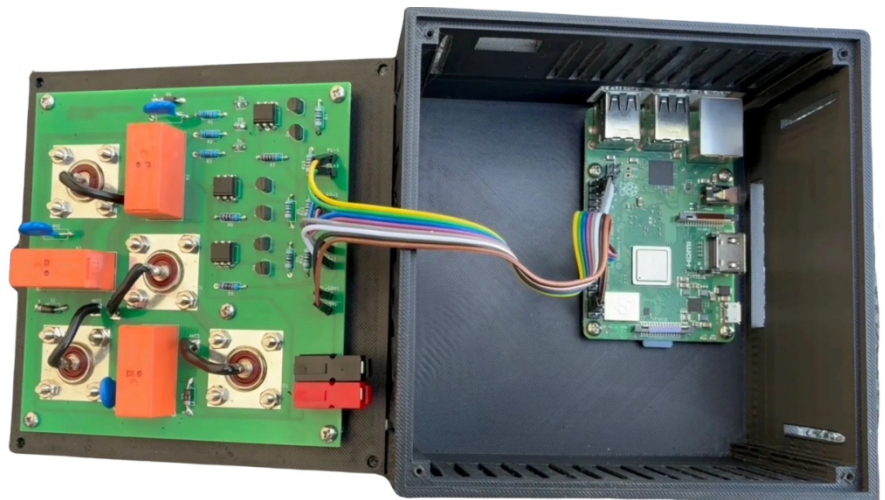


Figure 2

Note: The screws supplied to fasten in a Raspberry Pi and also the lid on the enclosure should not be over tightened. If done up too tight it will strip the plastic.

Specifications

RF Power Rating

SSB: 100 W
CW: 75 W
AM/FM/Digital: 50 W

Product Dimensions

Width: 140mm
Depth: 140mm
Height: 90mm
Weight (without Raspberry Pi) : 375 grams

Power Supply Requirements

12 VDC (10 – 14 VDC range) via power pole connection
Current draw when relay active: 38 mA

Control Voltages

Control Supply Voltage : 5 VDC
Control Ant 1, Ant 2, Ant 3 Voltage : 3.3 to 5 VDC

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

73' Marty VK4KC the Mad Dog

Disclaimer

It should be noted that the Mad Dog Coils Robo Dog 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.

Connecting the Robo Dog to the Raspberry Pi

If you are using the Remote TX service there are three “Plug” buttons that are located in the Setup tab (marked in red on Figure 3). The “Single Plug Active” check box should be ticked so that only one Plug button can be activated at a time.

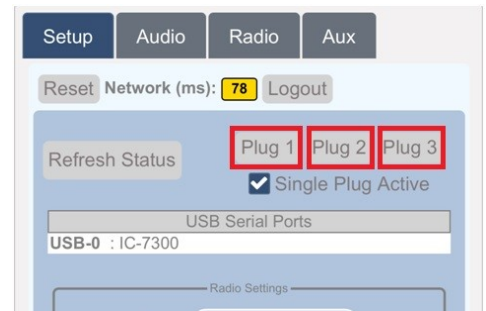


Figure 3

Raspberry Pi GPIO Header		For Remote TX Plug Buttons		
	Pin No.			
3.3V	1	2	5V	
GPIO2	3	4	5V	Brown Wire
GPIO3	5	6	GND	Black Wire
GPIO4	7	8	GPIO14	
GND	9	10	GPIO15	
GPIO17	11	12	GPIO18	Yellow Wire
GPIO27	13	14	GND	
GPIO22	15	16	GPIO23	Green Wire
3.3V	17	18	GPIO24	
GPIO10	19	20	GND	Blue Wire
GPIO9	21	22	GPIO25	Purple Wire
GPIO11	23	24	GPIO8	
GND	25	26	GPIO7	
DNC	27	28	DNC	
GPIO5	29	30	GND	
GPIO6	31	32	GPIO12	
GPIO13	33	34	GND	
GPIO19	35	36	GPIO16	
GPIO26	37	38	GPIO20	
GND	39	40	GPIO21	

Figure 4

The coloured wires of the ribbon cable make it easy to connect to the Raspberry Pi GPIO pins based on Fig 4.

Brown Wire - Pin 4 +5V
Black Wire - Pin 6 GND

Remote-TX service Plug 1
Green Wire - Pin 16 +3.3V
Yellow Wire - Pin 14 GND

Remote-TX service Plug 2
Purple Wire - Pin 22 +3.3V
Blue Wire - Pin 20 GND

Remote-TX service Plug 3
White Wire - Pin 37 +3.3V
Grey Wire - Pin 39 GND

Important:

Please ensure Robo Dog and Raspberry Pi are powered off when connecting the ribbon cable control wires

Node Red Option

Remote TX subscribers can request a Node Red antenna switch dashboard (Figure 5) rather than using the three Plug buttons. To enable this service please send an email to contact@remotetx.net and request this option. The Raspberry Pi GPIO pin out for Remote TX Node Red integration is as per Figure 6.

Brown Wire - Pin 4 +5V
Black Wire - Pin 6 GND

Remote-TX Node Red ANT-1
Green Wire - Pin 7 +3.3V
Yellow Wire - Pin 9 GND

Remote-TX Node Red ANT-2
Purple Wire - Pin 32 +3.3V
Blue Wire - Pin 30 GND

Remote-TX Node Red ANT-3
White Wire - Pin 12 +3.3V

Grey Wire - Pin 14 GND

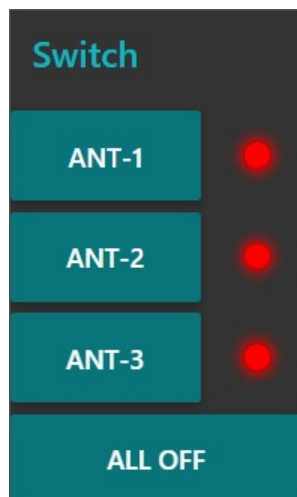


Figure 5

Raspberry Pi GPIO Header		for Remote TX Node Red		
	Pin No.			
3.3V	1	2	5V	
GPIO2	3	4	5V	Brown Wire
GPIO3	5	6	GND	Black Wire
GPIO4	7	8	GPIO14	
GND	9	10	GPIO15	
GPIO17	11	12	GPIO18	White Wire
GPIO27	13	14	GND	Grey Wire
GPIO22	15	16	GPIO23	
3.3V	17	18	GPIO24	
GPIO10	19	20	GND	
GPIO9	21	22	GPIO25	
GPIO11	23	24	GPIO8	
GND	25	26	GPIO7	
DNC	27	28	DNC	
GPIO5	29	30	GND	Blue Wire
GPIO6	31	32	GPIO12	Purple Wire
GPIO13	33	34	GND	
GPIO19	35	36	GPIO16	
GPIO26	37	38	GPIO20	
GND	39	40	GPIO21	

Figure 6

For those that would like to use the Robo Dog without the Remote TX service I can supply a Node Red flow (json file). The user will need a raspberry Pi with node red installed and some knowledge of node red to get it functioning. Please email maddogcoilsaus@gmail.com to request the Node Red flow.