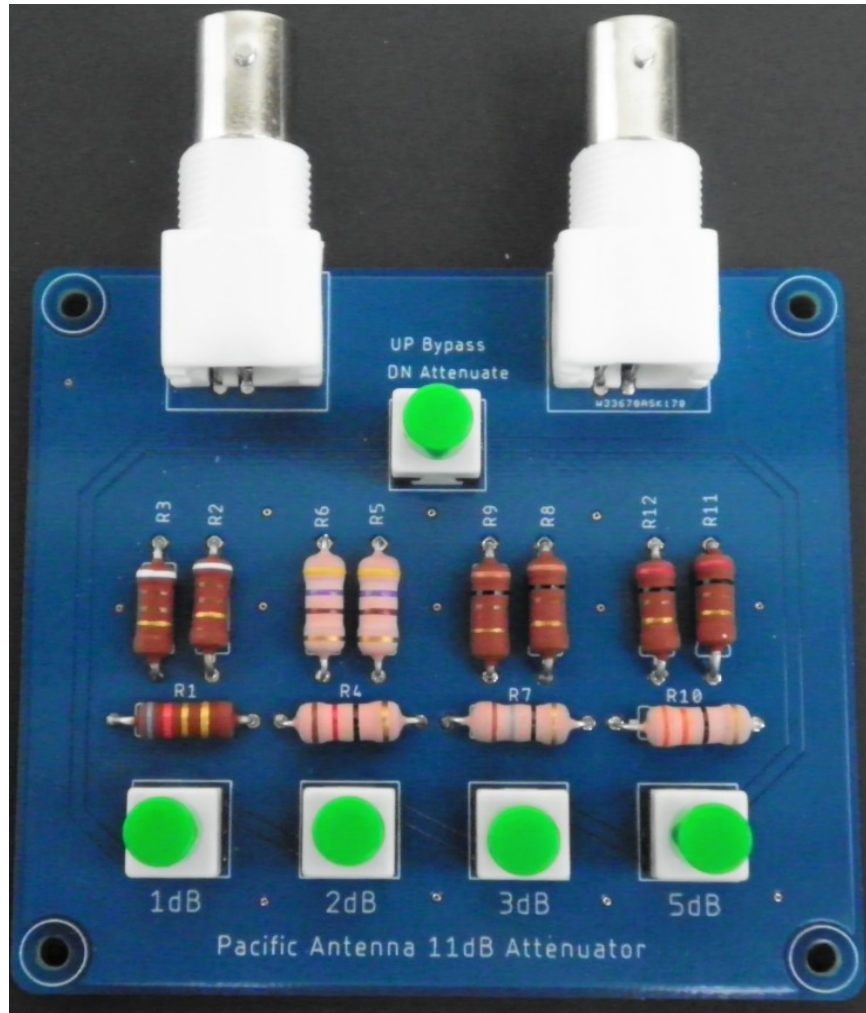


# Pacific Antenna 11dB Step RF Attenuator V2



## Description and Features

Our switched attenuator kit provides variable attenuation of input signals by up to 11dB in steps of 1dB.

A great first time kit to learn soldering and assembly.

Great for hidden transmitter foxhunting to control received signal strength

Ideal for generating low level signals from sources including signal generators, oscillators and transmitters.

Can be used with a signal source to check S meter and receiver response.

Handles 5W continuous and up to 10W for intermittent signals.

Bidirectional, either end can be an input or output.

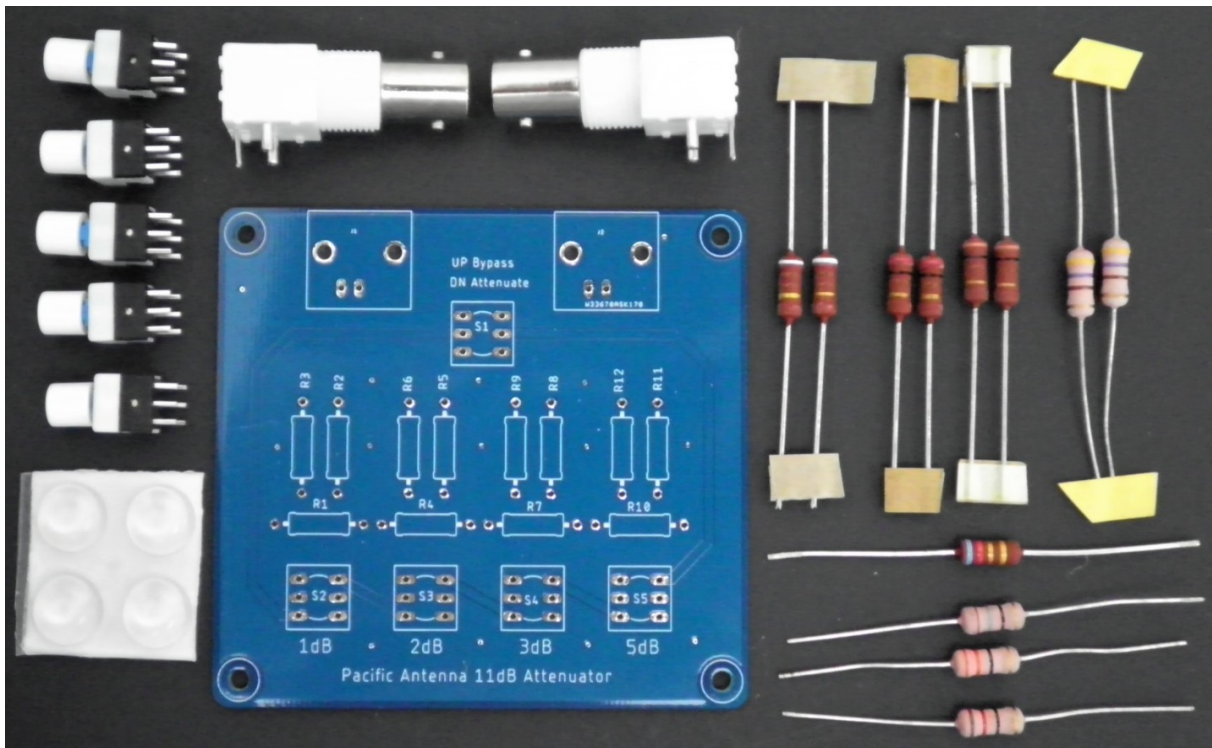
Usable from DC to over 200MHz

Size: 2.75 x 3.0 inches.

## Parts Inventory

Check	Quantity	Part	Value and Description
	1	R1	6.2 ohm, 2W, resistor (blue-red-gold-gold)
	1	R4	12 ohm, 2W, resistor (brn-red-blk-gold)
	1	R7	18 ohm, 2W, resistor (brn-gry-blk-gold)
	1	R10	33 ohm, 2W, resistor (org-org-blk-gold)
	2	R11 & R12	200 ohm, 2W, resistor (red-blk-brn-gold)
	2	R8 & R9	300 ohm, 2W, resistor (org-blk-brn-gold)
	2	R5 & R6	470 ohm, 2W, resistor (yel-vio-brn-gold)
	2	R2 & R3	910 ohm, 2W, resistor (wht-brn-brn-gold)
	5	Switches	DPDT push button switches
	5	Button Tops	Press on push button covers
	2	BNC	BNC female board mount connectors
	4	Feet	Rubber Feet
	1	PCB	Circuit Board V2 or later

## Typical Parts



## Assembly:

First, familiarize yourself with the parts and check that all components are in the kit.

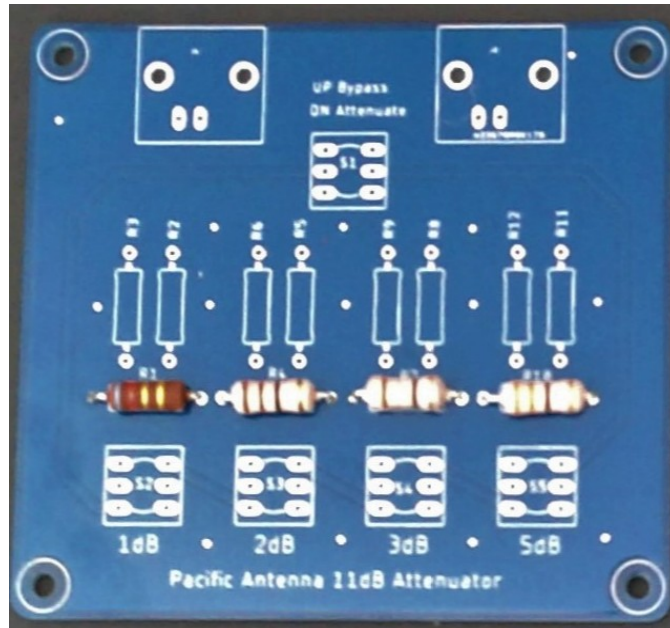
Begin by locating and installing resistors R1, R4, R7 and R10.

There will be one each of these values in the kit.

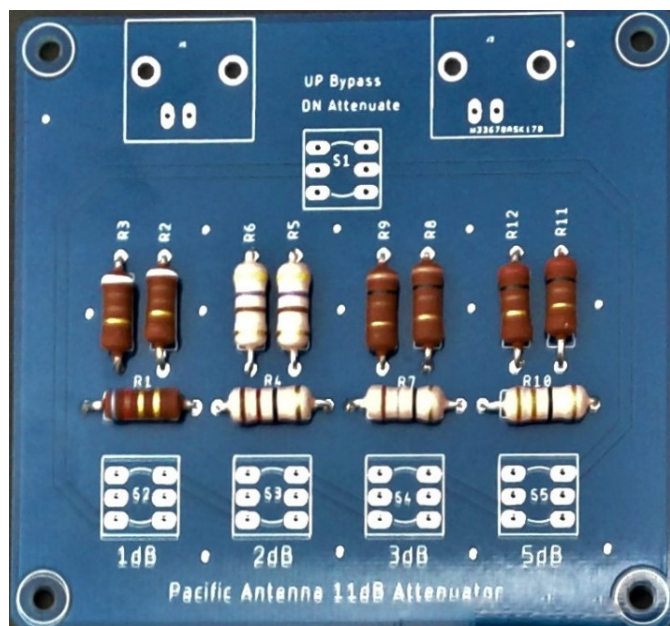
Refer to the parts list for color codes for each resistor.

**Note:** The color codes on these 2 watt resistors are sometimes difficult to read, due the texture and color of the resistor.

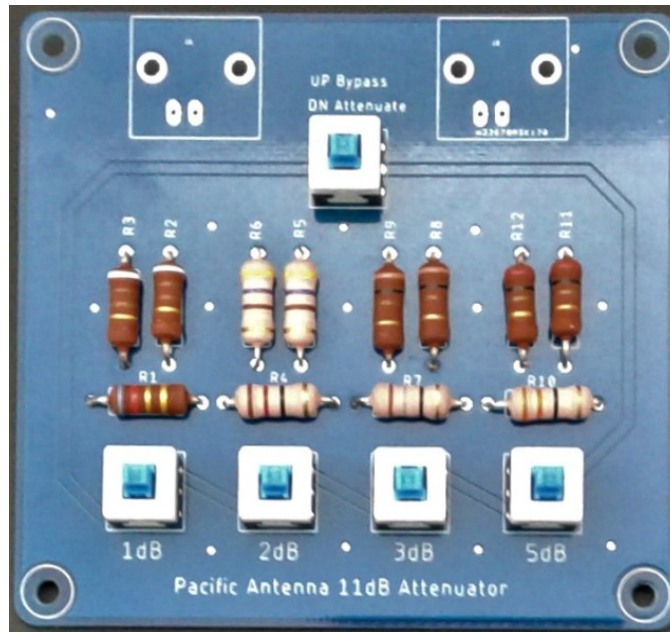
If you are not sure of the value, double check the value with a multimeter before installing and soldering.



Next, install Resistor pairs R2 and R3, R5 and R6, R8 and R9, and R11 and R12.



Next, install the DPDT pushbutton switches, S1 thru S7.



Install BNC connectors by first soldering one leg and checking to see that the connector is seated fully on the board.

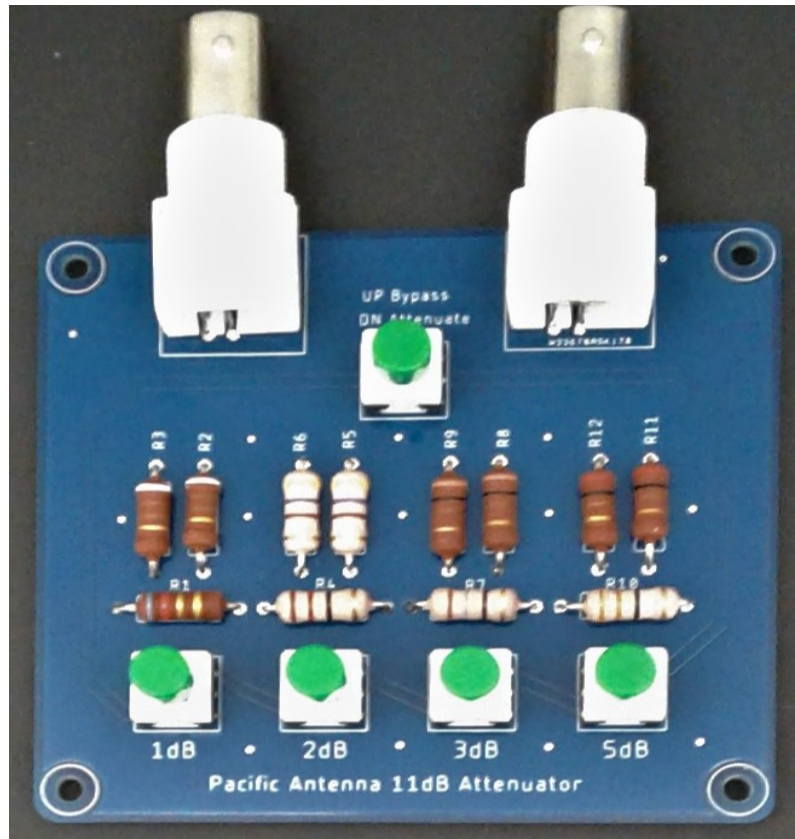
If not, reheat that connection and press the BNC into the board.



## Completing the Attenuator

To finish the assembly, install the caps provided on each switch

Press gently to seat the cover on the shaft of each switch.



**Congratulations, your attenuator kit is now complete!**

## Testing:

Now that the board is complete the next step is to check the resistance for each section of the attenuator.

If you put the resistors in the proper position, you should get similar values to what is listed below.

Connect an ohm meter to either end of the attenuator BNC connector and ground

Then, press the switch for each section of the attenuator and note if the readings are similar to those below

Press each switch again to release after the measurement before moving on to the next one.

### **Typical values measured for each section of the attenuator:**

<b>1 dB -</b>	<b>456</b>	<b>ohms</b>	<b>for switch S2 pressed</b>
<b>2 dB -</b>	<b>236</b>	<b>ohms</b>	<b>for switch S3 pressed</b>
<b>3 dB -</b>	<b>154</b>	<b>ohms</b>	<b>for switch S4 pressed</b>
<b>5 dB -</b>	<b>108</b>	<b>ohms</b>	<b>for switch S5 pressed</b>

Some variation around these values is normal since the resistors are 5% tolerance but the values should be close unless a resistor was accidentally swapped.

## Using your 11dB Step Rf Attenuator

The attenuator is bidirectional, either end can be an input or output.

The buttons are labeled with the attenuation value for that section.

If the button is down, that section will be in attenuation mode.

When the button is up, that section is bypassed.

All buttons up or bypass button up gives 0dB attenuation.

All buttons down gives 11dB total attenuation.

The resulting effect on output signal is shown here

<b>dB Setting</b>	<b>Percent of Signal</b>	<b>Output W with 5 Watt Input</b>	<b>Output W with 1 Watt Input</b>
-1	79.43	3.9715	0.7943
-2	63.10	3.1550	0.6310
-3	50.12	2.5060	0.5012
-4	39.81	1.9905	0.3981
-5	31.62	1.5810	0.3162
-6	25.12	1.2560	0.2512
-7	19.95	0.9975	0.1995
-8	15.85	0.7925	0.1585
-9	12.59	0.6295	0.1259
-10	10.00	0.5000 (500mW)	0.1000 (100mW)

**Schematic:**

