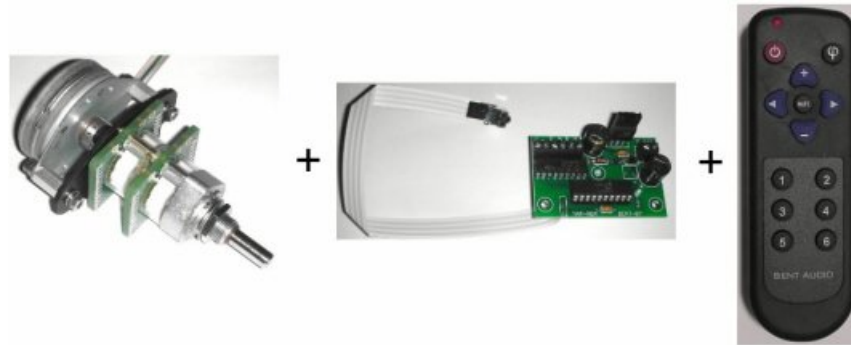


Stepped Attenuator Remote Control Kit



This document describes the options and wiring of the Bent Audio Stepped Attenuator kit. This kit can be used to add remote control function to a variety of different switches and attenuators. We can adapt the kit to many OEM switches for production orders but most commonly the kit is used with:

- 1- Goldpoint Mini-V Attenuators
- 2- Dact CT2 Attenuators.
- 3- Shallco C series 2 deck 23 position switches (Bent Audio Version with shaft extension and custom springs).

Each Kit Includes:

- Stepper Motor and Bracket with coupling hardware (0.5" standoffs for Goldpoint or 0.625" standoffs for the Dact)
- Remote PCB with 8" long ribbon cable to IR receiver.
- Remote Handset.
- In the case of the Shallco Switch kit the switch is included (pre-installed to the Motor hardware).

Note: The Goldpoint or Dact attenuators are sold separately. There are too many options of impedances for us to stock them all here at Bent Audio.....

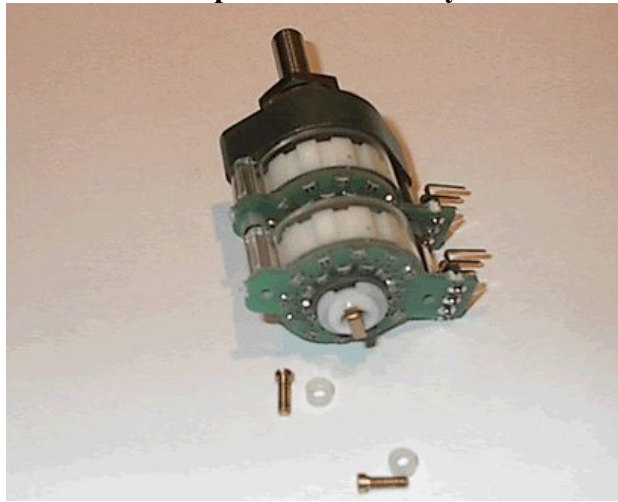
Kit Features:

- Easy 'no soldering required' hook-up – the system ships fully assembled and tested.
- Direct coupled stepper motor using custom machined mount and coupling.
- Small PCB size – can be located anywhere in the enclosure.
- Long IR range and wide window of operation.
- PCB shuts down completely when not running the motor for ZERO EMI/RFI clock noise.

Attaching the motor to the Attenuator

The following are the instructions to install and setup the remote control. Since the equipment you are installing the remote control into will vary from installation to installation we will not cover that in detail here. A brief list of final installation guidelines is given at the end of these instructions. If your kit includes the Shallco switch/motor then it has come pre-installed so skip down to “PCB Mounting and Wiring”.

Step 1- Dis-Assembly



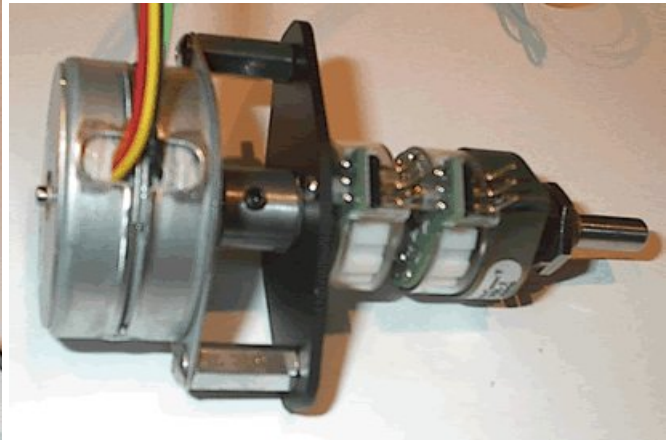
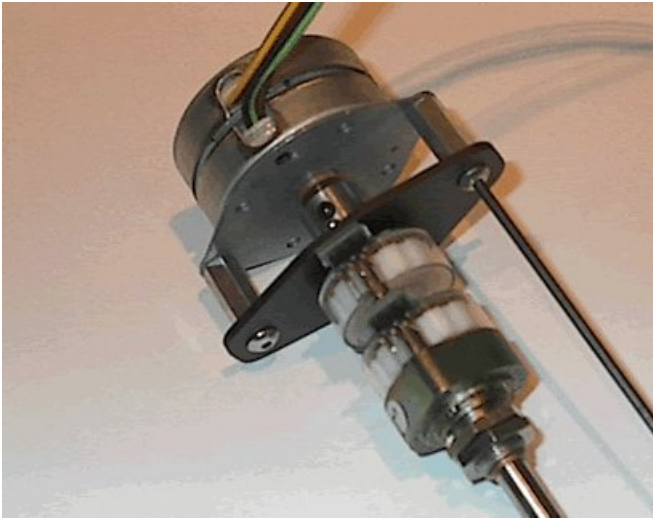
First remove the attenuator from the equipment it is installed in. Set it on a clean work area. Now using a small flat blade screw driver remove the 2 small screws from the rear side of the Attenuator. Be careful to not loose the small plastic spacers as these will be needed in step 2.

Step 2 - Install Motor Mounting Plate to DACT



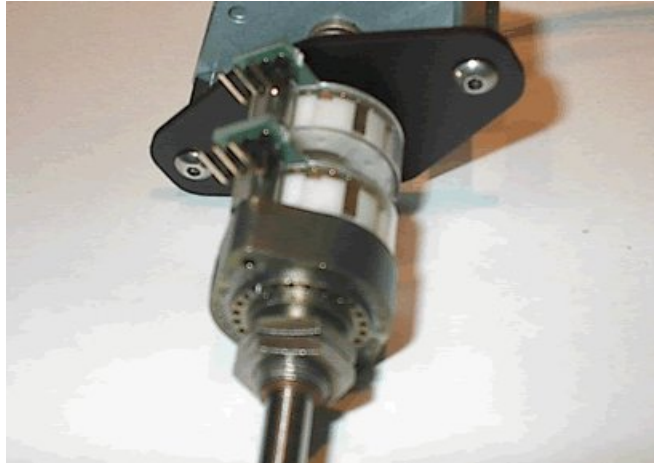
The motor mounting plate is shipped attached to the stepper motor. Remove the 2 machine screws holding the plate to the standoffs attached to the stepper motor. Locate the 2 small screws shipped inside a small parts bag and insert them through the mounting plate. Place the 2 small plastic spacers removed in step 1 on the small screws shipped with the mounting plate such that they will space the plate away from the circuit board on the back of the switch. Now attach the plate to the switch. See the Picture above for mounting details.

Step 3 - Stepper Motor to Attenuator Installation



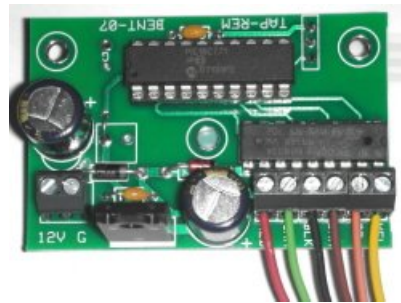
Loosen the set screw on the motor to switch coupling so that the coupling will slide easily on the motor shaft but keep the coupling on the shaft. Now re-install the stepper motor to the black motor bracket using the #6-32 machine screws removed in step 2. Next slide the slot in the coupling so that it fits over the small tab at the back of the DACT switch and tighten the set screw a bit (but not too tight as we'll be loosening it again for adjustment shortly). Spin the switch about 10 times all the way clockwise and counter-clockwise. It should turn freely much like it did before the motor was attached. The slot in the coupling is snug and make take a bit of work to seat into place. It needs to be tight like this – if it were not then the steps would not land on center of the switch steps as the switch is turned in one direction vs the other.

Step 4 - Setup and Adjustment



Now for some fun stuff! Before mounting the PCB and attenuator / motor assembly into your chassis you should wire and run the system on your workbench. This setup procedure below will align the motor step points to the attenuator step points.

Locate the remote control handset and your power supply. Wire the motor leads to the screw terminals on the PCB. Insert the bare end of each wire into the terminal with the corresponding color marked on the PCB. Tighten each screw terminal and give the wire a gentle tug to be sure a good connection was made.



Wire the power to the PCB power terminals. 15Vdc to 18Vdc is recommended for best operation. 12V should work but may require more care in switch alignment. Turn on the power supply.

Turn the switch manually so that the gold contacts of the switch are lined up with a step. Any step that is easy to see will do. For reference the switch in the picture above has been set to line up the contacts. Carefully loosen the set screw on the coupling without spinning the switch at all. Press the up or down button on the remote to spin the motor shaft (but not the switch). When the motor is stopped tighten the set screw on the coupling. Now play with the remote and see if the switch stops on the center of the steps. If not just give it another go and after a couple of attempts you'll get it to line up well.

PCB Installation and Wiring

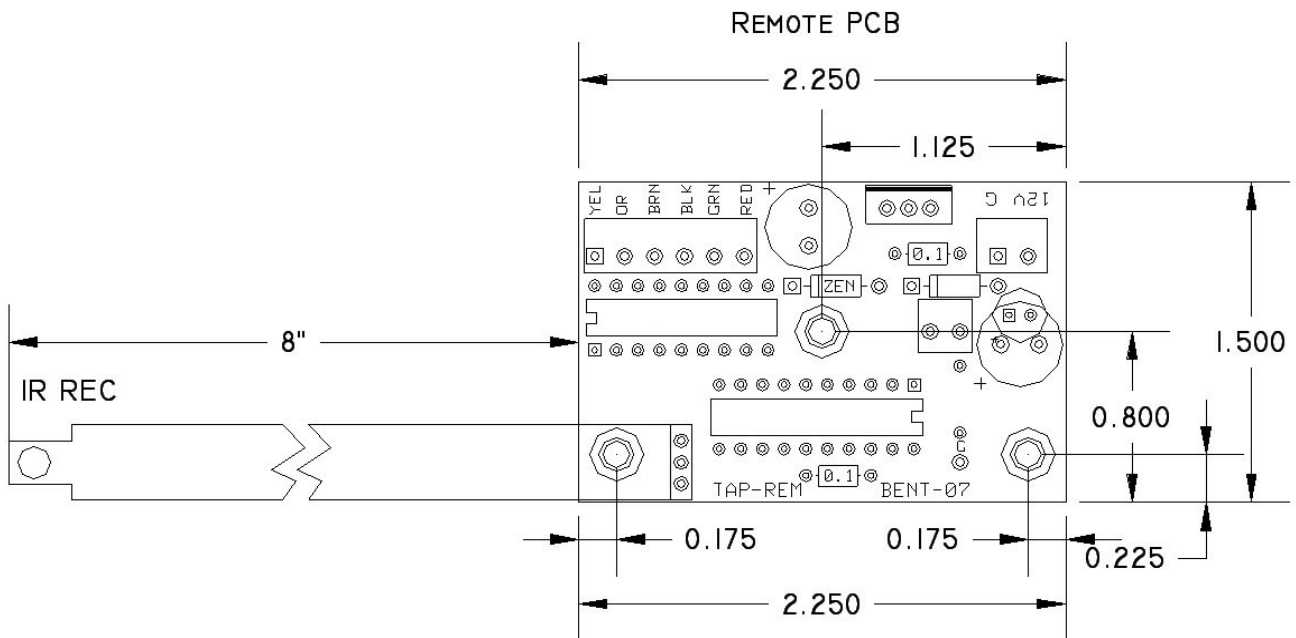
The final step is to install the attenuator back into the gear it was removed from - along with the remote control board. Since all gear is different it's hard to get specific here but basically you need to install it such that you can route the remote control IR receiver to the front panel and fasten it there (Duct tape or hot glue or silicone sealant does a pretty good job of this). A small hole will need to be drilled in the front panel if there is no other spot for the IR receiver to 'peek' through. IR extender cables are included so the board may be mounted elsewhere in the chassis. If you have any questions about installation please feel free to call or e-mail for assistance.

The PCB is very small and light – allowing for several mounting options. See the drawing at the end of this document for layout dimensions. You can mount the PCB on a single standoff in the middle position. This makes layout very easy! Alternately two or 3 standoffs can be used.

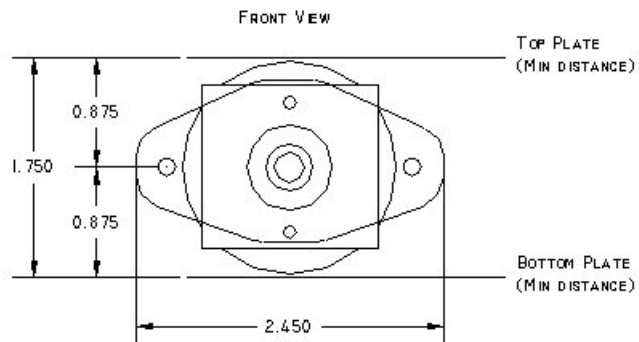
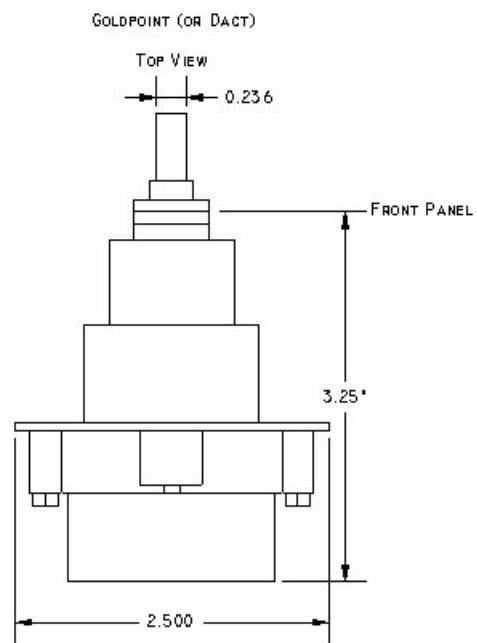
Trim the motor to PCB wires to allow neat routing inside the chassis – but leave lengths plenty long enough! Just connect the color coded wires from the stepper motor to the PCB screw terminals as you did during the setup and adjustment procedure above.

Make the power connection from your power supply to the PCB terminals as you did in the setup and adjustment procedure above.

Layout and Mounting Drawings – Remote PCB



Layout and Mounting Drawings – Goldpoint Attenuator



Layout and Mounting Drawings – Shallco Switch

