

# Assembly Instructions

## What You'll Need

1. At a minimum:
  1. Screw Driver
  2. Hammer or Mallet
  3. Soldering Iron
  4. Wire Cutters/Strippers
  5. Wood Glue
  6. Tape or Glue for the Port
2. You might also find beneficial:
  1. Clamps
  2. Electric Drill

## Flat Pack Enclosure Assembly

1. Verify all cabinet parts were received
2. Clear dust from corners of all panels. Any debris in the joints will prevent you from getting a tight, flush surface when gluing up the cabinet.
3. Assemble cabinet WITHOUT glue to ensure all panels fit together - NOTE: due to regional and seasonal humidity differences, some sanding may be required to insert braces into appropriate slots.
4. Disassemble cabinet and place panels on a clean surface, arranged for easy assembly. Take note of the recommended order of assembly in the visuals that accompany this document.
5. (OPTIONAL) Before assembly, you may drill pilot holes for mounting the crossover board using the board as a template. Use caution not to drill through the panel. The board should be mounted on the bottom panel or rear panel in a location that does not interfere with the binding posts and ensure there are a few inches of space between any inductor and the woofer magnets. This step is not necessary, but will make installation of the board easier once your cabinet is fully assembled. Screws can be pressed into the MDF cabinets without drilling if desired.
6. Apply wood glue to mating seams one at a time and assemble using the provided visuals as a guide.
  1. [Criton 1TD and 1TD-X](#)
  2. [Criton 2TD and 2TD-X MTM](#)

3. [Criton 2TD and 2TD-X Tower](#)
4. [Sealed Subwoofers](#)
5. [Passive Radiator Subwoofers](#)
6. [Bass Module](#)
7. After the cabinet is assembled and the glue fully cured, fill any gaps with wood filler or bondo and sand all surfaces flat.
8. Finish as desired using veneer, vinyl, paint, etc. (see [CSS blog post](#) for ideas).

## Crossover Assembly

1. Verify all crossover parts were received.
2. Place each component in its labeled location on the SmartNode board by putting the lead wires through the holes for the associated board location. Orientation does not matter as long as you can reach the through-holes
3. Secure the components to the board with the supplied zip ties.
  1. **NOTE FOR 3-WAY BASS MODULE ADD-ON ONLY: The bass module comes with an additional "optional" resistor configuration to tune to your room size. Using a single 2.2 Ohm resistor will result in the most amount of bass but could be overpowering for smaller and mid sized rooms. Using the second 2.2 Ohm resistor will reduce the apparent bass level slightly. This is the middle setting. Finally, you can use a jumper wire around the single 2.2 Ohm resistor for the lowest bass setting. This will work best for small rooms. We recommend assembling the crossover outside the cabinet to test before finalizing the configuration you want to use.**
4. On the backside of the board, solder leads together that share common letters (e.g. A to A, or B to B to B) using supplied hookup wire if necessary. Ensure that no bare wires are touching unintentionally.
  1. **NOTE: Crossing bare wires from non-matching letters can degrade sound quality and damage the drivers or your amplifier. If you need to run across another wire, ensure you use the insulated hookup wire supplied in your kit.**
  2. **NOTE: Inductors have an insulating coating on them. You cannot solder directly to the red or orange colored portions of the inductor wire or you will cause an open circuit. You should solder to the pre-tinned leads (silver portion) to ensure proper connection.**
5. **NOTE for 2TD-X Upgrade Only: Due to the size of the components and layout of the cabinet, the crossover board for this speaker has a separate woofer and tweeter board. You will either need two sets of wires from the binding posts (one set to the input on each board) or jumper the two boards in parallel at the input.**
6. Cut 3 lengths of wire, long enough to reach from:
  1. The binding posts on the rear panel to the crossover board
  2. The woofer terminals to the crossover board
  3. The tweeter terminals to the crossover board

4. **NOTE: Leave enough slack on these lengths to be able to reach from the crossover mounting location to the driver terminals while the driver is outside of the cabinet.**
7. **NOTE: Your kit with multiple sizes of quick-connect female terminals for the driver and binding post connections. The black connections are for the negative terminals and the red connections are for the positive terminals. Check all quick connects and match them to their appropriate locations before crimping to any wires.**
8. Identify the red quick-disconnect and black quick-disconnect that match the tweeter terminals. Attach these to one end of the wire you cut for the tweeter by stripping small amounts of insulation from the matching colored wire and crimping the connector to the exposed portion. Solder can be used to secure if desired but is not required.
  1. **NOTE : Torii kit uses all blue connectors. Verify the terminal size and correct wire before crimping.**
9. Insert the red wire through the T+ hole on the SmartNode board and solder to appropriate letter. Insert black wire through the T- hole on the SmartNode board and solder to the appropriate letter.
10. Repeat Step 6 for the woofer terminals and woofer wiring.
11. Insert the red wire through the W+ hole on the Smart Node board and solder to appropriate letter. Insert black wire through the W- hole the Smart Node board and solder to the appropriate letter.
12. Repeat Step 6 for the binding posts and input wiring.
13. Insert the red wire through the IN+ hole on the Smart Node board and solder to appropriate letter. Insert black wire through the IN- hole on the Smart Node board and solder to the appropriate letter.

## Final Assembly

**CAUTION: It is recommended to test your speaker after final assembly by starting at a very low volume and listening to each driver by placing your ear closely. You should hear highs coming from the tweeter and lows from the woofer. You should hear no crackling or static. If everything sounds normal, proceed to turn up the volume and enjoy.**

### 1. Binding Posts

1. **Towers only:** Install the terminal cup in the 3" hole. It is recommended to install the crossover board first so you can connect the wires before screwing the cup in place since you will not be able to reach the bottom of the cabinet from the inside.
2. Unscrew nuts and remove washers and terminal rings. Unscrew thumbscrew with colored stripes on opposite end of binding post and remove. Insert long threaded end of binding posts into the holes on the rear panel and tap in with a hammer, making sure to orient the through-wire openings up and down for easy accessibility. Re-install the nuts, lock-washers, and terminal ring in the following order: nut, lock-washer, terminal ring, lock washer, nut. Tighten with a small socket or wrench to

ensure they do not rattle loose. Re-install the thumbscrews on the outside of the box.

3. **NOTE: It is recommended to install binding posts after you have applied finish to your cabinet. They are difficult to remove once installed and might not fit snugly if re-installed. If you want to test your speakers before the final finish is applied, it is recommended to run jumper wires from the positive and negative input wires on the crossover out the port and to place painter's tape over the binding post holes**

## 2. Port(s)

1. Adjust port for an overall length of:
2. 9.75" for Torii model
3. 7" for P215 or P215-X models.
4. 9" for Criton 1TD/1TD-X models
5. 9" (x2 ports each) for the MTM Criton 2TD or 2TD-X models
6. 7.5" (x2 ports each) for the Tower Criton 2TD or 2TD-X models
7. Glue or tape the extension in place. If using tape, use a single wrap of thin tape so it doesn't snag during insertion in the precut hole. Insert port into opening and screw into place. Drilling pilot holes is recommended, but not necessary.

## 3. Crossover Boards

1. Mount SmartNode crossover boards inside the cabinet to the back or bottom panel using caution to not interfere with the binding posts and ensure there are a few inches of space between any inductor and the woofer magnets. Using the supplied  $\frac{3}{4}$ " long screws through the mounting holes in the SmartNode board will ensure they do not protrude through the cabinet finish. If pilot holes were drilled during enclosure assembly, align with the pilot holes and screw into place. If no pilot holes were drilled, the screws will need to be hand driven into the MDF. This can be done by pressing down with force on the screw while turning your screw driver to drive it into the MDF.
2. Attach the red input wire to the binding post terminal with the red ring. Attach the black input wire to the binding post terminal with the black ring.

## 4. Foam

1. Foam panels should be placed on enclosure walls leaving at least 2" of air space directly around the port openings. Placement on the walls directly behind the woofer will be most effective. For bookshelf speakers, we recommend placing foam on the back wall first, followed by the side walls and then bottom (and top for MTM). Foam can/should be placed over the crossover boards. Foam can be cut to size if necessary and press fit into place. Adhesive is not necessary if the foam feels secure.
2. **TOWERS ONLY:** The towers come with additional damping material (denim insulation) to help eliminate standing waves. The egg crate foam should be placed on the top of cabinet, sides, and back directly around the woofers.. The denim insulation should be placed directly on top of the brace below the second woofer cutout.
3. **NOTE: Blocking airflow to the port with foam will cause the port to not function as intended and bass output can be affected.**

## 5. Drivers

1. Pull the tweeter and woofer wires from the crossover board through the appropriate driver holes in the front of the cabinet. Connect the wires to the appropriate driver and install the drivers in the cabinet with the provided screws.

**CAUTION: It is recommended to test your speaker after final assembly by starting at a very low volume and listening to each driver by placing your ear closely. You should hear highs coming from the tweeter and lows from the woofer. You should hear no crackling or static. If everything sounds normal, proceed to turn up the volume and enjoy.**

## Troubleshooting

1. **No Sound From the Whole Speaker** - No sound from one or both speakers typically means you have a problem on the amp input side of the crossover. Check your input wires are properly connected to the crossover (including ground wires coming back to the negative connection) as well as the binding post side. Ensure the input wires and binding posts are not shorted by stray wires or other metal creating a conductive path between the negative and positive.
2. **No Sound From One Driver** - No sound from a single driver most typically results from a bad connection in the crossover. Review all connections to make sure only similar letters are on the same connection points. Ensure inductors are properly connected on tinned/bare wire and not over the insulation. Ensure there are no loose connections anywhere.
3. **Crackling Sound** – Crackling sounds are usually the result of a loose connection. Check to make sure you have secure connections on all driver and binding post wiring. Ensure crossover wiring has solid connection and solder welds are tight. You should see no movement in the joint itself. Check crossover wiring for any bare wiring that is inadvertently touching where it shouldn't. If the source cannot be identified, contact us.
4. **Amp Shuts Down** – An amp shutting down is likely caused by a straight short to ground, meaning your amp is seeing minimal or no resistive load. The most likely cause is wiring touching where it shouldn't be. Check crossover wiring for any bare wiring that is inadvertently touching where it shouldn't. Ensure binding post terminals are not inadvertently touching. An amp shutting down is likely a straight short to ground, meaning your amp is seeing no resistive load. If the source cannot be identified, contact us.
5. **Lack of Bass** – There are a few things that can cause lack of bass. Check to make sure your connections all have the same polarity on both the inside and outside of the binding post. Inverting the polarity of one speaker will lead to bass cancellations. Ensure there is free airflow around the port openings and it is not being blocked by stuffing material. Ensure the woofer is connected to the woofer W +/- section of the SmartNode board and not the tweeter T +/- section. Ensure the port is adjusted to the correct length. If the source cannot be identified, contact us.