

FF 220T • Setup Guide

This setup guide contains installation information about the Extron FF 220T Flat Field® speaker. This speaker is designed for use in plenum rated ceiling spaces and can be dropped into a standard square (2-foot by 2-foot or 600 mm by 600 mm) or rectangular (2-foot by 4-foot or 600 mm by 1200 mm with supplied cross bars) false ceiling tile space on a T-bar grid.

WARNING: May result in serious injury. Installation and service must be performed by authorized personnel only.

NOTE: The FF 220T comes in two ceiling tile configurations depending on the tile unit of measurement:

- US version (part #42-141-03) — Drops into 2' x 2' (61 cm x 61 cm) or 2' x 4' (61 cm x 122 cm) suspended tile ceilings
- Metric version (part #42-141-23) — Drops into 600 mm x 600 mm or 600 mm x 1200 mm suspended tile ceilings

Be sure to order the correct part number as the two configurations are not interchangeable and will not fit correctly.

Factors to Consider Before Installation

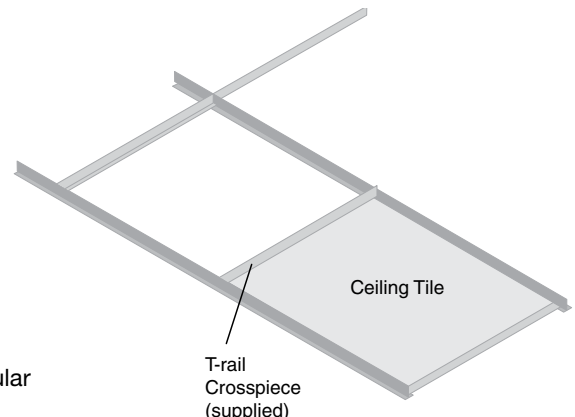
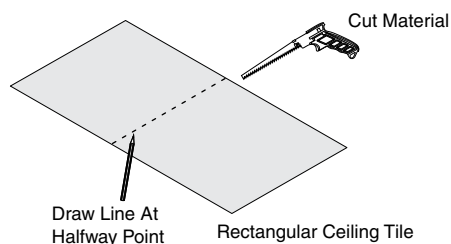
- Installation of conduit and conduit adapters must conform to all applicable building codes and local ordinances.
- Installation in a plenum-rated environment requires a wire gauge of 12 AWG to 18 AWG, as shown on the right. Conduit may be required.
- If using secondary support cables, the installer provides the cables.

Wire Gauge Table

	Number of Wires per Connection Point	Maximum Wire Gauge
8Ω Configuration	1	12 AWG
	2	14 AWG
70 V/100 V Configuration	1	14 AWG
	2	16 AWG

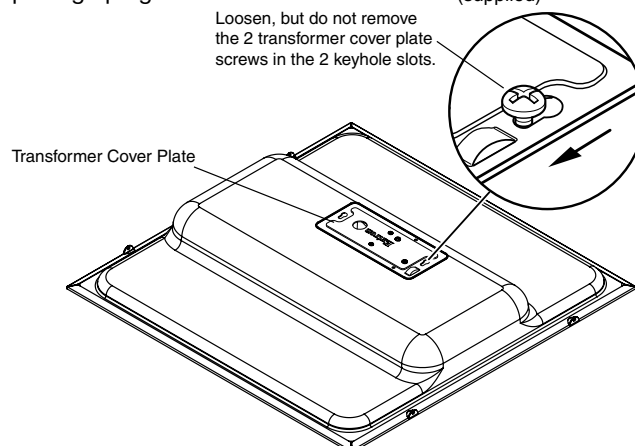
Installation

1. **Disconnect power** — Power down all attached devices before proceeding.
2. **Remove and cut ceiling tile** — Remove the square ceiling tile where the FF 220T will be installed. If the ceiling has rectangular tiles, cut the tile in half, as shown below.



3. **Install the T-rail in a rectangular tile** — When the ceiling uses rectangular tiles, install the T-rail crosspiece into the ceiling opening up against the cut tile, as shown on the right.

4. **Transformer cover plate** — Loosen, but do not remove, the two screws on the top of the transformer cover plate, as shown on the right. Next, slide and remove the transformer cover plate, which is installed with the transformer side down.

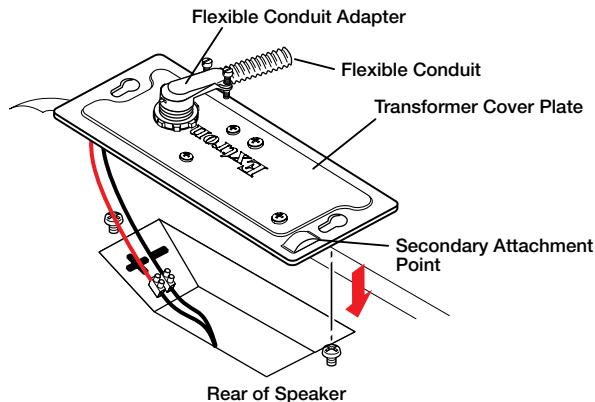


FF 220T Setup Guide (Continued)

5. Route the cables through the cover plate —

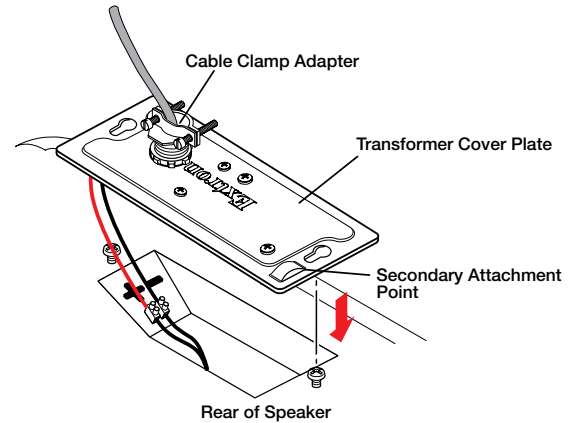
Using a flexible conduit:

- Route the wires through the conduit.
- Insert the conduit into the cover plate opening using an appropriate conduit adapter, and secure the conduit to the plate, as shown below.
- Pull the wires out of the conduit and through the cover plate.



Using speaker wires without a conduit:

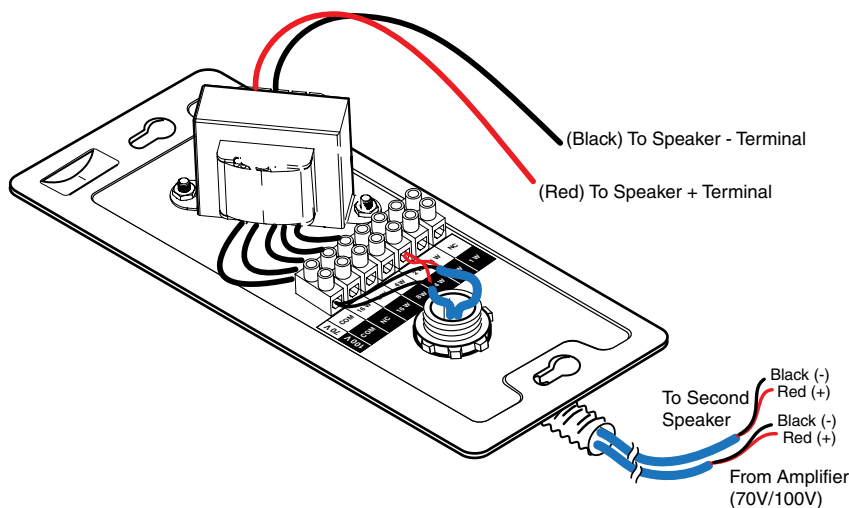
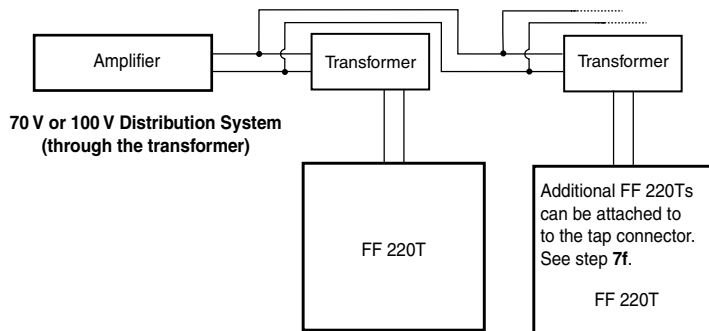
- Secure the cable clamp adapter (included) to the cover plate.
- Insert the wires through the cable clamp and cover plate, as shown below.
- Tighten the clamp screws.



6. Distributed audio system (70 V or 100 V) or direct connection —

- if wiring a 70 V or 100 V distributed system and using the transformer, proceed to step 7.
- if bypassing the transformer and wiring directly from the amplifier, proceed to step 9.

7. For 70 V or 100 V distributed audio systems, connect cables from the amplifier to the transformer on the FF 220T transformer cover plate.



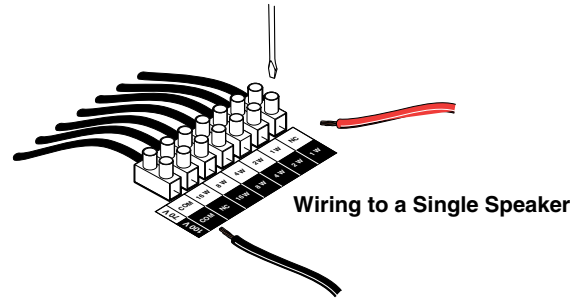
- Pull the wires from the amplifier through and out of the conduit, if a conduit is used.
- Route the two wires from the amplifier through the cover plate hole to the transformer side. See the wire gauge table on page 1 for maximum speaker wire sizes.

FF 220T Setup Guide (Continued)

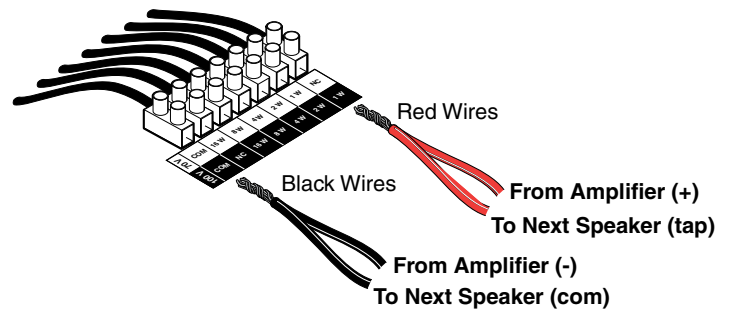
- c. Strip 3/16" (5 mm) from the wire ends and keep the wire end strands together by twisting them. Do not tin the wires.
- d. Secure the wires to the appropriate taps on the captive screw connectors of the 7-connector terminal block (on the transformer side of the cover plate) as indicated on the tap label. See the note below. The black, negative (-) wire attaches to the "COM" terminal, and the red, positive (+) wire attaches to the desired terminal tap. See the diagram at right.

NOTE: Observe the 70 V or 100 V system designation as indicated on the tap label.

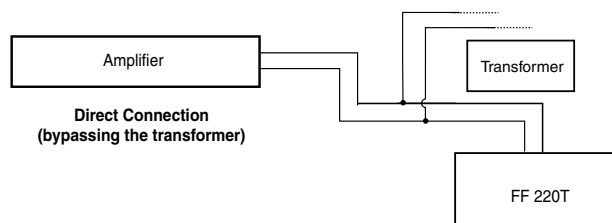
70 V	COM	16 W	8 W	4 W	2 W	1 W	NC
100 V	COM	NC	16 W	8 W	4 W	2 W	1 W



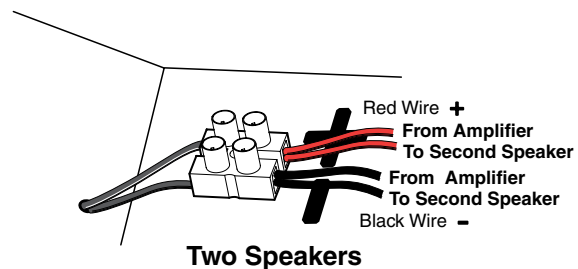
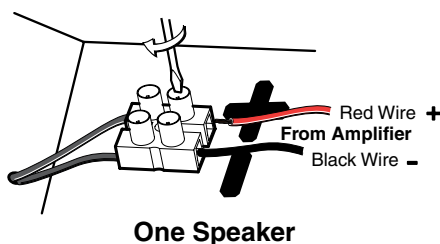
- e. Use a small flat blade screwdriver to tighten the terminal block screws.
- f. To wire additional speakers, route speaker wires from the second speaker through the cover plate hole to the transformer side, and twist the black negative (-) wires together and twist the red positive (+) wires together before inserting them into the terminal block. Additional speakers can be daisy chained this way, as shown at right.



8. Connect wires from the transformer to the speaker.
 - a. Keep the wire strands together by twisting them (do not tin the wires).
 - b. Connect the red positive (+) wire to the + speaker terminal and connect the black negative (-) wire to the - speaker terminal as shown below.
 - c. Proceed to step 10.
9. For direct speaker connection, see the block diagram below.
 - a. Route the wires from the amplifier to the speaker using the same procedure for routing speaker wire (and conduit if applicable) through the transformer cover plate as described in steps 4 through 7b (see the wire gauge table on page 1 for maximum speaker wire sizes). Strip 3/16 inch (5 mm) from the ends of the two speaker wire leads (+ and -) coming from the amplifier. Keep the wire strands together by twisting them (do not tin the wires), and secure the wires to the input terminals of the speaker while observing the correct polarity.

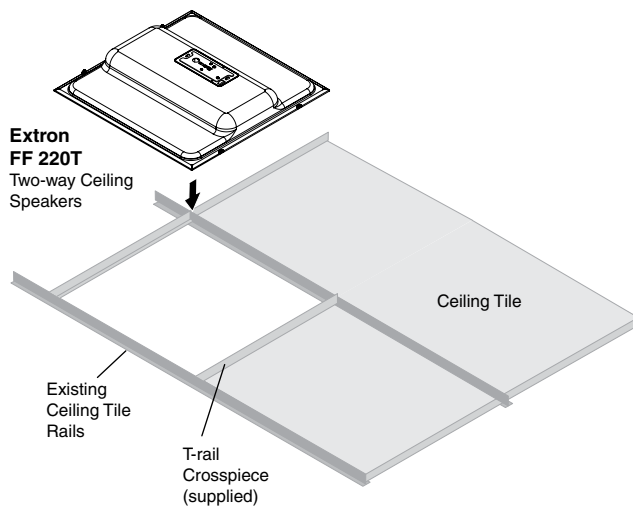


- b. Connect the red positive (+) wire to the + speaker terminal and connect the black negative (-) wire to the - speaker terminal depending on whether one or two speakers are being connected, as shown below.



FF 220T Setup Guide (Continued)

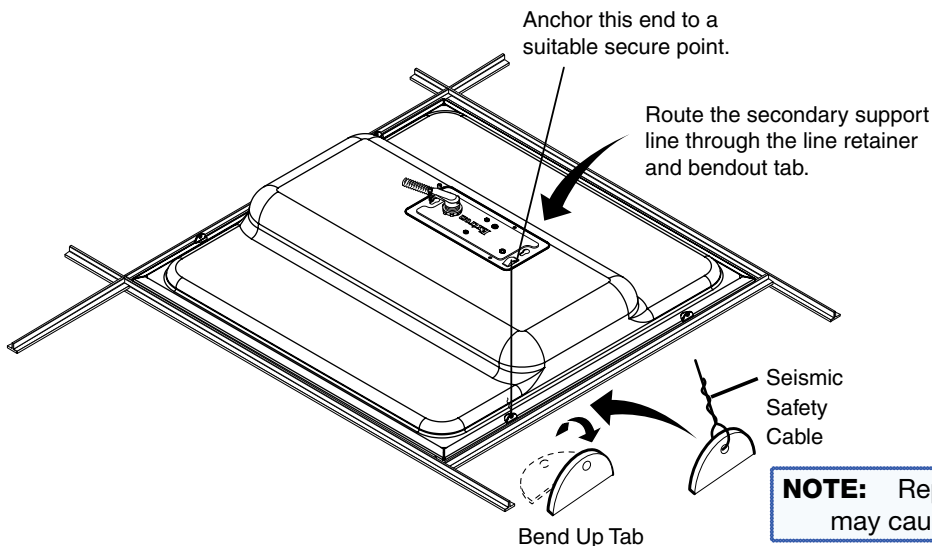
10. Replace the transformer cover plate and tighten the two cover plate screws that were loosened in step 4.
11. Set the speaker on top of a T-rail making sure to hide the edges behind the grid rail.



12. If secondary support cables are being used, install them. See the illustration below.

ATTENTION: DO NOT allow any slack in these support cables.

NOTE: Observe all applicable building codes and local ordinances when installing the speaker.



NOTE: Repeated bending of the tab
may cause it to break off.

- a. Temporarily remove a ceiling tile adjacent to the speaker and set it aside.
 - b. Connect a secondary support cable through the secondary attachment point, and attach it to one of the bendout tabs located on either side of the speaker.
 - c. Attach the other end of the cable to a sturdy part of the building (studs, roof struts, and so forth).
 - d. For additional secondary support cables repeat as needed. Refer to the *FF 220T User Guide* for further details.
 - e. Replace all ceiling tiles.
13. Check all wiring before powering up the amplifier.

Extron Headquarters +800.633.9876 Inside USA/Canada Only		Extron Europe +800.3987.6673 Inside Europe Only	Extron Asia +65.6383.4400 +65.6383.4664 FAX	Extron Japan +81.3.3511.7655 +81.3.3511.7656 FAX	Extron China +86.21.3760.1568 +86.21.3760.1566 FAX	Extron Middle East +971.4.299.1800 +971.4.299.1880 FAX	Extron Korea +82.2.3444.1571 +82.2.3444.1575 FAX	Extron India 1800.3070.3777 (Inside India Only) +91.80.3055.3777 +91.80.3055.3737 FAX
Extron USA - West +1.714.491.1500 +1.714.491.1517 FAX	Extron USA - East +1.919.850.1000 +1.919.850.1001 FAX	+31.33.453.4040 +31.33.453.4050 FAX						