Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

FF 120T • Setup Guide

This setup guide contains installation information about the Extron FF 120T Flat Field® speaker. This speaker is designed for use in plenum rated ceiling spaces and can be dropped into a standard 2 feet by 2 feet or 2 feet by 4 feet (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.

Factors to Consider Before Installation

- All wiring and electrical connections must conform to all applicable building codes and local ordinances.

- Installation in a plenum-rated environment requires plenum rated cable or conduit.

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

- If using secondary support cables, the installer provides the cables.

Installation

1. **Disconnect power** — Power down all attached devices before proceeding.

2. **Remove and cut ceiling tile** — Remove the ceiling tile where the FF 120T will be installed. Cut out a 12-inch section from either end of the tile where the speaker will be installed, as shown below.

End Section
24"
12"
Cut Material
48"
Draw Line
24" x 48" Ceiling Tile
24"
12"
24"
24" x 24" Ceiling Tile
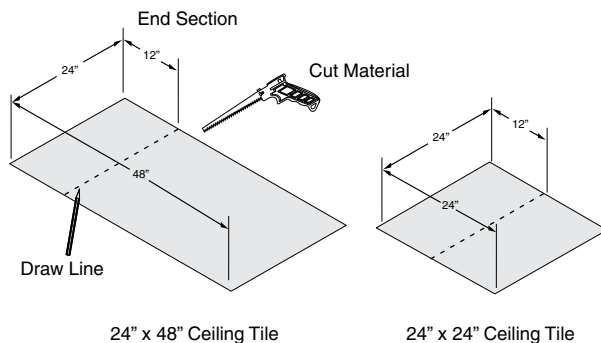
3. **Install the T-rail** — Install the T-rail crosspiece into the ceiling opening up against the cut tile.

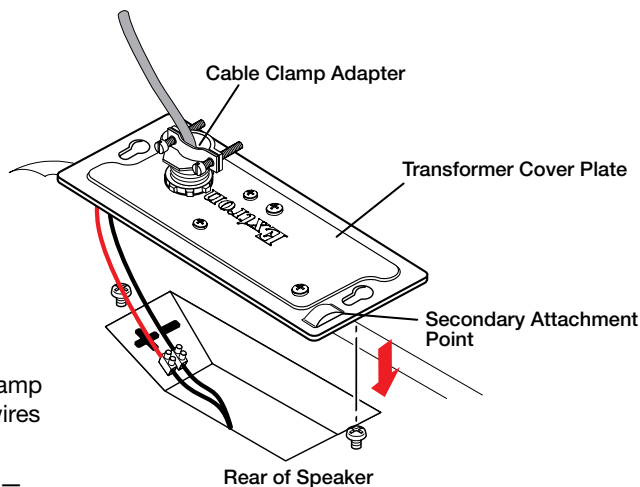T-rail (1)

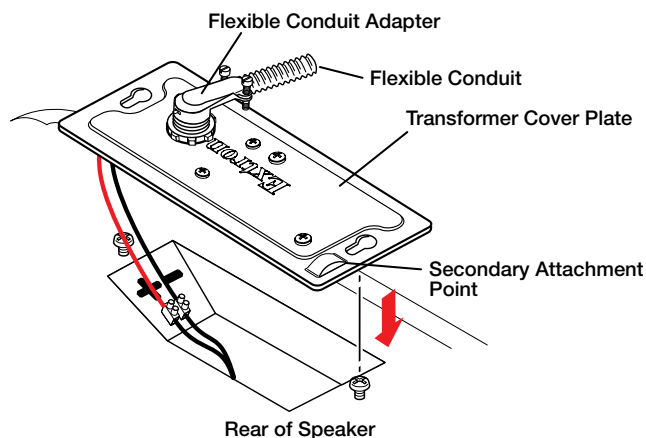Loosen, Do Not Remove
Transformer Cover Plate
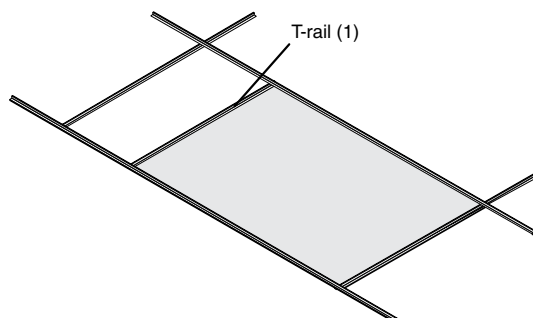
4. **Transformer cover plate** — Loosen, but do not remove, the two screws on the top of the transformer cover plate, as shown at right. Next, slide and remove the transformer cover plate, which is installed with the transformer side down.
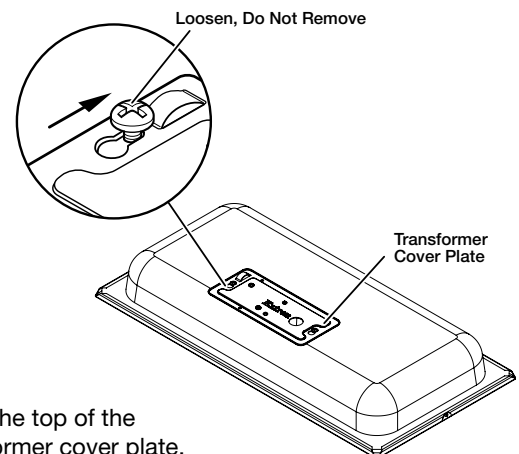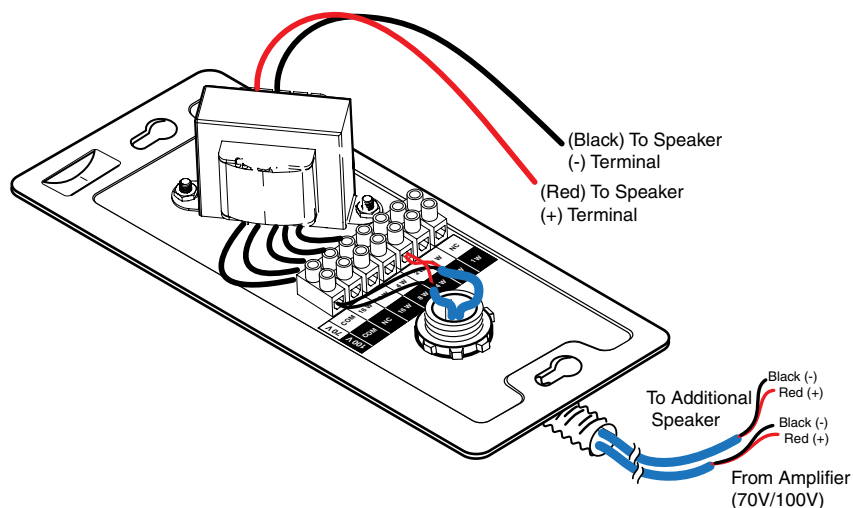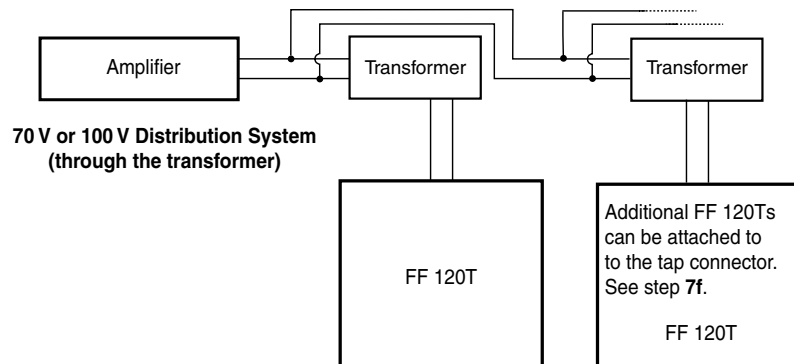
5. **Using Flexible Conduit** — When using flexible conduit, insert the conduit into the cover plate opening using an appropriate conduit adapter, and secure the conduit to the plate as shown below.

Flexible Conduit Adapter
Flexible Conduit
Transformer Cover Plate
Secondary Attachment Point
Rear of Speaker

Cable Clamp Adapter
Transformer Cover Plate
Secondary Attachment Point
Rear of Speaker

When using speaker wires without a conduit, secure the cable clamp adapter (included) to the transformer cover plate and insert the wires through the clamp. Tighten the screws as shown at right.

6. **Distributed audio system (70 V or 100 V) or direct connection** —
   • if wiring a 100 V or 70 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. Connect cables from the amplifier to the transformer on the FF 120T transformer cover plate.

Amplifier
Transformer
Transformer

70 V or 100 V Distribution System (through the transformer)

FF 120T

Additional FF 120Ts can be attached to to the tap connector. See step **7f**.

FF 120T

(Black) To Speaker (-) Terminal
(Red) To Speaker (+) Terminal

To Additional Speaker

Black (-)
Red (+)
Black (-)
Red (+)

From Amplifier (70V/100V)

a. Pull the wires from the amplifier through and out of the conduit, if a conduit is used.

b. Route the two wires from the amplifier through the cover plate hole to the transformer side. See the wire gauge table on page **1**.

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.
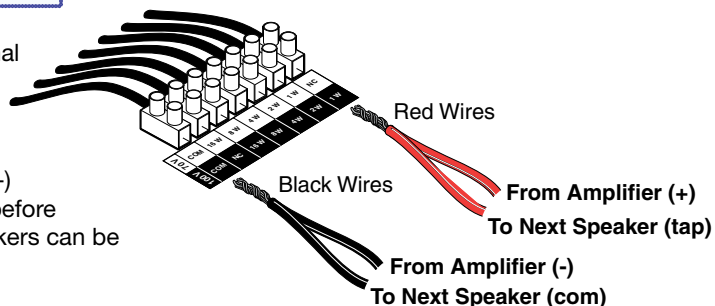
d. Secure the wires to the appropriate taps on the captive screw connectors of the 7-connector terminal block (on the transformer side of the cover plate) as indicated on the tap label (see the note below). The black negative (-) wire attaches to the "COM" terminal, and the red positive (+) wire attaches to the desired terminal tap (see the diagram at right).

Wiring to a Single Speaker

> **NOTE:** Observe the 70 V or 100 V system designation as indicated on the tap label.
>
> | | COM | 16 W | 8 W | 4 W | 2 W | 1 W | NC |
> |---|---|---|---|---|---|---|---|
> | **70 V** | COM | 16 W | 8 W | 4 W | 2 W | 1 W | NC |
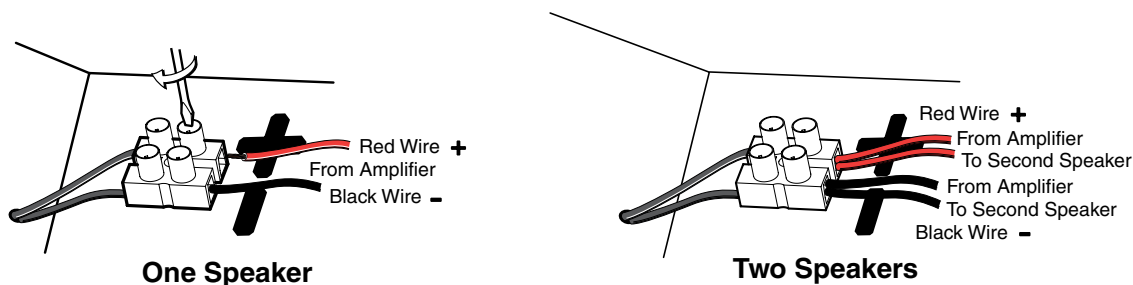> | **100 V** | COM | NC | 16 W | 8 W | 4 W | 2 W | 1 W |
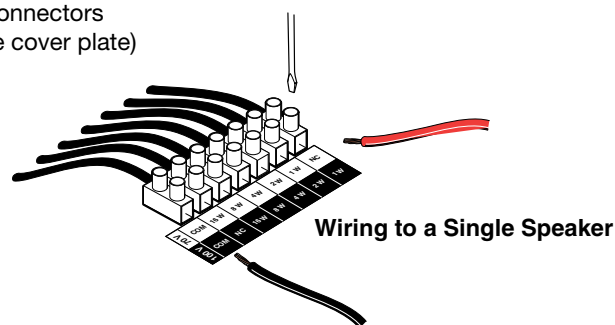
e. Use a small flat blade screwdriver to tighten the terminal block screws.

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

Red Wires
Black Wires
From Amplifier (+)
To Next Speaker (tap)
From Amplifier (-)
To Next Speaker (com)

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 in step **9b** below.

c. Proceed to step **10**.

9. See the following block diagram.

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**). 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.
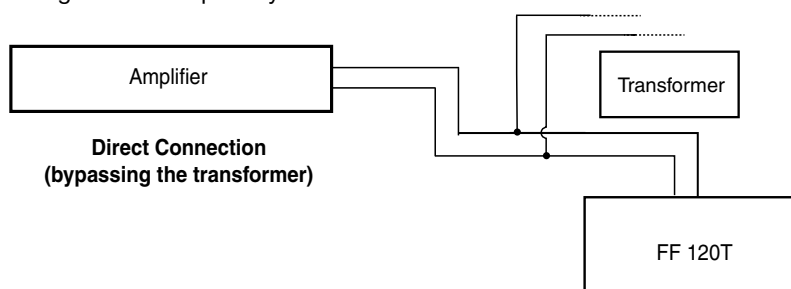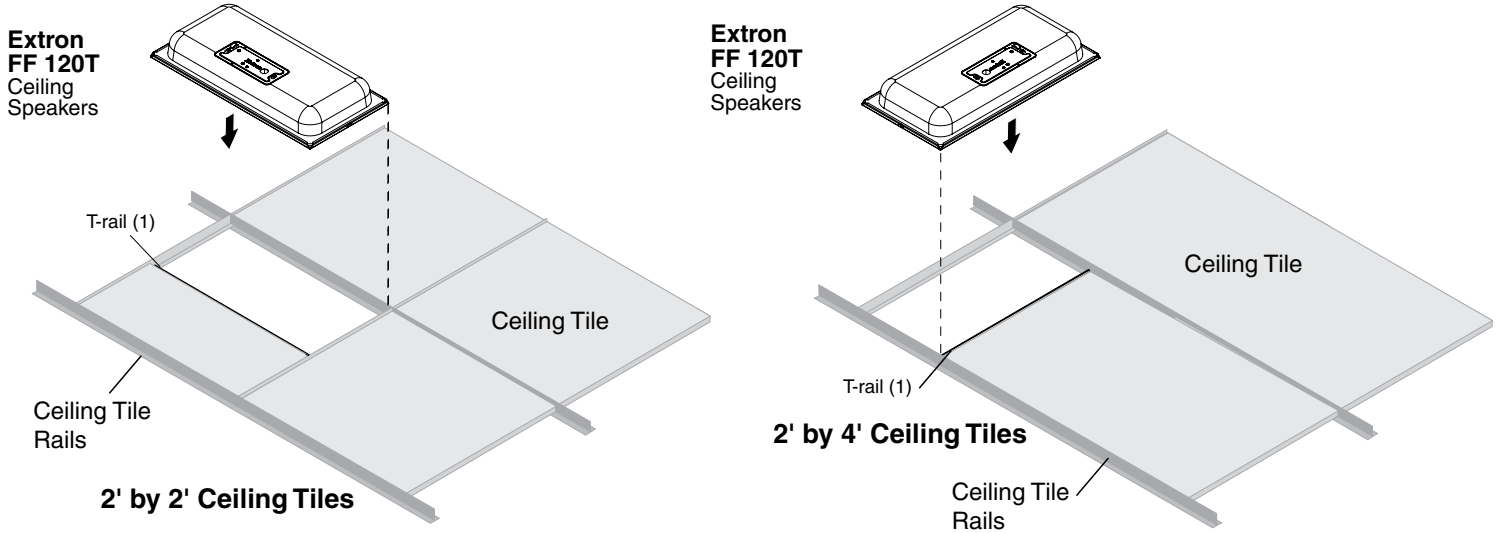

Amplifier

Direct Connection
(bypassing the transformer)

Transformer

FF 120T

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.

Red Wire **+**
From Amplifier
Black Wire **-**

One Speaker

Red Wire **+**
From Amplifier
To Second Speaker
From Amplifier
To Second Speaker
Black Wire **-**

Two Speakers

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.

Extron
FF 120T
Ceiling
Speakers

T-rail (1)

Ceiling Tile

Ceiling Tile
Rails

2' by 2' Ceiling Tiles

Extron
FF 120T
Ceiling
Speakers

Ceiling Tile

T-rail (1)

2' by 4' Ceiling Tiles

Ceiling Tile
Rails

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.

Anchor this end to a
suitable secure point.

Route the seconday support cable
through the secondary attachment point
and bendout tab.

Secondary
Support Cable

Bendout Tab (2)
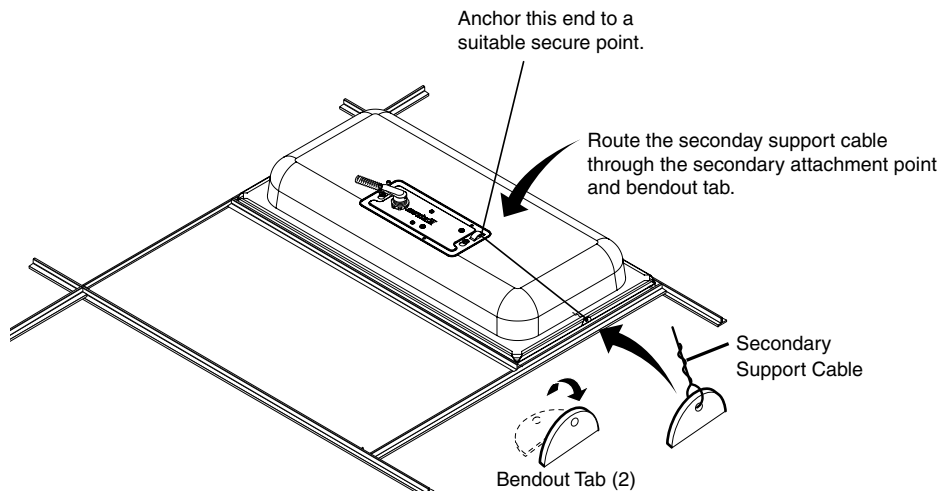
> **ATTENTION:** Repeated bending of the tab may cause it to break off.

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 on).

d. For additional secondary support cables repeat as needed (see the *FF 120T User Guide* for further details).

e. Replace the ceiling tile removed in step **12a**.

13. Check all wiring before powering up the amplifier.

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Rev. **C**
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