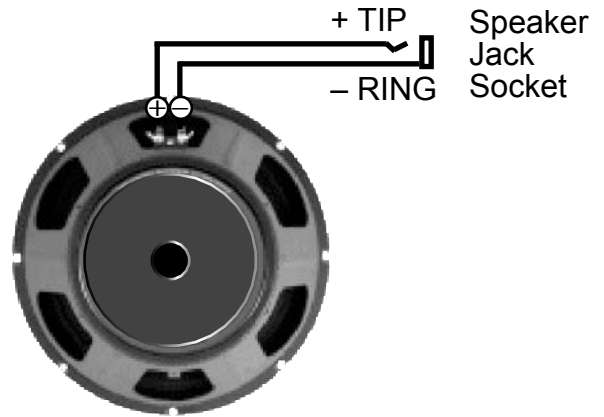


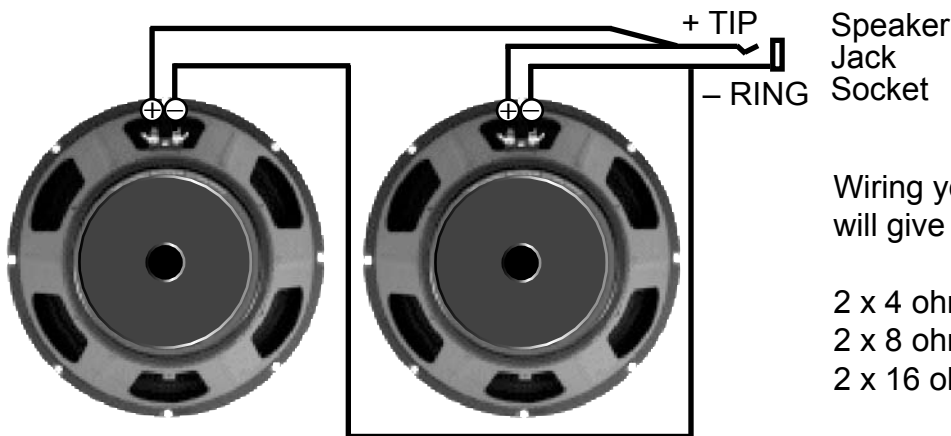
Speaker Wiring Diagrams

There are many different combinations for wiring your guitar/bass speakers. If you are just replacing your speakers, be sure to wire them as they were. If you are building a new cabinet, check what is the best impedance load for your amp and wire accordingly. These are just some of the more common set-ups for guitar and bass cabinets.

Single Speaker Wiring Connection



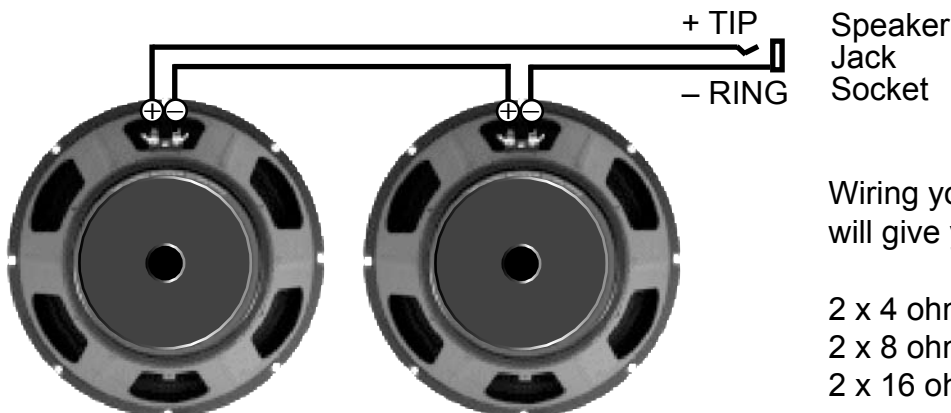
Two Speaker Parallel Wiring Connection



Wiring your speakers in parallel like this will give you the following impedances:

- 2 x 4 ohm speakers = 2 ohm load
- 2 x 8 ohm speakers = 4 ohm load
- 2 x 16 ohm speakers = 8 ohm load

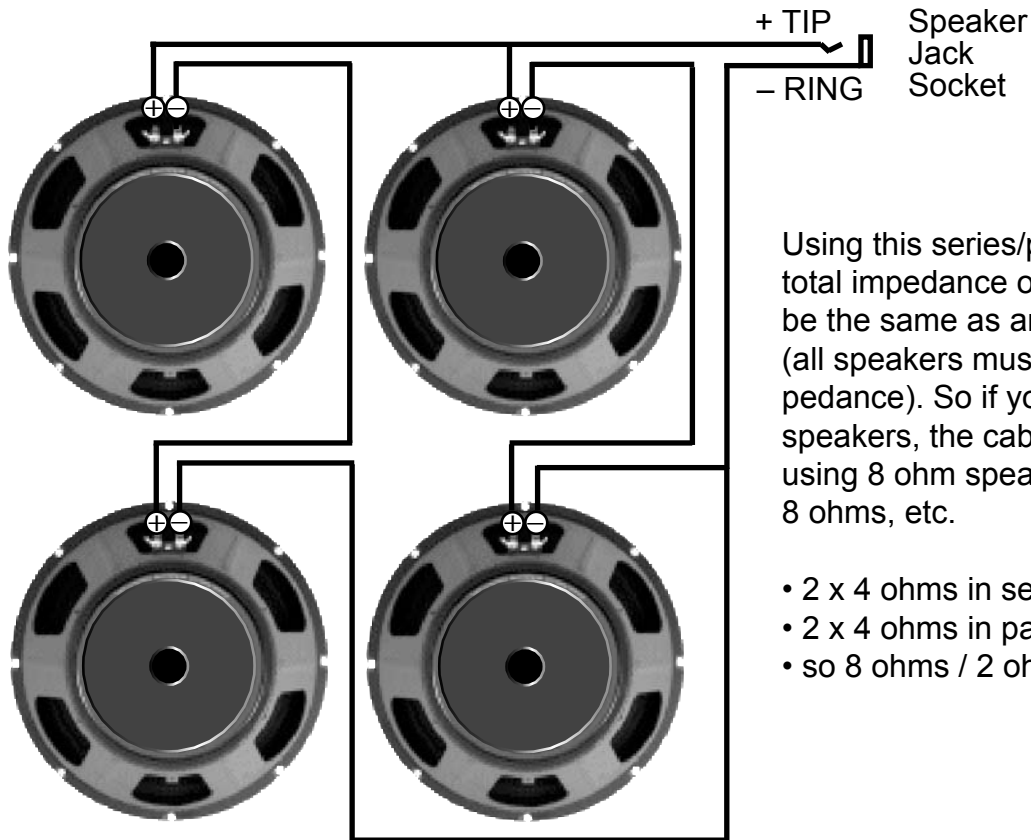
Two Speaker Series Wiring Connection



Wiring your speakers in series like this will give you the following impedances:

- 2 x 4 ohm speakers = 8 ohm load
- 2 x 8 ohm speakers = 16 ohm load
- 2 x 16 ohm speakers = 32 ohm load

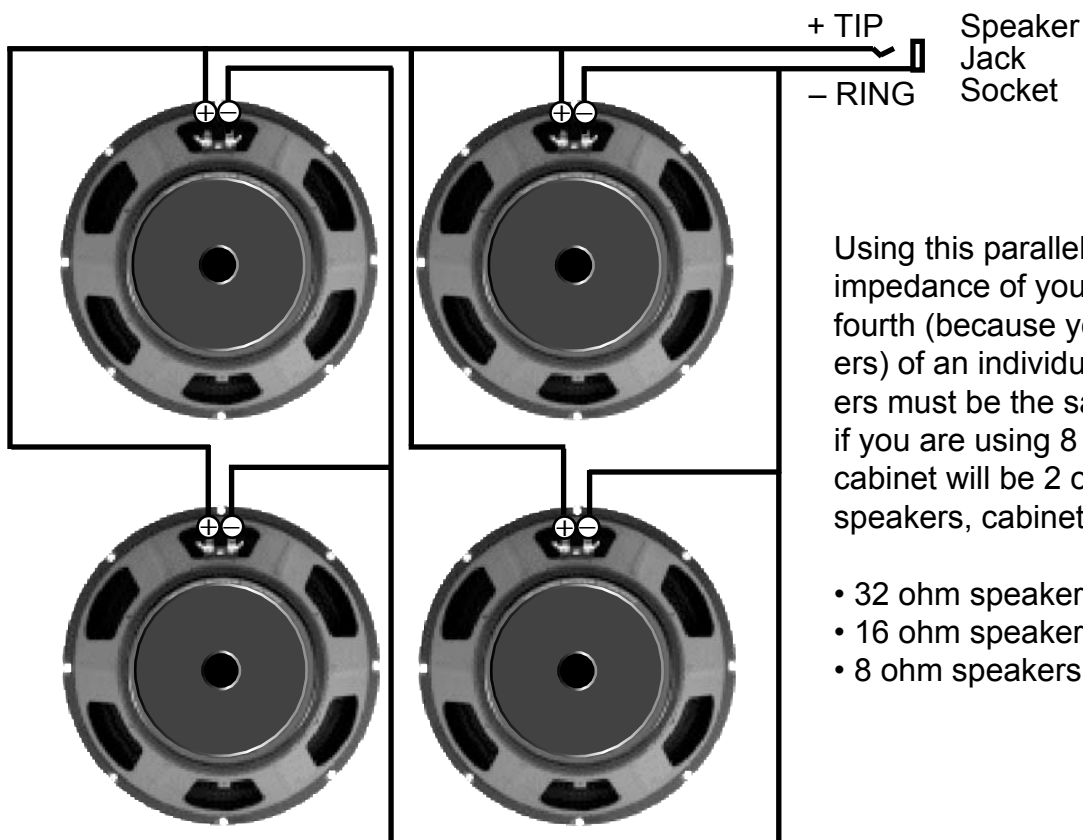
Four Speaker Series/Parallel Wiring Connection



Using this series/parallel wiring, the total impedance of your cabinet will be the same as an individual speaker (all speakers must be the same impedance). So if you are using 4 ohm speakers, the cabinet will be 4 ohms. If using 8 ohm speakers, cabinet will be 8 ohms, etc.

- 2 x 4 ohms in series = 8 ohms
- 2 x 4 ohms in parallel = 2 ohms
- so 8 ohms / 2 ohms = 4 ohms total

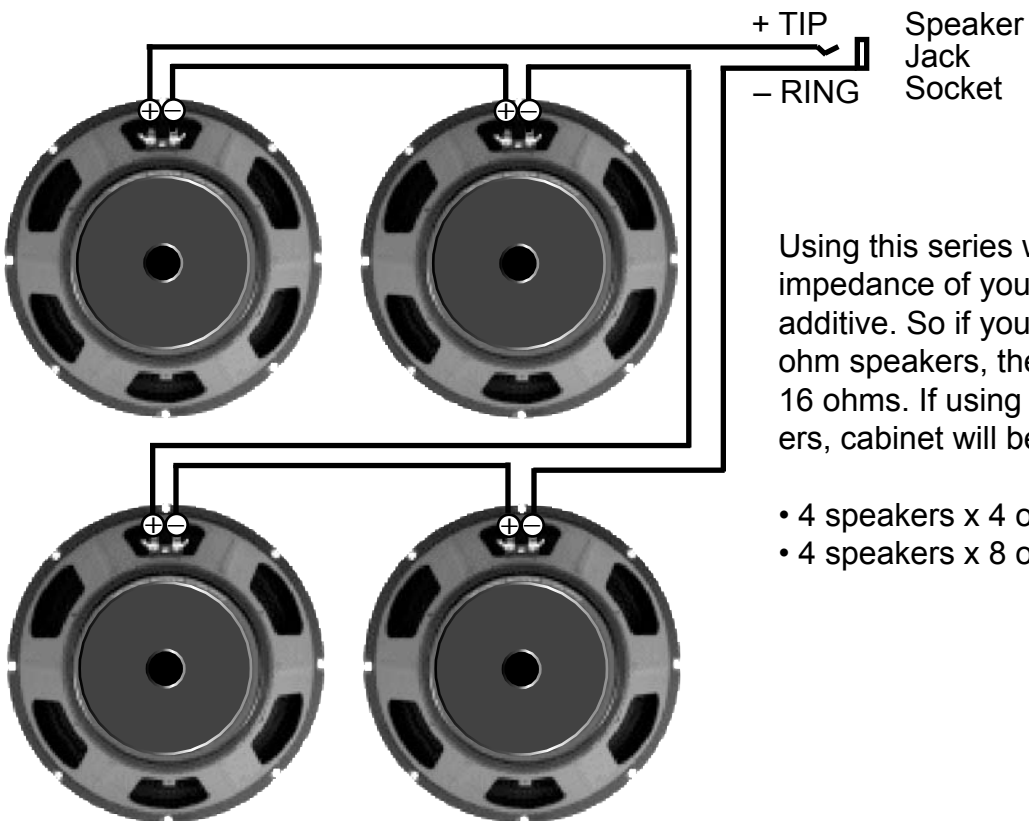
Four Speaker Parallel Wiring Connection



Using this parallel wiring, the total impedance of your cabinet will be one fourth (because you are using 4 speakers) of an individual speaker (all speakers must be the same impedance). So if you are using 8 ohm speakers, the cabinet will be 2 ohms. If using 16 ohm speakers, cabinet will be 4 ohms, etc.

- 32 ohm speakers / 4 = 8 ohms
- 16 ohm speakers / 4 = 4 ohms
- 8 ohm speakers / 4 = 2 ohms

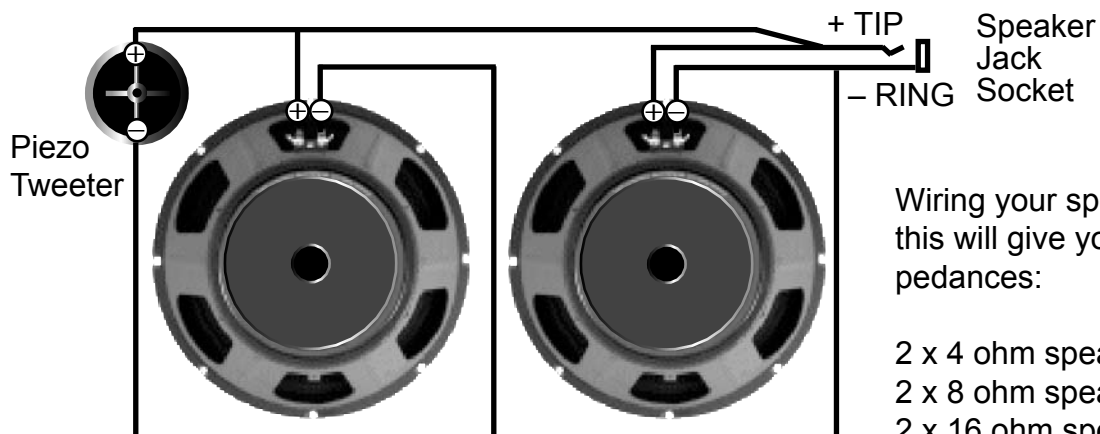
Four Speaker Series Wiring Connection



Using this series wiring, the total impedance of your cabinet will be additive. So if you are using (4) 4 ohm speakers, the cabinet will be 16 ohms. If using (4) 8 ohm speakers, cabinet will be 32 ohms, etc.

- 4 speakers x 4 ohms = 16 ohms
- 4 speakers x 8 ohms = 32 ohms

Two Speaker w/Piezo Parallel Wiring Connection



Wiring your speakers in parallel like this will give you the following impedances:

- 2 x 4 ohm speakers = 2 ohm load
- 2 x 8 ohm speakers = 4 ohm load
- 2 x 16 ohm speakers = 8 ohm load

Note: The power rating of the piezo tweeter should be at least half of the power rating of the speakers used in the cabinet.

Choosing The Right Connector and Wire

Most people are used to the common 1/4 inch jacks on the back of the speaker cabinets. Lately these are being replaced with Speakon connectors for ease of installation and durability. 1/4 inch jacks cannot reliably handle more than 500 watts of power. If your cabinet is being subjected to that type of power, you should move to a Speakon connector. Many people are installing both 1/4 inch and Speakon in their cabinets for guaranteed compatibility with various amps.

Most keyboard and guitar amps use 1/4 inch jacks. Some higher powered bass amp rigs and many modern power amps/PA systems are using Speakon or banana plug connectors.

It is important to use the right gauge of wire in your cabinets to connect your speakers to your connectors. If your cabinets will be handling less than 500 watts, it is probably safe to use 18 or 16 gauge wire. For more powerful amp applications, use 14 or 12 gauge wire. When in doubt, use the thicker wire as it will keep your signal cleaner and offer less resistance. Piezo tweeters in your system do not use much power and are frequency limited. 20-18 gauge wire is usually sufficient for piezos.

Note: Piezo tweeters are seen by power amps as a capacitor. Some power amps (such as Kustom) can't handle a capacitive load. When that happens, the amp goes into thermal runaway and can shut-down. To fix this, simply add a resistor in series with the piezo. The resistor can be anywhere from 2 to 20 ohms and should handle at least 5 watts. These resistors are commonly available from Radio Shack- try using an 8 ohm/20 watt variety that they carry. The resistor will not change the response of the piezo and it will actually help prevent the piezo from burning out.