Which Speaker Cable Should I Use?

Use these guidelines and charts to help choose the best speaker cable for your next job. See the Speaker Cable Basics section on the next page for more detailed descriptions of cable features and specifications.

General Considerations

- **Installation Environment —** Use direct burial rated exterior cable for runs that will be exposed to the elements or buried in the ground. Use CL2 rated cable for indoor runs inside the wall and ceiling.
- **Choose the Right Packing —** Consider where you will have to transport the cable and how it will be used. If it has to be carried up several floors by hand, lightweight nest boxes may be the best option. Spools of cable, however, can provide an advantage over nest boxes since they can be organized on a wire cart or pulling system for easier installation.
- **Conductor Gauge & Strand Count —** Higher strand-count conductors transmit frequencies more accurately. Larger wire gauge causes less power loss over a longer distance.

Speaker Cable Selection for Home Theater

- All speakers should be paired appropriately and installed so that audio will be balanced well around the listening area. Make sure that cable can be routed to every planned location.
- Size the wire based on the longest single run to a speaker, and use the same wire gauge for every speaker run. Changing the type of cable between speakers can cause noticeable differences in audio quality.
- Plan for the least amount of loss possible. Home theater sound quality depends on accurate reproduction. Most systems will need at least 16 AWG conductors for little to no loss. A system with 50% loss will never sound as good as a system with under 11% loss.

Speaker Cable Selection for Multi-Room and Outdoor Audio

- Before selecting wire, decide on either 70 volt or 4/8Ω speakers. For a couple of speakers in the dining and living room, a 4/8Ω system may be perfect, but many large applications with a lot of speakers would benefit from a 70 volt system. More speakers can run on one amplifier and smaller wire can be used with less power loss.
- Most multi-room systems have more than one speaker connected to one output. Calculate the wire size for these runs based on the total distance from the output to the farthest speaker. Use the same wire gauge and type between all speakers in the run.

Wire Distance Power Loss Chart

Use this chart to determine the wire size (AWG) needed for the cable length used. Then, select the best cable product available in that size using the Cable Type Chart on the next page.

	Power Loss % / Attenuation (dB)											
	4Ω Speaker (or 2 8Ω in parallel)				8Ω Speaker				70 Volt Speaker			
Wire Size (AWG)	**11% 0.5dB**	**21% 1.0dB**	**37% 2.0dB**	**50% 3.0dB**	**11% 0.5dB**	**21% 1.0dB**	**37% 2.0dB**	**50% 3.0dB**	**11% 0.5dB**	**21% 1.0dB**	**37% 2.0dB**	**50% 3.0dB**
12	143	311	680	1173	291	622	1352	2331	6782	14592	31830	54880
14	92	199	437	755	189	403	876	1510	4400	9457	19473	33574
16	61	128	278	479	117	255	553	954	2783	5978	13045	22491
18	41	92	201	347	87	194	405	699	2029	4361	9504	16386
20	26	51	115	199	51	107	231	398	1147	2470	5400	9310
22	15	36	80	138	36	71	163	281	804	1735	3780	6517
	These values represent how many feet of wire can be run before signal at the speaker exceeds the listed amount of loss.											

Wire Type Chart

This chart lists the model number of each cable type Binary™ offers. Find the compatible type by using the legend on the left. This chart will be updated regularly as new cable types become available.

Wire Size (AWG / # of conductors)	Indoor - Spool	Indoor - Nested Box	Outdoor - Spool
18/2			SP-182-DB-1000-BLK
18/4			SP-184-DB-1000-BLK
16/2	SP-162-500-WH	NST-162-1000-WH	SP-162-DB-500-BLK
	SP-162-500-BLK	NST-162-1000-BLK	
	SP-162-500-BLU	NST-162-500-WH	
		NST-162-500-BLK	
		NST-162-500-BLU	
		NST-162-LS-500-WHT	
		NST-162-LS-500-BLK	
16/4	SP-164-500-WH	NST-164-500-WH	SP-164-DB-500-BLK
	SP-164-500-BLK	NST-164-500-BLK	
	SP-164-500-PU	NST-164-500-PU	
		NST-164-LS-500-WHT	
		NST-164-LS-500-BLK	
14/2	SP-142-500-WHT		SP-142-DB-500-BLK
	SP-142-500-BLK		
14/4	SP-144-500-WHT		SP-144-DB-500-BLK
	SP-144-500-BLK		

Speaker Cable Basics

- **Conductor Size (AWG) —** The gauge of the conductor (AWG) is the effective diameter of the copper inside the insulation. The smaller the number, the bigger the diameter. 12AWG is larger than 14AWG. The longer the run is, the bigger the wire must be to maintain a sufficient power level.
- **Strand Count —** Strand count is the number of strands of copper that make up the conductor size described above. Two different 14AWG conductors with different strand counts are not equal in performance. The higher count cable will conduct speaker level audio signal much more efficiently than the lower strand count, resulting in better quality audio reproduction.
- **Conductor Quantity —** The number of conductors in the wire dictates how many audio channels may be carried. Every pair of conductors carries one channel of audio. Use 2-conductor cable to carry 1-channel audio. Use 4-conductor to carry 2-channel audio (like left and right for stereo).
- **Jacket Type —** Jacket types change to allow installation of the cable in special environments. Most cable is only rated for use in spaces where no air travels that could enter the occupied parts of the building. Special jackets are made to allow direct burial/outdoor use, plenum use, or for other special situations. Make sure that specially rated cables have markings left visible for inspection by local code enforcement.
- **Packaging and Length —** Speaker wire is sold in nest boxes and on spools in a box. Nest boxes are lighter-weight, and are typically cheaper. Spool boxes are heavier duty so they cost more than nest boxes. Spools can be used with carts or racks that make cable storage easier. Most cable is limited to 500 or 1000 feet in a package.
- **Naming System —** Examples— 18/2, 14/2, 14/4... The first number is the size of each conductor in AWG gauge. The second number is the total number of conductors inside the outer jacket. 18/2 means the wire has 2 individually insulated 18AWG conductors inside. 18/4 has 4 conductors inside. If there is a suffix it may indicate the cable has a special quality for use in certain environments. See ‘Jacket Types’ above.