

Speaker Cable Distance, Conductor Size, % Loss and dB Loss

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This article will provide a better understanding of **Speaker Cable Distance, Conductor Size, % Loss and dB Loss** and the supported wire gauge size for use with URC HDA amplifiers.

Speaker Cable Distance, Conductor Size, % Loss and dB Loss

What wire gauge do you need?

Wire thickness is identified by its American Wire Gauge (AWG) number. The lower the gauge number, the thicker the wire. Thicker wire presents less resistance to current flow.

Relative Wire Gauge Thicknesses



(Note: picture not to scale!)

Thick wire (12 or 14 gauge) is recommended for long wire runs, high power applications, and low-impedance speakers (4 or 6 ohms).

For relatively short runs (less than 50 feet) to 8 Ohm speakers, 16-gauge wire will usually do just fine. It is cost-effective and easy to work with. **URC HDA Amplifiers support wire gauges 12 through 18.**

Wire Gauges and Losses for a Low-Z System:

Speaker Cable Transmission Distance as a Function of Conductor Size vs. Loss

Power Loss in Cable (% Loss & dB Loss)

Speaker % Loss dB Loss AWG	4 Ohm Speaker			8 Ohm Speaker		
	11%	21%	50%	11%	21%	50%
	0.5	1.0	3.0	0.5	1.0	3.0
6	277 ft	571 ft	1930 ft	554 ft	1141 ft	3859 ft
8	174 ft	359 ft	1214 ft	349 ft	718 ft	2428 ft
10	110 ft	226 ft	764 ft	219 ft	452 ft	1528 ft
12	69 ft	142 ft	480 ft	138 ft	284 ft	959 ft
14	43 ft	89 ft	302 ft	87 ft	179 ft	604 ft
16	27 ft	55 ft	185 ft	53 ft	110 ft	371 ft
18	17 ft	35 ft	117 ft	34 ft	69 ft	234 ft
20	11 ft	22 ft	74 ft	21 ft	44 ft	147 ft
22	7 ft	13 ft	46 ft	13 ft	27 ft	91 ft
24	4 ft	9 ft	29 ft	8 ft	17 ft	57 ft

Wire Gauges and Losses for a 70 Volt System:

Speaker Cable Transmission Distance as a Function of Conductor Size vs. Loss

Power Loss in Cable (% Loss & dB Loss)

Speaker % Loss dB Loss AWG	70V Speaker		
	11%	21%	50%
	0.5	1.0	3.0
6	13580 ft	27965 ft	94548 ft
8	8546 ft	17598 ft	59498 ft
10	5377 ft	11072 ft	37434 ft
12	3376 ft	6952 ft	23505 ft
14	2127 ft	4380 ft	14809 ft
16	1305 ft	2687 ft	9085 ft
18	823 ft	1694 ft	5726 ft
20	518 ft	1068 ft	3610 ft
22	321 ft	661 ft	2234 ft
24	202 ft	417 ft	1409 ft

Additional Information & Resources:

To learn more about HDA products and programming, please see the [HDA Programmers Guide](#) or the Accelerator 3 online [Programming Guide](#).

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