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

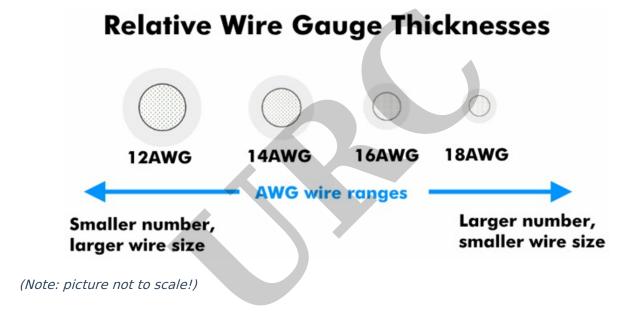
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This article will provide a better understanding of **Speaker Cable Distance**, **Conductor Size**, **% Loss and dB Loss** and the supported wire gauge size for use with URC HDA amplifiers.

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.



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) 4 Ohm Speaker 8 Ohm Speaker Speaker 11% 21% 50% 11% 21% 50% % Loss 0.5 1.0 3.0 0.5 1.0 3.0 dB Loss **AWG** 3859 ft 6 277 ft 571 ft 1930 ft 554 ft 1141 ft 8 349 ft 174 ft 359 ft 1214 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 87 ft 14 43 ft 89 ft 302 ft 179 ft 604 ft 16 55 ft 53 ft 371 ft 27 ft 185 ft 110 ft 35 ft 18 17 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 17 ft 24 4 ft 9 ft 29 ft 8 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	70V Speaker		
% Loss	11%	21%	50%
dB Loss	0.5	1.0	3.0
AWG			
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.

