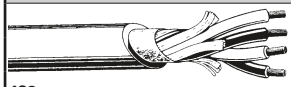
Speaker Cables (Single)

Four-conductor configuration minimizes noise and polyethylene insulation reduces induction rate to boost frequency characteristics

■ 4-conductor Speaker Cable

Type	Model	Pair cross-sec	Sales units	Nom. O.D	Weight	Composition				Electrical characteristics	
						No. of cond.	Cross sec area (AWG) mm²/(AWG)	Cond. comp Q'ty/mm	Twist pitch	Cond. D.C.R.	Nom. capacitance*
		mm²	m	mm	kg/100m				mm	Ω/100m	pF/m
 4S8	4S6	1.0	100 200	6.4	5.4	4	0.51(20)	20/0.18A	45	3.7	125
	4S8	2.5		8.3	9.5	4	1.27(16)	50/0.18A	70	1.5	145
	4S11	4.3		10.7	16	4	2.18(14)	41/0.26A	100	0.9	146

Jacket color for **4S6**: gray, black, red, blue, cream; for **4S8**: gray, black; for **4S11**: gray, black
Insulation: polyethylene (red, translucent red, white, translucent white) Jacket: PVC Dielectric strength: 500V AC/min.

*Capacitance between conductors.
★Production by order. Please ask us for ordering lot.

4S6, 4S8, 4S11

- High-performance PVC jacket, resistant to bending and twisting.
- 4S6 designed to fit snugly with Cannon XLR.

Technical Note

Four-conductor Configuration Minimizes Noise

Because speaker cables are used to transmit comparatively high frequency signals, there is always the danger of electromagnetic noise affecting microphone cables that are used to transmit signals in the very delicate range. To overcome this problem, Canare has adopted a four-conductor configuration for all of its speaker cables. As shown in Fig. 2, the centers of the four conductors are positioned equidistantly in a configuration where the magnetic fields of adjoining cables are designed to cancel each other out. This distance factor significantly enhances the attenuation effect over that of the two-conductor configuration illustrated in Fig. 3. The result is a speaker cable design with a significantly lower noise emission factor.

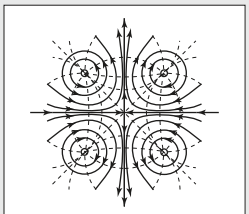


Fig.2 Electromagnetic Field Generated by Four-Conductor Cable

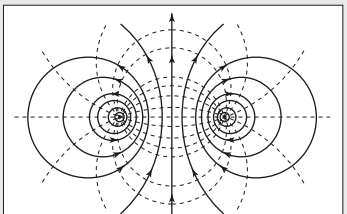


Fig.3 Electromagnetic Field Generated by Two-Conductor Cable

Selecting the Right Speaker Cable

The goal when using speaker cables is to keep them as short as possible.A rather lofty ideal, however, given the real demands of large facilities. Power amplifiers are in one location, power lines must be drawn and various other electrical systems for maintenance and safety are also in place. Economic considerations preclude splurging on the thicker, more expensive cabling. The following section describes an example for selecting speaker cables using the damping factor as the criterion.

The damping factor is the damping effect on the speaker that is determined by power amplifier performance. It is expressed using the formula shown below.

$$\text{damping factor} = \frac{\text{speaker impedance}}{\text{power amp. output impedance} + \text{speaker cable conductor resistance}}$$

The greater the damping factor the better the ability to control the speaker and create sharp, clear quality in low range output.

As the formula shows, a high conductor resistance in the speaker cable, the lower the damping factor, which prevents even quality amplifiers from performing at their best.

When selecting cables, users should aim for a higher damping factor in the range of 20 to 50 for music facilities, and a lower factor of 10 to 20 for sports stadiums, where output is mainly speech. The table below shows the damping factors (DF) for various lengths of Canare cable for use as a quick reference.

Table 1 Values calculated assuming power amplifier output impedance is 0.05Ω

Model	Pair cond. resist. (Ω/100m) & cross-sec (mm²)		Cond. resist. (Ω/100m) for return path	Cable length/damping factor	
				DF=20	DF=50
4S6	1.87/1.0mm²	AWG 17	3.7	9.5m	3.0m
4S8	0.75/2.5mm²	14	1.5	23.3	7.3
4S11	0.43/4.3mm²	11	0.87	40.2	12.6