

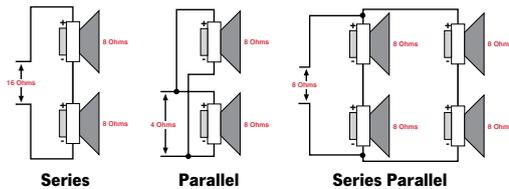
Speaker Data

Speaker Circuit Design

Wiring speakers in series: Speakers in series double the nominal speaker impedance, ie. two 8Ω speakers become 16Ω. Typically used in band PA speaker boxes, nightclub speaker systems, DJs' systems and car audio.

Wiring speakers in parallel: Speakers in parallel halve the nominal speaker impedance, ie. two 8Ω speakers become 4Ω. Typically used in band PA speaker boxes, nightclub speaker systems, DJs' systems and car audio.

Wiring speakers in series parallel: Speakers wired in series parallel are used to maintain the same impedance as a single driver. ie four 8Ω speakers wired in this configuration represents an 8Ω load to the amplifier. This arrangement substantially increases the total SPL of the system compared to one single driver.



Calculating Speaker SPL

When installing a number of speakers it is important to know the SPL (sound pressure level) that can be achieved. This enables the installer to use the right type and number of speakers. It is important to know that sound pressure level increases as the electrical input rises and falls as the distance from the speaker increases. This relationship can be expressed in the following formula: $SPL(dB) = SPL(1W/1m) - \text{Attenuation due to distance} + \text{Increase SPL for electrical input}$. For the following tables we assume the SPL is measured as being an input of 1W over a distance of 1M (1W/1m).

Attenuation of SPL due to distance

Distance(m)	2	5	10	15	20	30	40	60
Attenuation(dB)	6.0	14.0	20.0	23.5	26.0	29.5	32.0	35.6

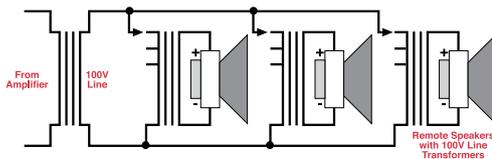
Increase of SPL due to electric input (amount of increase = 10 log W)

Electric input(W)	1	1.5	3	5	6	10	15	20
SPL increase(dB)	0	2.6	4.8	7.0	7.8	10	11.8	13

Example : Let us assume a speaker has an SPL rating of 98dB(1W/1m). If we wish to place this speaker at a distance of 20 metres whilst tapped at 10W we can equate the SPL thus:

$$SPL = 98 - 26 \text{ dB}(20m) + 10\text{dB}(10W) = 82 \text{ dB}$$

100V Line Speakers



Wiring speakers in parallel for 100V line: Where several speakers are to be used at one time, on one circuit, it becomes necessary to use speakers fitted with line-matching transformers. This is to overcome the effects of connecting speakers in parallel and cable losses. The amplifier generally has an output voltage of 100 Volts. In this configuration the total Wattage load on the amplifier is derived from adding all the line transformer primary tap ratings together. For example, 70 one Watt speakers will have a total speaker load of 70 Watts. Or alternatively, it is conceivable to connect 100 one Watt speakers to a 100 Watt, 100 Volt line amplifier.

Measuring 100V Line Speaker Impedance: To measure amplifier system load, you must use an impedance meter in order to measure the AC resistance of the connected speaker network. Impedance cannot be measured with a standard multimeter, as this measures the DC resistance. Use the Q 2003 impedance meter or similar.

Redback Fire Speaker SPL for given Power Tap ± 2dB

Redback Model	Reference 1W@1M	0.33W	0.66W	1.25W	2.5W	5W	7.5W	10W	15W
C 2160/61	89	84	87	90	93	96	—	—	—
C 2170/71	90	85	88	91	94	97	—	—	—
C 2260/61	89	84	87	90	93	96	—	—	—
CF0703/04	98	83	86	89	92	95	—	—	—
CF0715/16	93	88	91	94	97	100	—	—	—
CF0720/21	96	—	—	97	100	103	—	106	108
CF2053B/G/W	98	—	—	99	102	105	107	108	—

▼ Speaker Drivers

Square Micro 30mm

400mW nominal, 800mW max, 8Ω. As used in telephones, fax machines, modems etc. 5mm thick. Diagonal mounting hole centres at 37mm.



ROHS

Price Each	RRP	10+	20+
C 0606	4.50	4.05	3.60

Mini 57mm (2.25")

700mW, 8Ω. Popular for use in kits. Large ferrite magnet. Fixed using glue or clamping bracket.



Price Each	RRP	10+	20+
C 0610	3.25	2.95	2.60

87mm (3.4") Square

Paper cone speaker with square chassis. Dual tap 4 & 8 ohm type. 4 Watts max. 100mm diagonal hole centres.



Price Each	RRP	10+	20+
C 0612D 4Ω, 8Ω	7.50	7.00	6.50

8Ω Mylar Cone Round

With mylar cone for added weather resistance. Fixed using glue or clamping bracket.

C 0600A 40mm 100mW RMS, 200mW MAX. 8Ω.

C 0603C 50mm 1W RMS, 2W MAX. 8Ω.



ROHS

Price Each	RRP	10+	20+
C 0600A 40mm	3.95	3.50	3.00
C 0603C 50mm	4.95	4.50	3.95

100mm (4")

5 watt max. 4 and 8Ω taps. Great for use in intercoms, as monitor speakers, etc. Diagonal mounting hole centres at 117mm.



Price Each	RRP	10+	20+
C 0616	6.85	6.15	5.50

8Ω Mylar Cone Square

With mylar cone for added weather resistance. *Diagonal measurement in mm.



ROHS

Model	Hole centres*
C 0604B	57
C 0611B	76
C 0613	76
C 0614A	76

Price Each	RRP	10+	20+
C 0604B 50mm 1W 8Ω	4.50	3.95	3.50
C 0611A 63mm 3W 8Ω	6.50	5.90	5.25
C 0613 63mm 5W 8Ω	6.50	5.90	5.25
C 0614A 66mm 2W 8Ω	7.95	7.50	6.50