



# **Simulation Tools in Sound Reinforcement: Multichannel Digital Audio Cinema Design**

**Athens Course UPM94  
17-21 November 2014  
Madrid**



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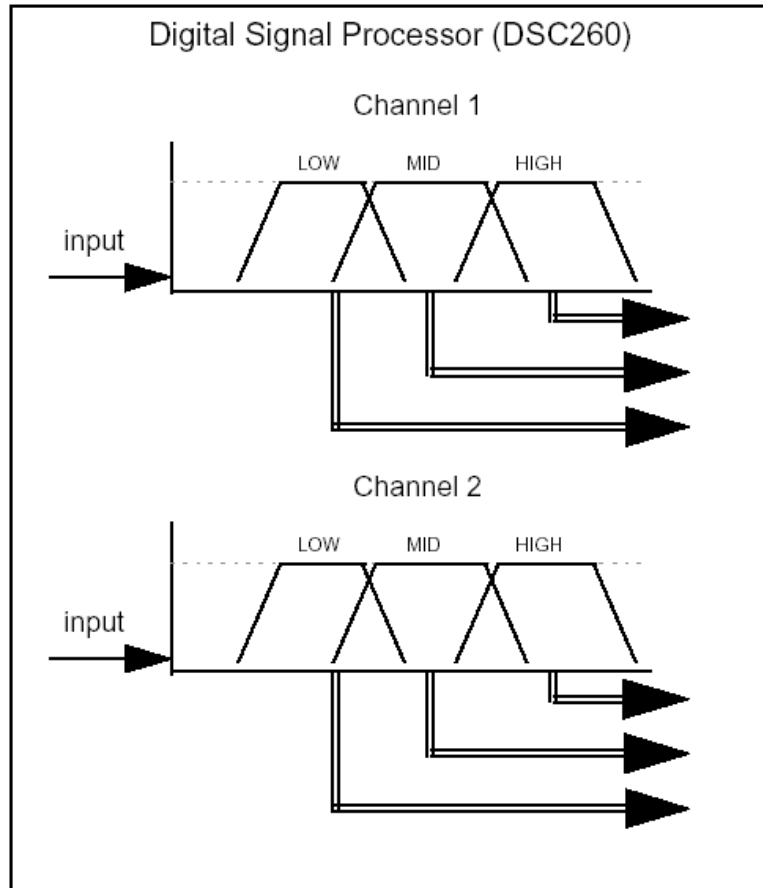
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3. DESIGN AND DIMENSIONING OF A CINEMA THEATRE
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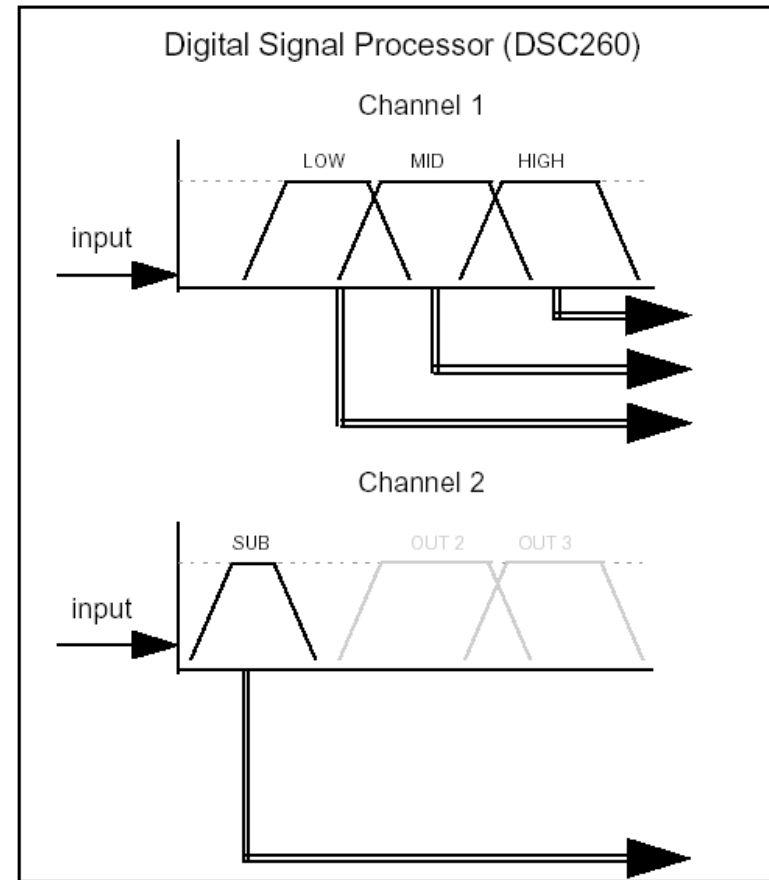
# SYSTEM SETTINGS



**First unit**



**Second Unit**

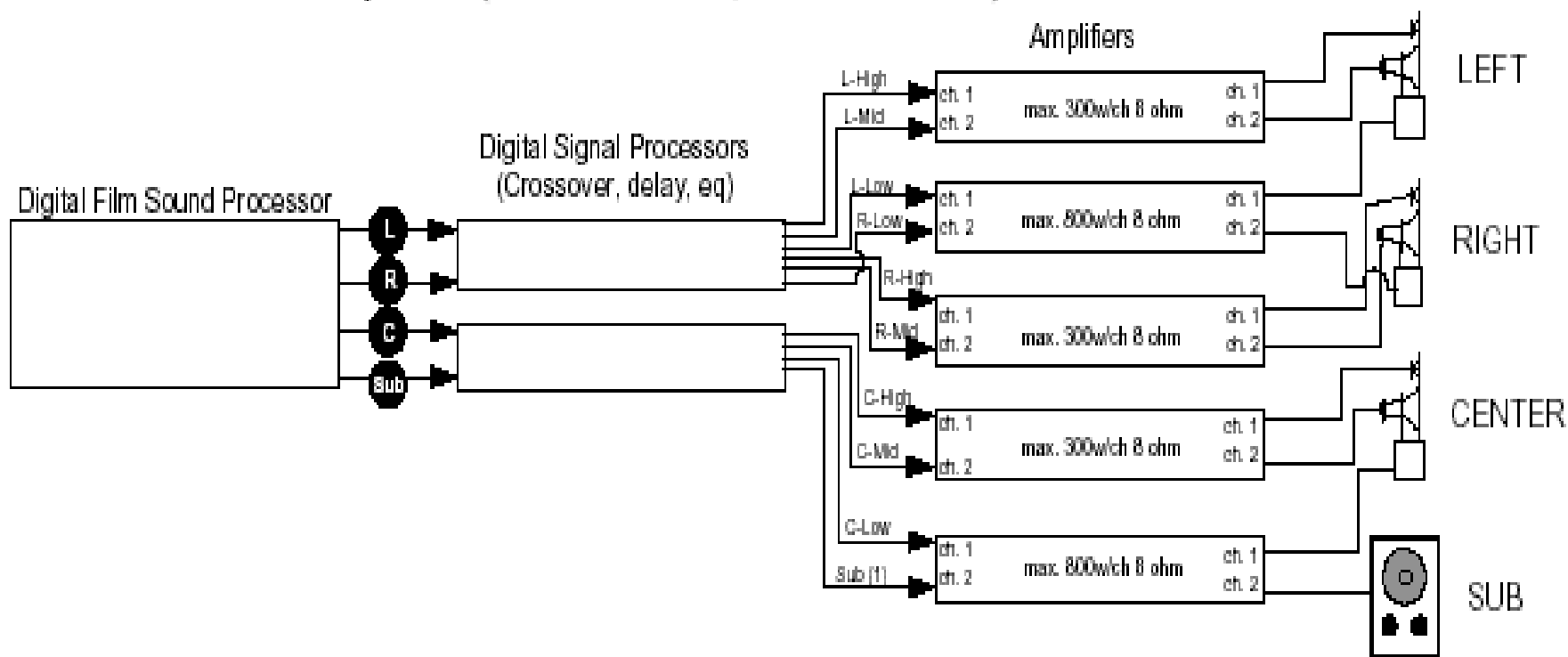




# SYSTEM SETTINGS



## 5671 Screen Channel Systems (for small rooms, under 250 seats)

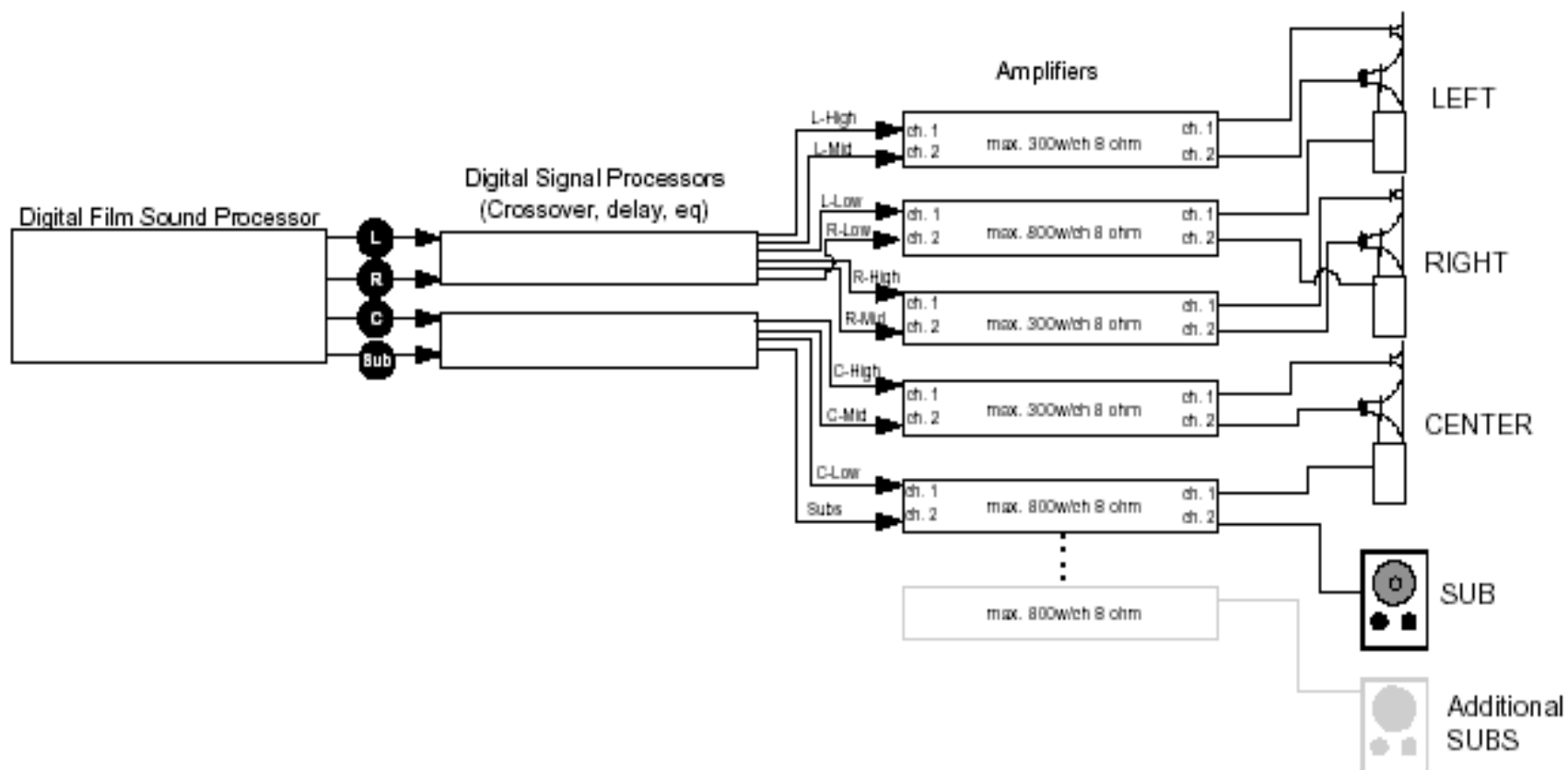




# SYSTEM SETTINGS

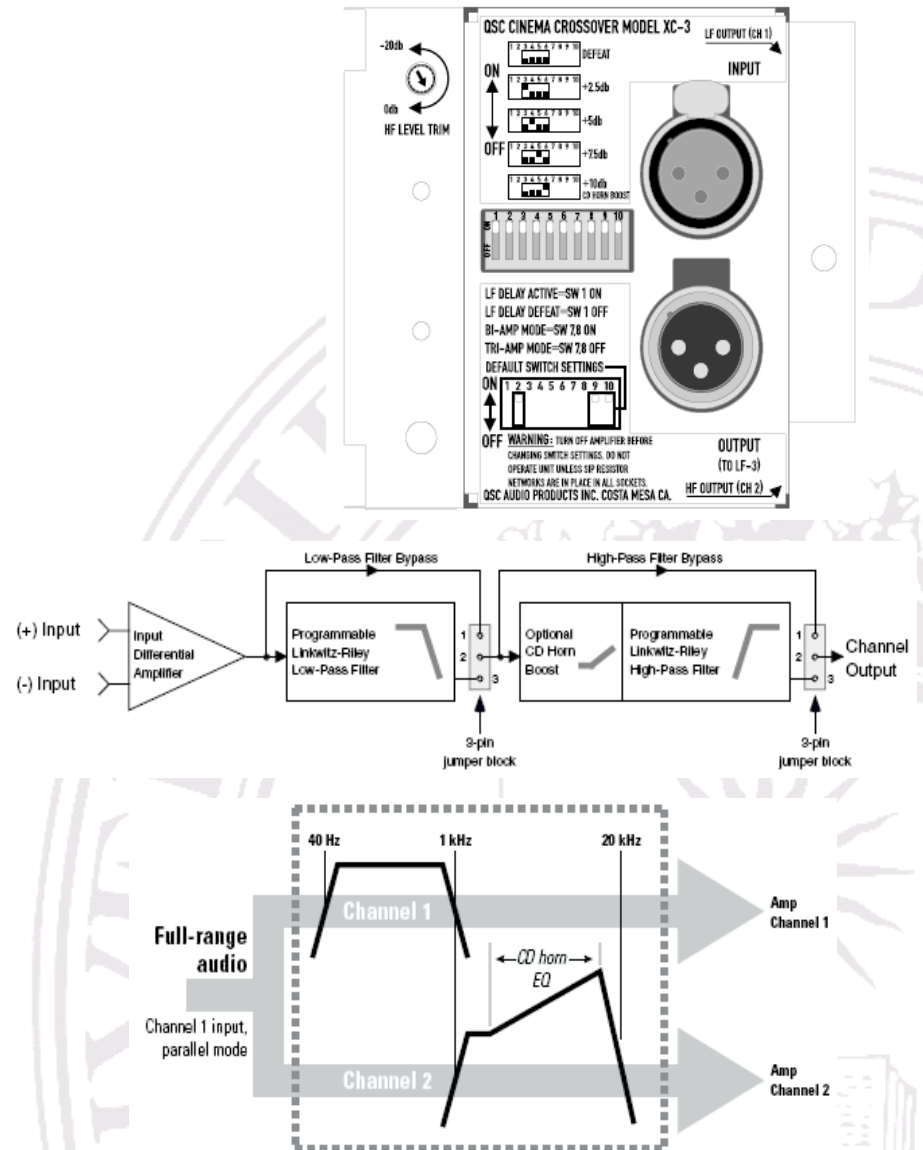
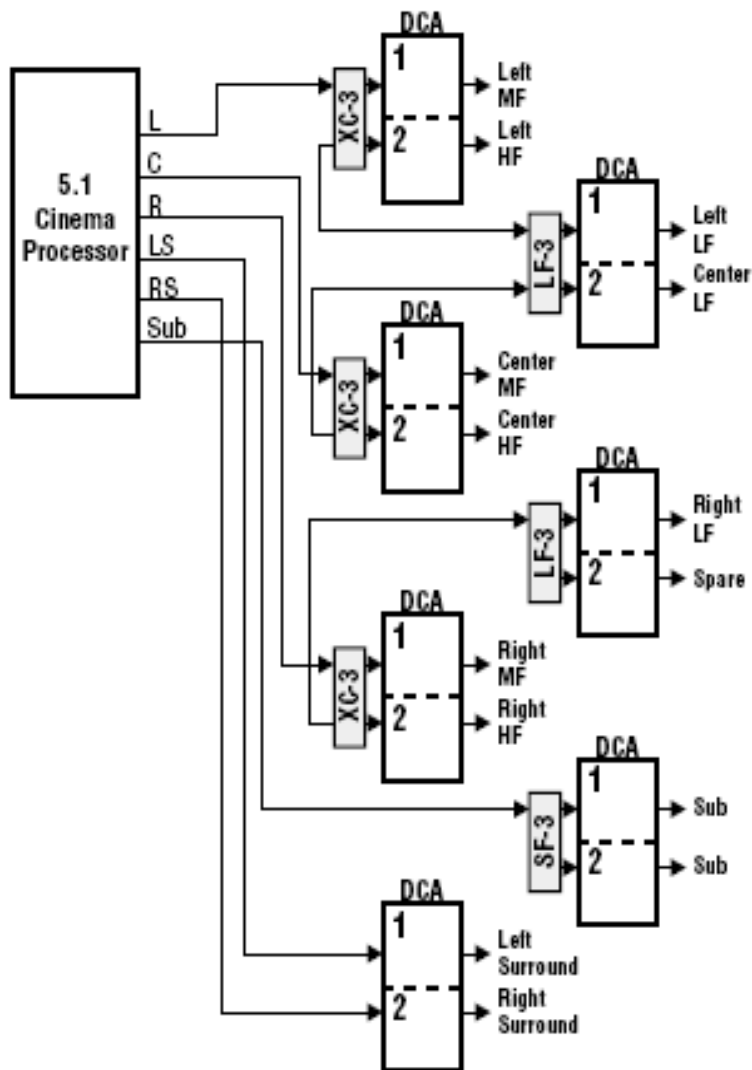


## 5672 Screen Channel Systems (for medium-large rooms, under 500 seats)



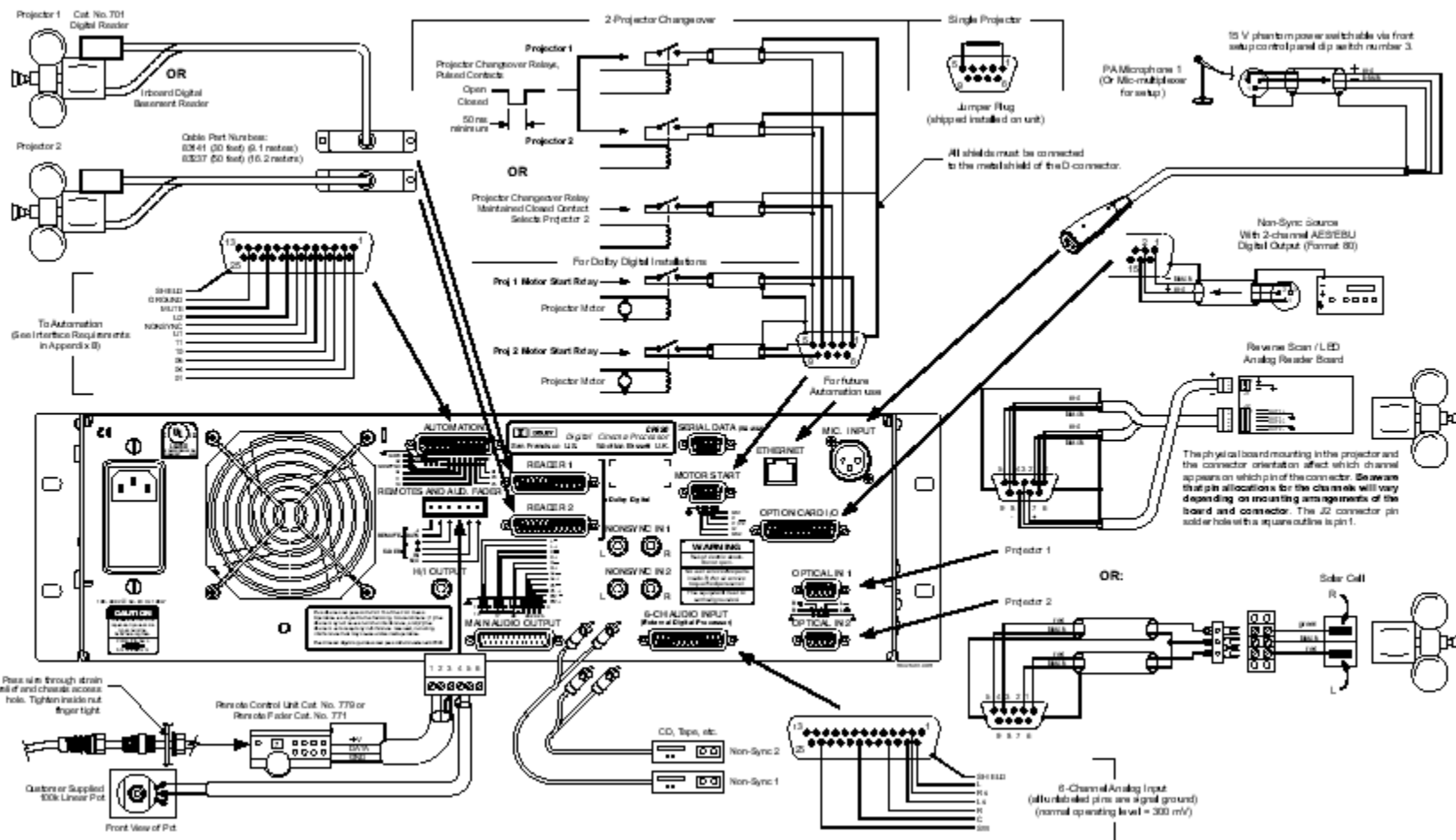


# Montaje de conexionado





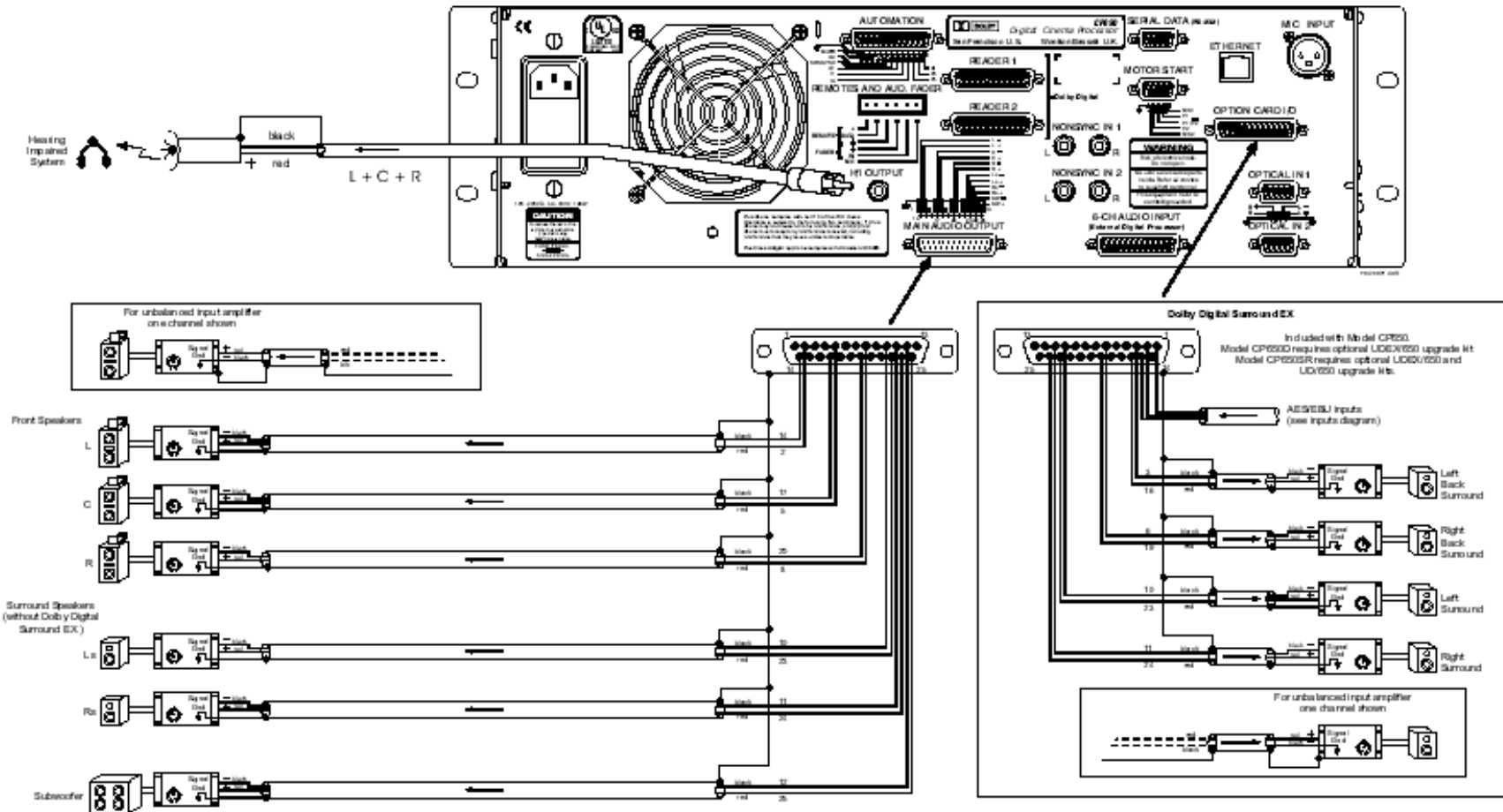
# Montaje de conexionado



## Ejemplo de conexionado del procesador Dolby CP65



# Montaje de conexionado

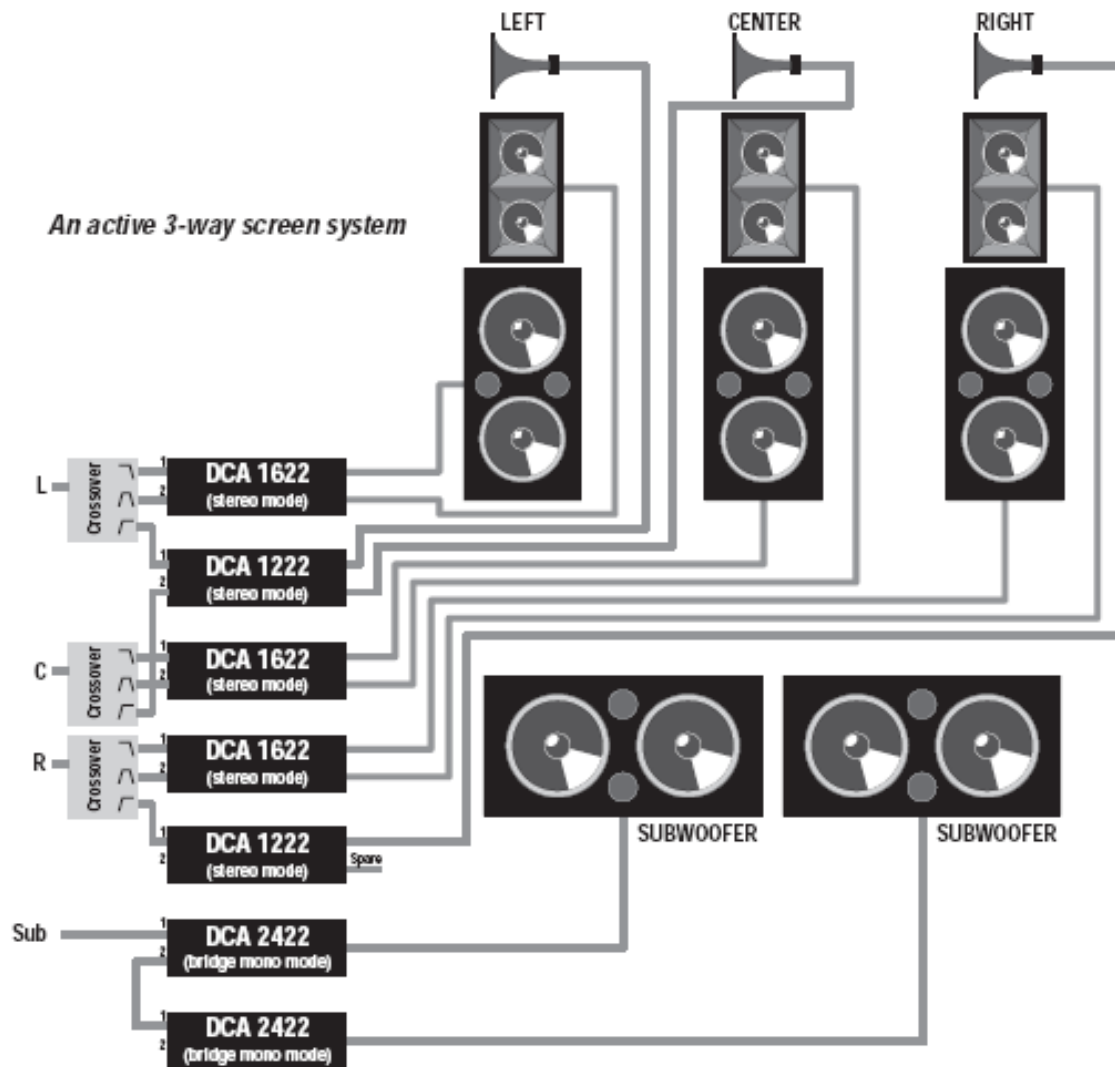


Ejemplo de conexionado del procesador Dolby CP65



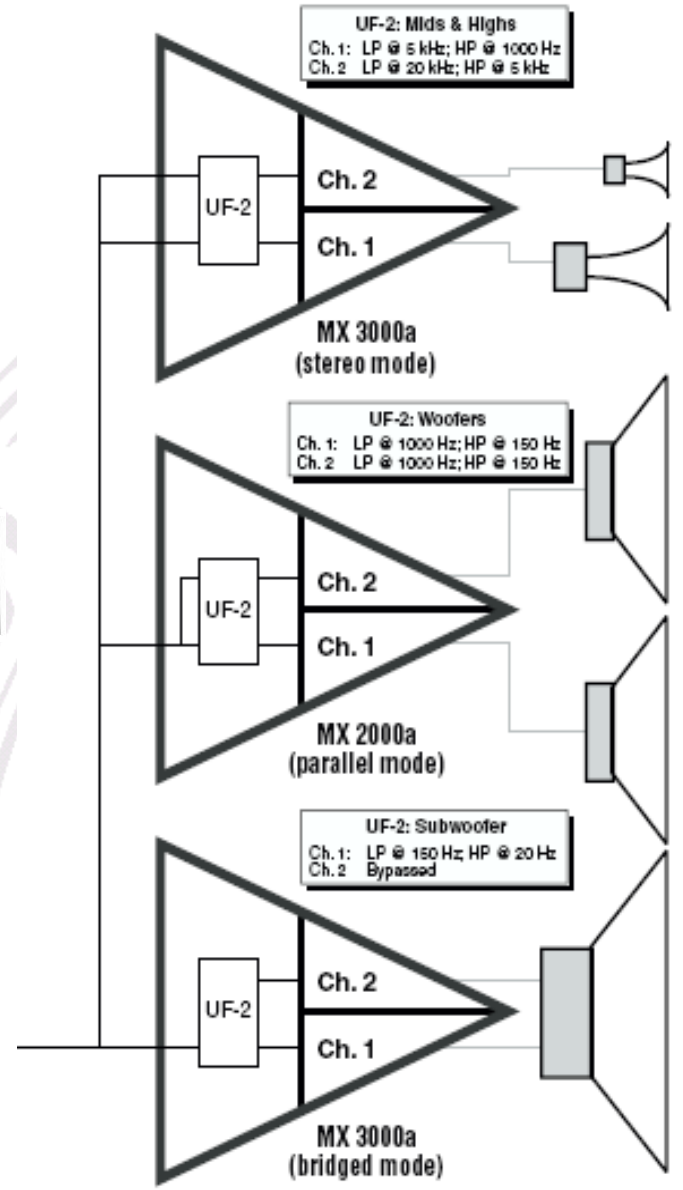


# SYSTEM SETTINGS



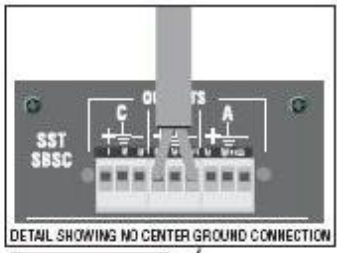


# Montaje de los altavoces Canales de pantalla

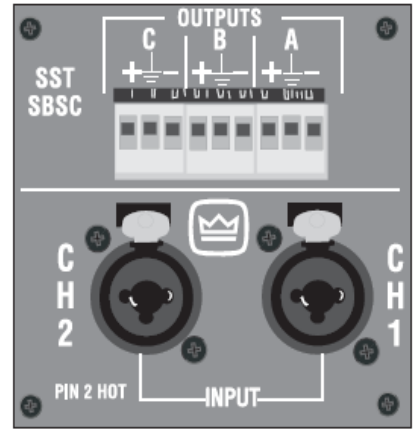
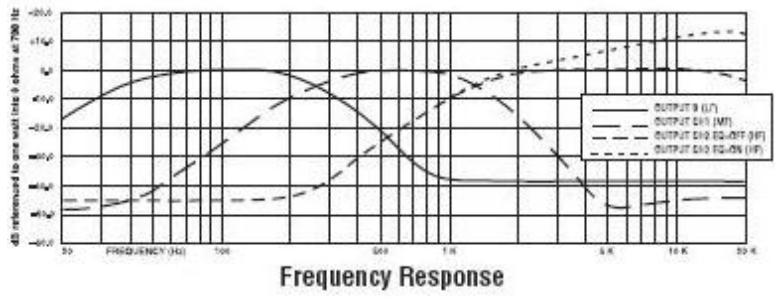
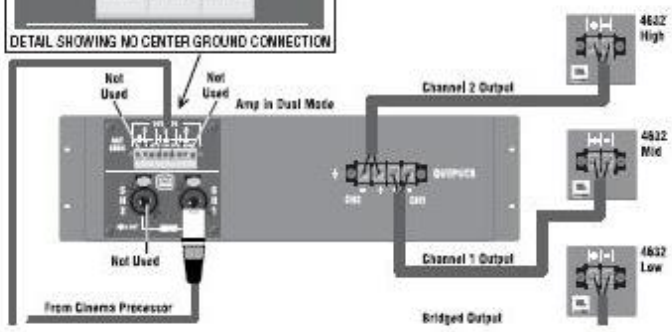




# Montaje de los altavoces Canales de pantalla



System Block Diagram



JBL Professional 4632 ScreenArray™



# SYSTEM SETTINGS



LARGE ROOM SYSTEM

LARGE ROOM DOME SYSTEM

MID-SIZE ROOM SYSTEM

SMALL ROOM SYSTEM

1 x DCP 300

1 x DXP

5 x DCA 1622

8 x DCA 2422

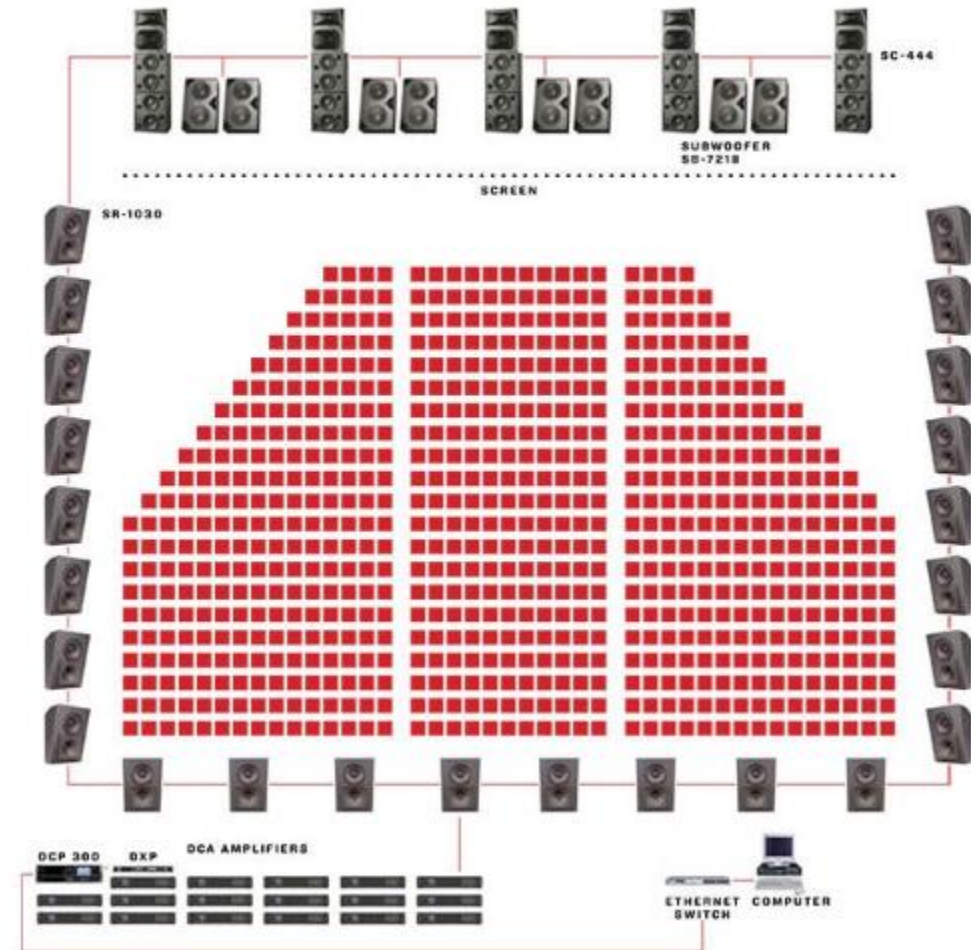
4 x DCA 3422

5 x SC-444

8 x SB-7218

24 x SR-1030

## Large Room System







# SYSTEM SETTINGS

LARGE ROOM SYSTEM

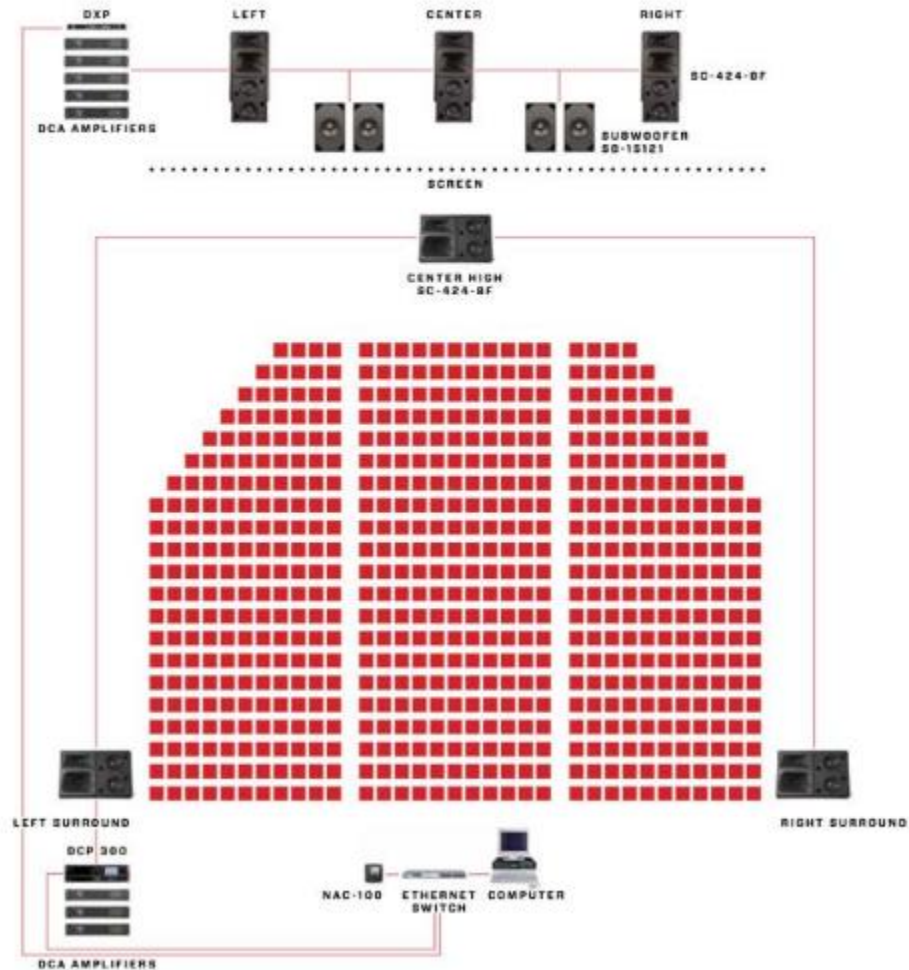
LARGE ROOM DOME SYSTEM

MID-SIZE ROOM SYSTEM

SMALL ROOM SYSTEM

- 1 x DCP 300
- 1 x BASIS 914Hz
- 6 x DCA 1644
- 2 x DCA 3422
- 6 x SC-424-8F
- 4 x SB-15121
- 1 x NAC-100

## Large Room Dome System





# SYSTEM SETTINGS



LARGE ROOM SYSTEM

LARGE ROOM DOME SYSTEM

MID-SIZE ROOM SYSTEM

SMALL ROOM SYSTEM

1 x DCP 100

3 x DCA 1622

1 x DCA 3422

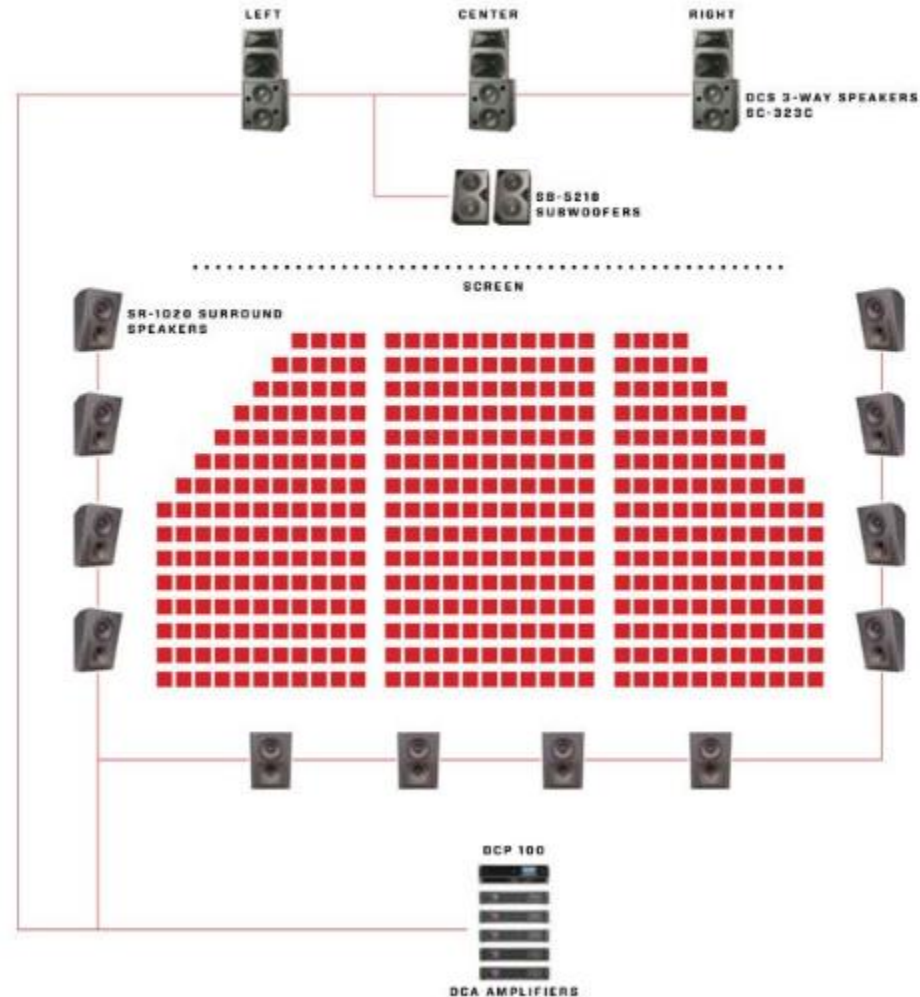
1 x DCA 1824

3 x SC-323B

2 x SB-5218

12 x SR-1020

## Mid-Size Room System





# SYSTEM SETTINGS



LARGE ROOM SYSTEM

LARGE ROOM DOME SYSTEM

MID-SIZE ROOM SYSTEM

SMALL ROOM SYSTEM

1 x DCP 100

2 x DCA 1644

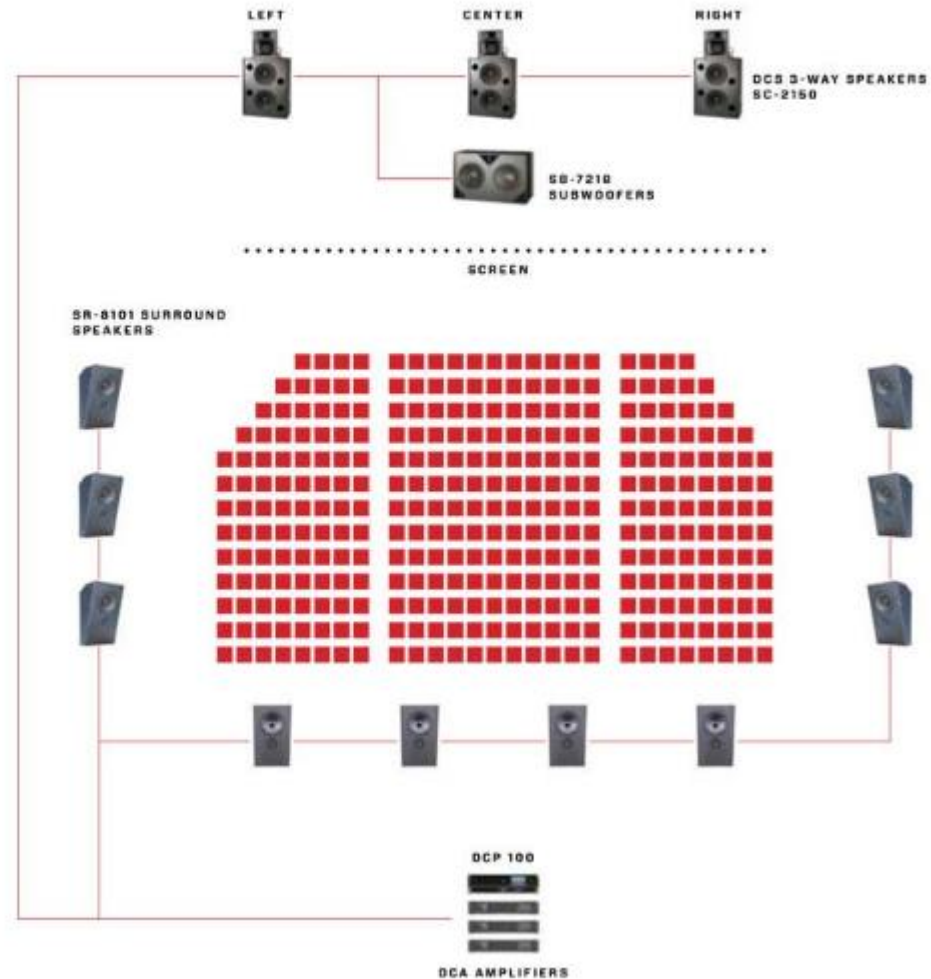
1 x DCA 1824

3 x SC-2150

1 x SB-7218

10 x SR-8101

## Small Room System





# SYSTEM SETTINGS



- The following table determines the section (in  $\text{mm}^2$ ), depending on the length of run between amplifier and speaker and the load impedance, maximum losses for power cord of 5%, or 0.25 dB.

AWG					
	25 ft	50 ft	100 ft	250 ft	500 ft
16 ohms	21	18	15	11	8
8 ohms	18	15	12	8	5
4 ohms	15	12	9	6	3
Metric					
	7.5 m:	15 m:	30 m:	75 m:	150 m:
16 ohms	0.7	1.0	1.5	2.5	3.5
8 ohms	1.0	1.5	2.0	3.5	4.5
4 ohms	1.5	2.0	3.0	4.0	6.0

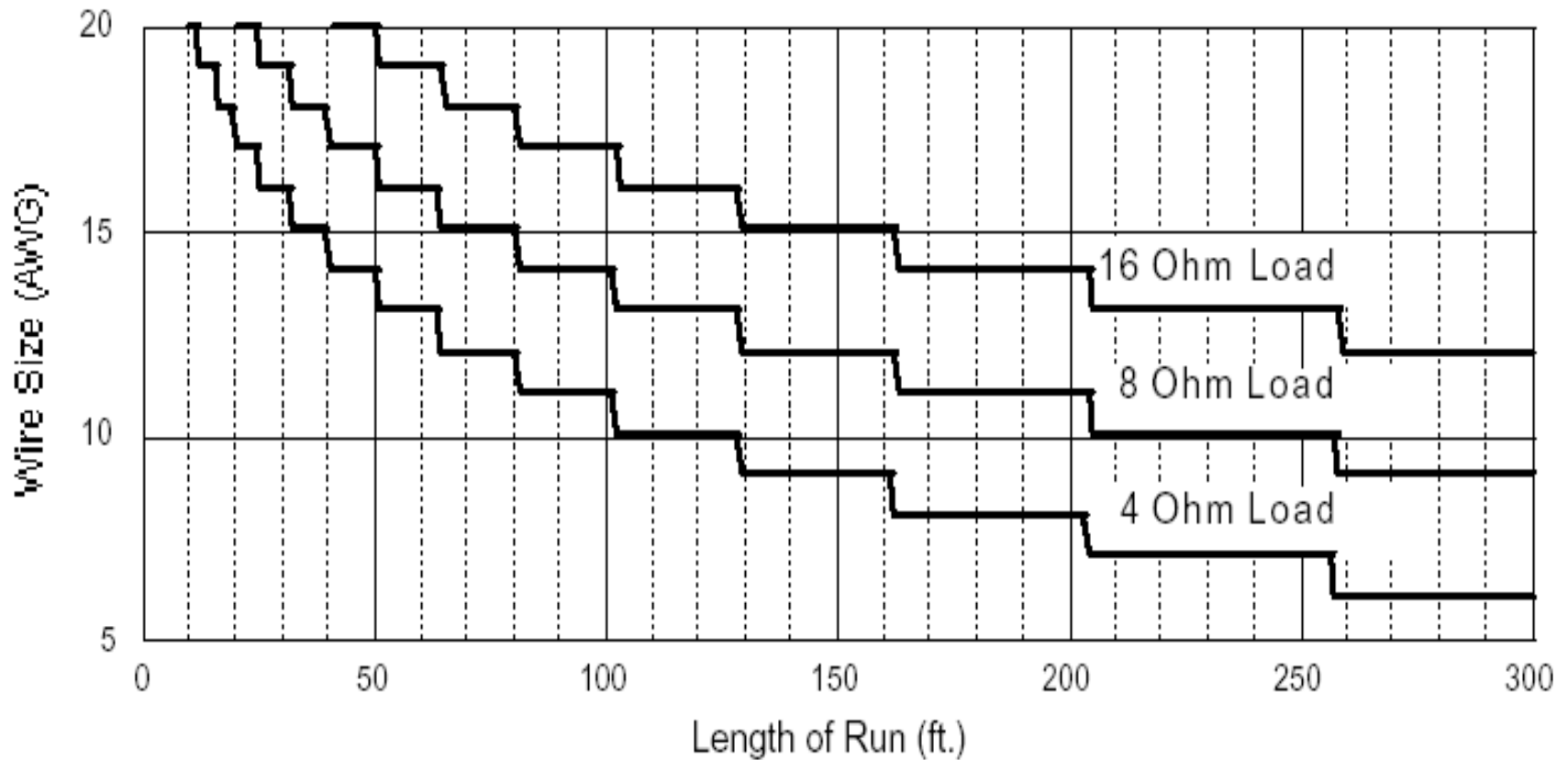




# SYSTEM SETTINGS



## Wire Gauge Chart for 0.5 dB Loss

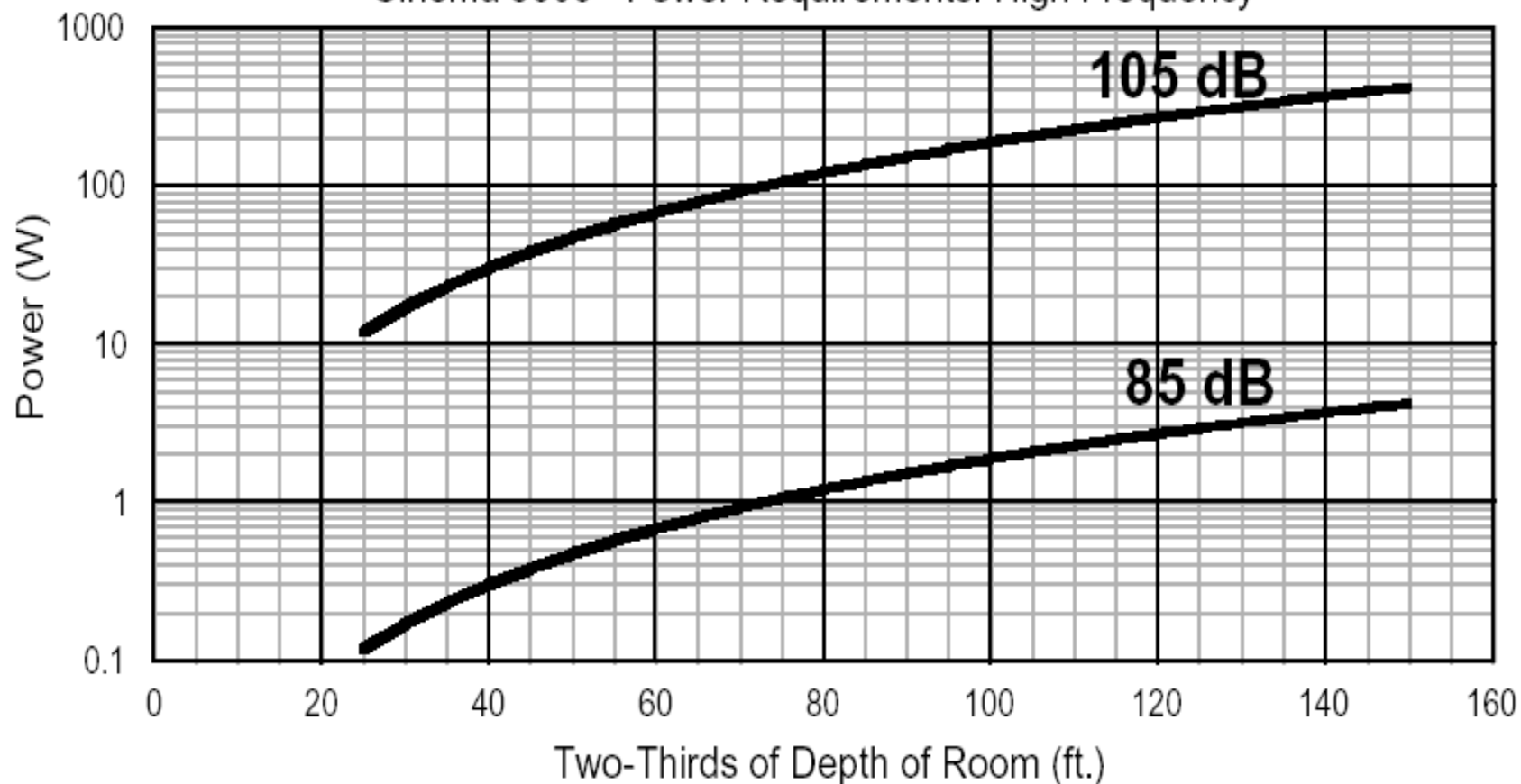




# SYSTEM SETTINGS



Cinema 5000 - Power Requirements: High Frequency

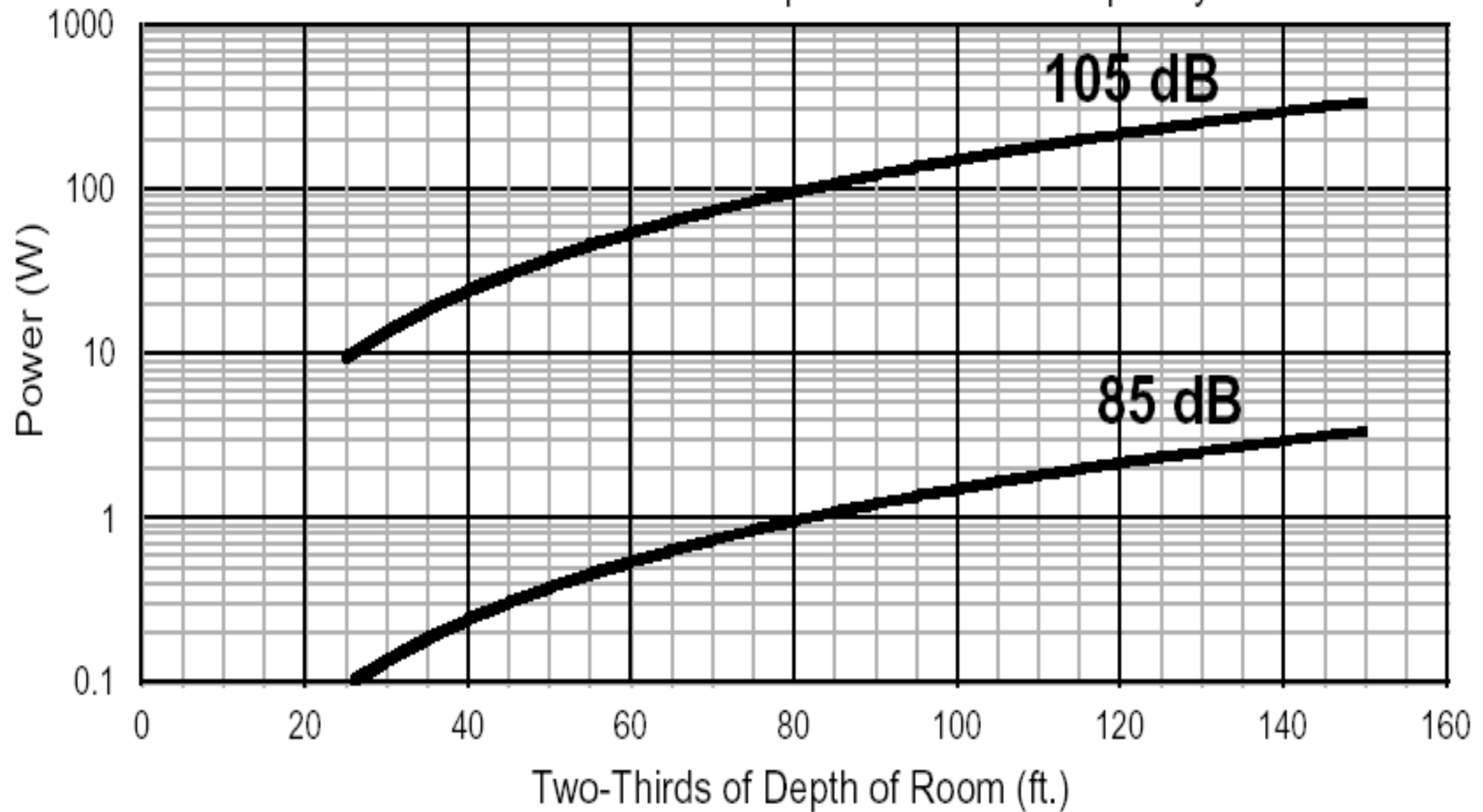




# SYSTEM SETTINGS



Cinema 5000 - Power Requirements: Mid Frequency

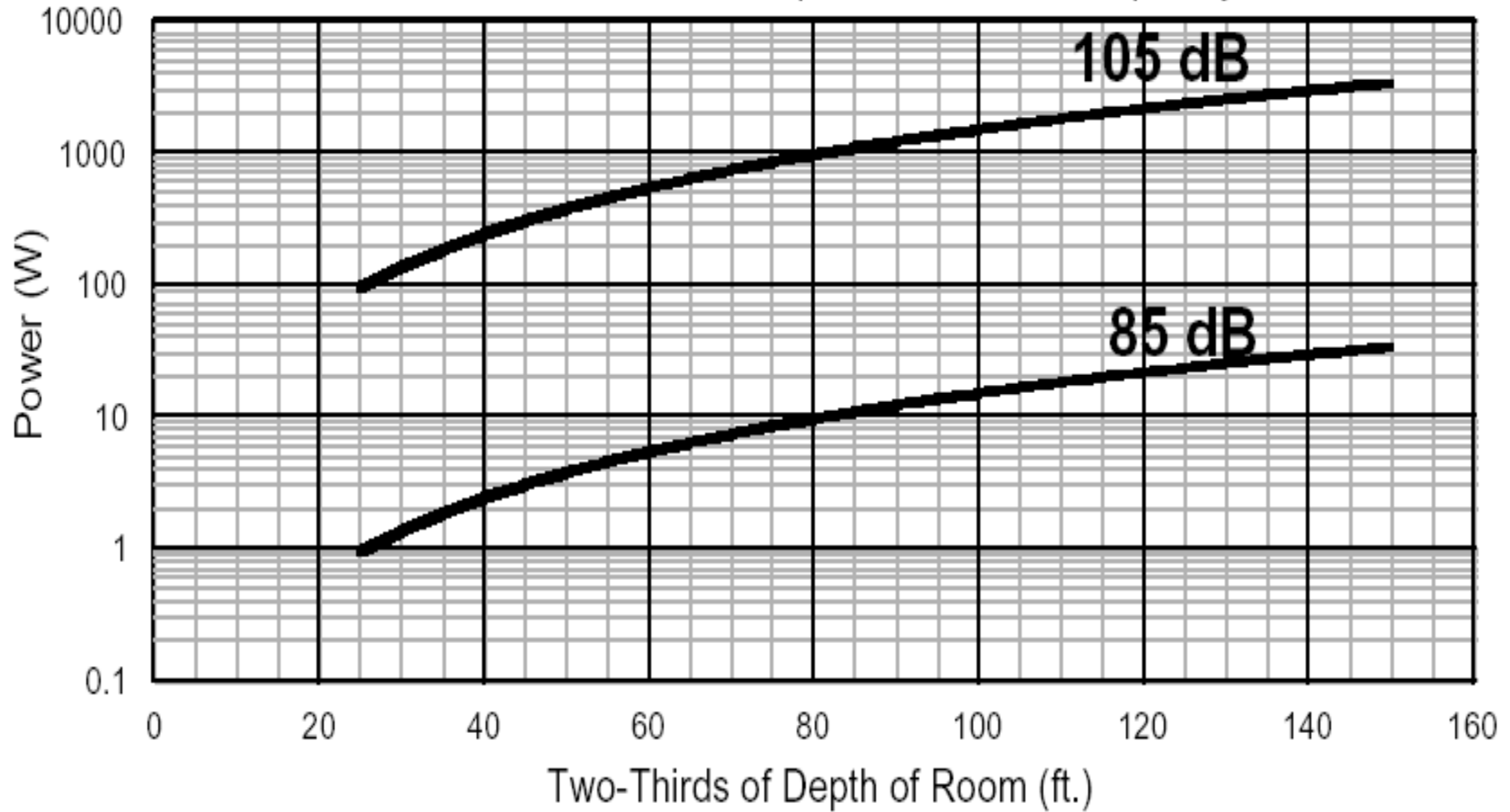




# SYSTEM SETTINGS

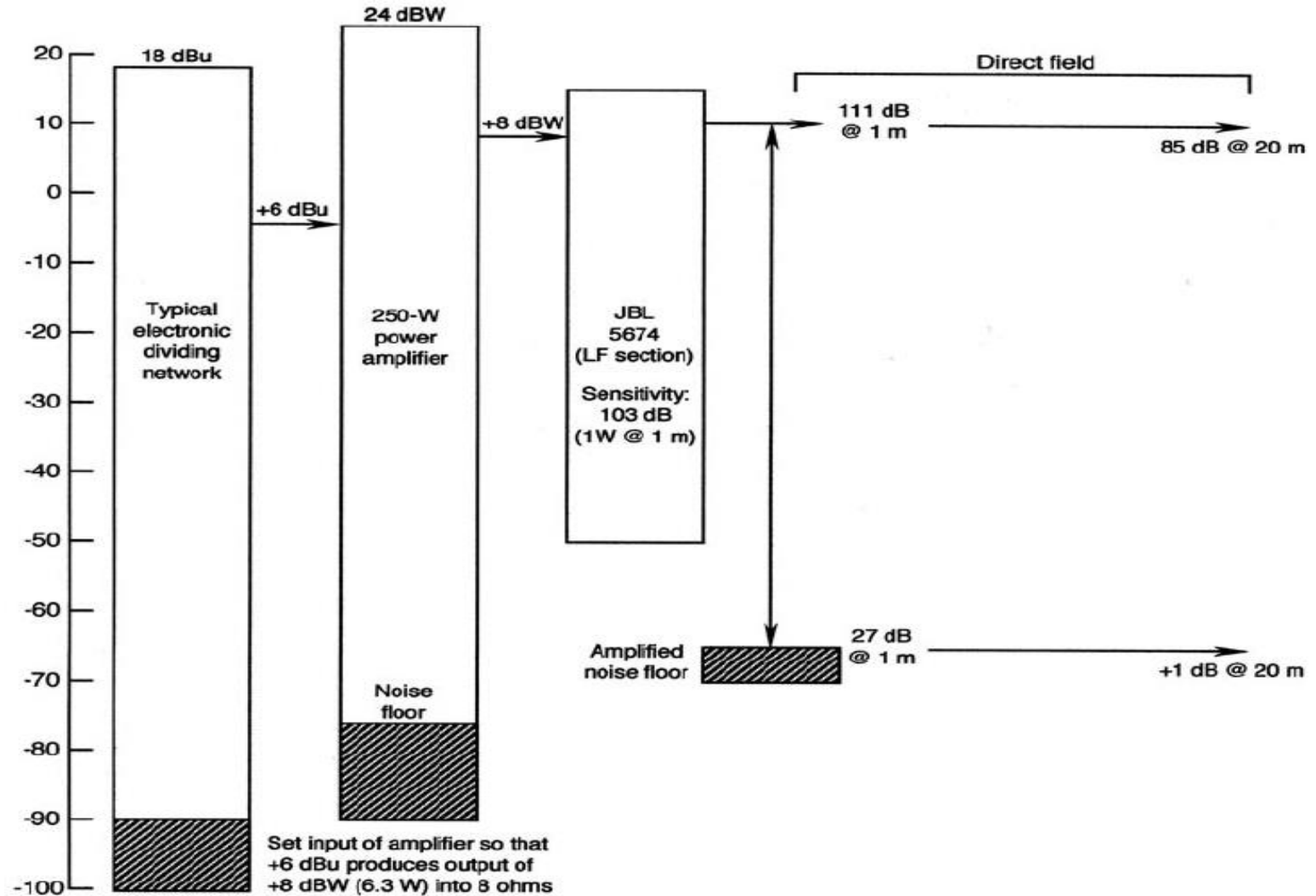


Cinema 5000 - Power Requirements: Low Frequency





# SYSTEM SETTINGS





# SYSTEM SETTINGS



## Cross Reference of JBL Cinema Speakers to Crown Power Amplifiers.

JBL Cinema - Product Line				Crown Power Amplifiers			
ScreenArray Series				Good	Better	Crossover Option For CL Amplifiers	Crossover Option for CLs Amplifiers
Model:	Description:	Nom. Imp:	System Power Handling:				
36224	2-way Passive	4Ω	400 Watt (plus network)	XL5402	CL2	NA	CTs000
3632	3-way Bi-Amp	4/8Ω	500 + 200 Watt (plus network)	XL5602	CL2	SS-T-3632	CTs1200
3632-T *	3-way Tri-Amp	4/12/8Ω	600 + 150 + 50 Watt	XL5402/CL1 Bridged	CL1/CL1 Bridged	889C-3632T	CTs1200 Bridged/CTs600
46224	2-way Passive	4Ω	600 Watt (plus network)	XL5602	CL2	NA	CTs1200
4622	2-way Bi-Amp	4/8Ω	600 + 100 Watt	XL5602	CL2	SS-T-4622	CTs2000
4632	3-way Bi-Amp	4/4Ω	800 + 400 Watt (plus network)	XL5602 Bridged/XL5402	CL4	SS-T-4632	CTs3000/CTs2000
4632-T *	3-way Tri-Amp	4/4/8Ω	800 + 200 + 50 Watt	XL5602/CL2 Bridged	CL2/CL2 Bridged	889C-4632T	CTs3000/CTs2000
3000 Series							
Model:	Description:	Nom. Imp:	System Power Handling:				
3677	2-way Passive (all-in-one)	8Ω	250 Watt (plus network)	XL5402	CL1	NA	CTs000
3678	2-way Passive or Bi-Amp	8Ω	300 Watt (plus network)	XL5602	CL2	NA	CTs000
3678 *	as above in Bi-Amp mode	8/8Ω	600 + 50 Watt	XL5602 Bridged/XL5202	CL4		CTs1200
3635	Subwoofer System	8Ω	300 Watt	XL5402	CL2		CTs000
3310A	2-way Surround	8Ω	75 Watt system	XL5202	CL1	NA	CTs000
4000 Series							
Model:	Description:	Nom. Imp:	System Power Handling:				
4670D	2-way Passive	4Ω	600 Watt (plus network)	XL5602	CL4	NA	CTs2000
4675C	2-way Passive	4Ω	600 Watt (plus network)	XL5602	CL4	NA	CTs2000
4675C-4UF	2-way Bi-Amp	4/8Ω	1200 + 100 Watt		CL2	X889CJBL4675	CTs2000
4675C-8UF *	2-way Bi-Amp	8/8Ω	1200 + 100 Watt	XL5602 Bridged/XL5402	CL2	X889CJBL4675	CTs2000
4641 *	Subwoofer System	8Ω	600 Watt	XL5602	CL2		CTs2000
4642A *	Subwoofer System	4Ω	1200 Watt	XL5602 Bridged	CL4		CTs3000
4645C *	Subwoofer System	8Ω	600 Watt	XL5602 Bridged	CL2 Bridged		CTs2000
5000 Series							
Model:	Description:	Nom. Imp:	System Power Handling:				
5671 *	3-way Tri-Amp	8/8/8Ω	600 + 200 + 100 Watt	XL5602 Br/XL5402	CL2 Br/CL1		CTs1200/CTs600
5672 *	3-way Tri-Amp	4/8/8Ω	1200 + 200 + 100 Watt	CL4/CL5402	CL4 Br/CL2	X889CJBL5672	CTs2000 Br/CTs600
5674 *	3-way Tri-Amp	4/4/8/8Ω	1200/1200 + 200 + 100 Watt	CL4/CL5402	CL4/CL2		CTs3000/CTs600
Surrounds							
Model:	Description:	Nom. Imp:	System Power Handling:				
8330A *	3-way Surround	8Ω	100 Watt system	XL5402	CL1	NA	CTs1200
8340A *	2-way Surround	8Ω	250 Watt system	XL5602	CL2	NA	CTs2000

\* THX approved model speakers

\* Models CL1 & CL2 THX approved

\*\* CLs series in THX approval process

Multiple Surrounds can be run with the

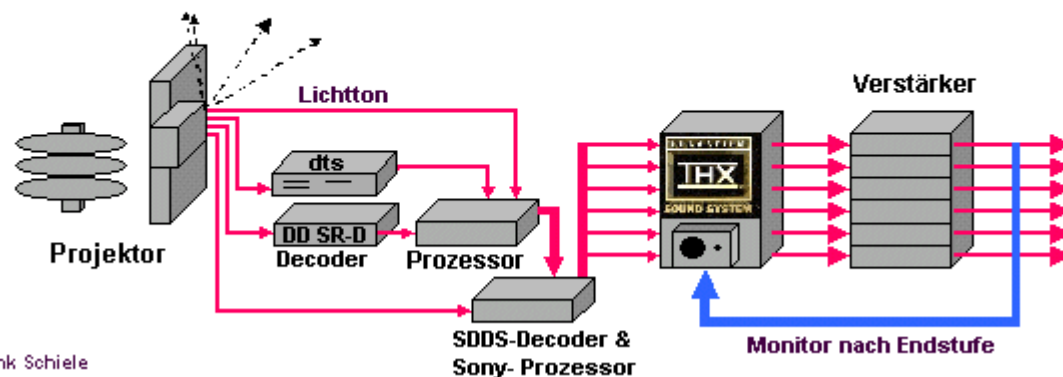
CTs000 or CTs600 Multi Channel Amps



# SYSTEM SETTINGS



THX:  
Eingriff in den Tonweg



(C) Frank Schiele

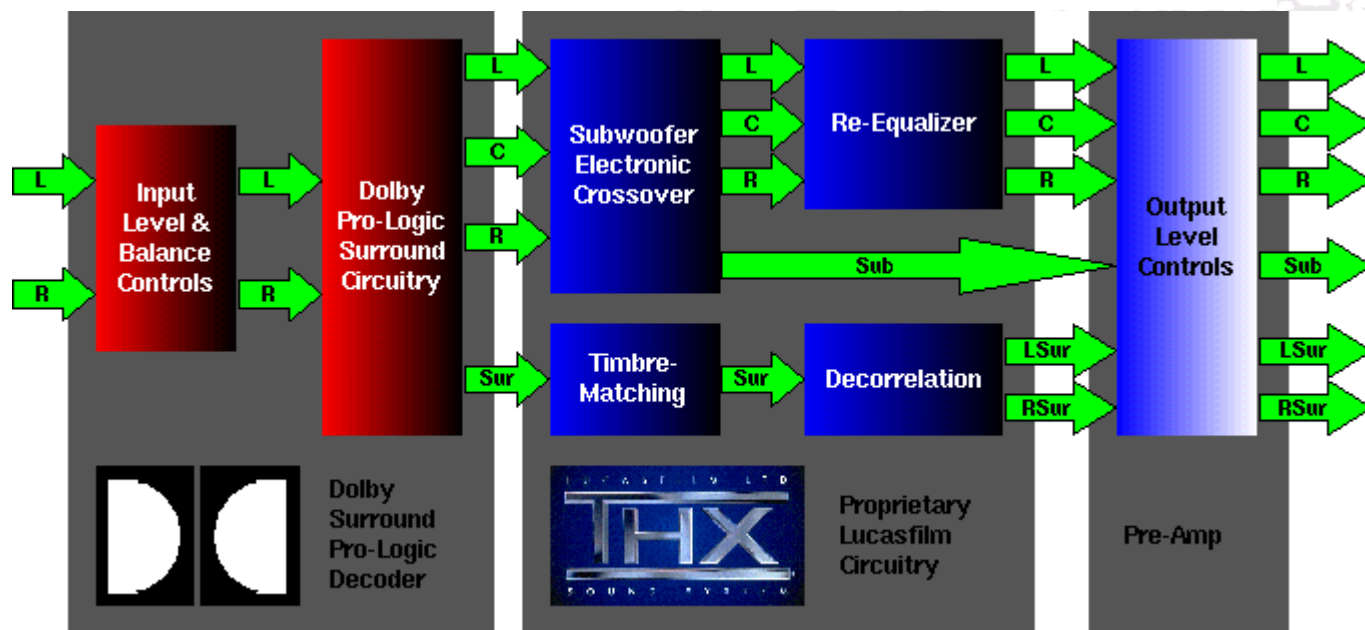


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