

18.0 Filters and Frequency Tables

18.1 Standard Filters

The standard filter provided for the **FDS-360** is of the Linkwitz-Riley response based on two second order Butterworth circuits in series. The response is a 24dB/OCT slope with a 'corner' frequency where the output of the filter is 6dB down from its pass band level. The use of these filter realisations has been well documented and provides the best possible phase and amplitude response for driving large speaker systems.

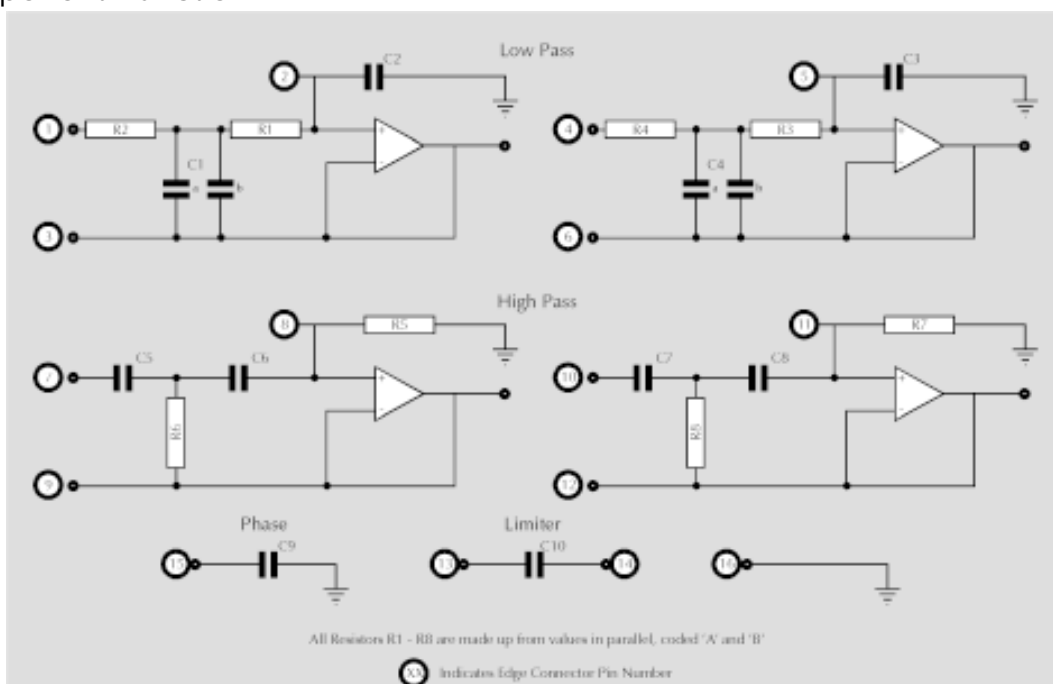
Table 17.1 lists the component values for various frequencies and should be used in conjunction with the drawing for the **FDS-360F** frequency card (See **Figure 18.3**). Blank cards, or ready made cards can be provided by any BSS dealer.

All resistors should be 1/4W metal film 2% tolerance or better. Capacitors should be 5% tolerance or better. **Figure 18.1** shows how these components relate to the separate filter blocks to assist in making mixed frequency cards that might be needed for speaker systems that require gaps or overlaps in the amplitude response of the filters. Other filter responses can also be realised using these frequency cards, and your dealer will be able to supply these to order.

18.2 Full Range Frequency Card

Should the fourth band output be required to work as a full range buffered output (See section 14.1), a full range frequency card is required to be inserted into FC3 position. This card removes all filtering associated with the third frequency point. The limiter setting capacitor C10 should be chosen to suit the lowest frequency in the band, which would normally be 30Hz. **Figure 18.4** shows the frequency card modified for this result.

Fig 18.1 Frequency and Component Function



Filters and Frequency Tables

Fig 18.2 Component Values for Frequency Cards type FDS-360/1

FDS-360 FREQUENCY CARD COMPONENT SELECTION - 24dB/Octave							
Freq.	R1	R1	R5	R5	C1	C10	C9
50	43k	47k	82k	100k	100nF	330nF	150nF
60	36k	39k	75k	75k	100nF	330nF	150nF
63	33k	39k	47k	150k	100nF	330nF	150nF
70	16k	-	39k	180k	100nF	330nF	150nF
80	15k	220k	39k	100k	100nF	220nF	100nF
100	18k	30k	24k	330k	100nF	220nF	100nF
110	12k	68k	39k	43k	100nF	150nF	68nF
125	18k	18k	18k	-	100nF	150nF	68nF
150	7k5	-	15k	-	100nF	150nF	68nF
160	8k2	47k	15k	220k	100nF	150nF	68nF
180	6k2	-	13k	330k	100nF	150nF	68nF
200	18k	330k	39k	270k	33nF	150nF	68nF
220	18k	100k	100k	47k	33nF	100nF	47nF
250	15k	150k	27k	-	33nF	100nF	47nF
280	13k	180k	43k	56k	33nF	100nF	47nF
300	15k	47k	27k	150k	33nF	100nF	47nF
350	15k	27k	39k	39k	33nF	100nF	47nF
400	10k	56k	18k	330k	33nF	100nF	47nF
500	6k8	-	15k	150k	33nF	47nF	22nF
600	6k2	68k	15k	47k	33nF	47nF	22nF
800	39k	22k	39k	100k	10nF	47nF	22nF
1k0	12k	180k	47k	43k	10nF	33nF	15nF
1k2	10k	150k	27k	62k	10nF	33nF	15nF
1k3	10k	68k	18k	470k	10nF	33nF	15nF
1k5	7k5	-	15k	-	10nF	22nF	10nF
1k6	8k2	47k	22k	39k	10nF	22nF	10nF
2k0	8k2	18k	12k	180k	10nF	22nF	10nF
2k5	18k	56k	27k	-	3n3F	15nF	4n7F
3k0	15k	47k	24k	470k	3n3F	15nF	4n7F
3k5	10k	330k	24k	100k	3n3F	15nF	4n7F
3k7	39k	12k	27k	56k	3n3F	15nF	4n7F
4k0	10k	56k	39k	30k	3n3F	15nF	4n7F
4k5	8k2	100k	18k	100k	3n3F	10nF	3n3F
5k0	6k8	-	18k	56k	3n3F	10nF	3n3F
5k5	6k2	-	13k	270k	3n3F	10nF	3n3F
6k0	6k2	68k	15k	47k	3n3F	10nF	3n3F

FDS-360 FREQUENCY CARD COMPONENT SELECTION - 24dB/Octave								
See Notes at bottom for full component ID.								
Freq.	R1A	R1B	R5A	R5B	C1A	C10	C9	
6k3	27k	6k8	27k	18k	3n3F	10nF	3n3F	
6k5	22k	6k8	12k	82k	3n3F	10nF	3n3F	
7k0	39k	5k6	13k	39k	3n3F	10nF	3n3F	
7k5	10k	8k2	18k	18k	3n3F	6n8F	2n2F	
8k0	10k	7k5	10k	62k	3n3F	6n8F	2n2F	
8k5	4k7	27k	8k2	330k	3n3F	6n8F	2n2F	
9k0	3k9	120k	8k2	100k	3n3F	6n8F	2n2F	
9k5	15k	56k	82k	33k	1n0F	6n8F	2n2F	
10k0	15k	47k	43k	47k	1n0F	6n8F	2n2F	
12k0	12k	43k	27k	62k	1n0F	6n8F	2n2F	
15k0	7k5	-	15k	-	1n0F	6n8F	2n2F	
18k0	6k2	-	15k	82k	1n0F	6n8F	1n0F	
20k0	5k6	-	13k	82k	1n0F	6n8F	1n0F	
R1A	=	R1A, R2A, R3A, R4A, R6A, R8A						
R1B	=	R1B, R2B, R3B, R4B, R6B, R8B						
R5A	=	R5A, R7A						
R5B	=	R5B, R7B						
C1A	=	C1A, C1B, C2, C3, C4A, C4B, C5, C6, C7, C8						
C9	=	C9						
C10	=	C10						

Fig 18.3 FDS-360F Component Overlay

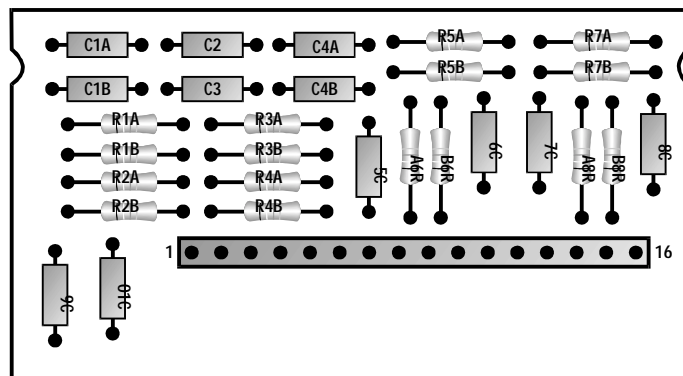


Fig 18.4 FDS-360F Full Range Overlay

