EQUALIZATION & FILTER RECOMMENDATIONS FOR ONE SYSTEMS SPEAKERS

One Systems high-performance loudspeakers are factory-configured for and are nearly always used in passive full-range mode. In this configuration, the systems can still benefit from selective parametric equalization. Every One Systems model, like all professional loudspeaker systems, will benefit from high-pass filtering (low-cut).

In all cases, high-pass filters should be used with every One System model to provide additional low-frequency system protection, thereby increasing reliability, providing additional amplifier headroom and lowering distortion. High-pass filters are highly recommended for use with all professional sound reinforcement systems. The recommended high-pass filters are 4th order (24 dB-per-octave) Butterworth filters, but 2nd order (12 dB-per-octave) may also be used.

In almost all cases, the addition of a high-pass filter with the appropriate corner frequency will produce audibly superior system performance and provide enhanced reliability too.

The EQ and filter settings listed below are recommendations that are based on the far-field frequency response data for each model. For most One Systems models, 1/3-octave parametric filters have been recommended which allows for comparable equalization using either DSP or 1/3-octave equalizers using ISO standard frequencies. When bandwidths greater than 1/3-octave are recommended, these can be easily approximated by using multiple 1/3-octave filters with appropriate gain settings.

These settings are good places to start tweaking a system for optimum performance.

PLEASE NOTE: THESE RECOMMENDED SETTINGS ARE IDENTICAL FOR THE PLATINUM SERIES (HTH, HTC & HC) MODELS AS WELL AS FOR THE PREVIOUS "IM" SERIES VERSIONS OF THOSE MODELS.

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PLATINUM SERIES LOUDSPEAKERS

MODEL	104.HTH	106.HTH	108.HTC
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	70 Hz	70 Hz	70 Hz
Filter 1 Type:	PEQ	PEQ	PEQ
Filter 1 Frequency:	4,000 Hz	800 Hz	100 Hz
Filter 1 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 1 Level (dB):	- 2.0 dB	- 2.0 dB	+ 3.0 dB
Filter 2 Type:	PEQ	PEQ	PEQ
Filter 2 Frequency:	2,500 Hz	1,000 Hz	125 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 2 Level (dB):	- 2.0 dB	- 2.0 dB	+ 3.0 dB
Filter 3 Type:	Low Shelf	PEQ	PEQ
Filter 3 Frequency:	150 Hz	1,250 Hz	160 Hz
Filter 3 Bandwidth:	12 dB / octave	0.33 octave / Q=4.3	0.33 octave / Q = 4.3
Filter 3 Level (dB):	+ 3.0 dB	-2.0 dB	+ 3.0 dB
Filter 4 Type:		Low Shelf	PEQ
Filter 4 Frequency:		125 Hz	4,000 Hz
Filter 4 Bandwidth:		12 dB / octave	0.33 octave / Q = 4.3
Filter 4 Level (dB):		+3.0 dB	- 3.0 dB

PLATINUM SERIES LOUDSPEAKERS

MODEL	108.HTH with ETS 60/40 Horn	108.HTH with ETS 105/60 Horn	208.HTC
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	65 Hz	65 Hz	65 Hz
Filter 1 Type:	PEQ	PEQ	PEQ
Filter 1 Frequency:	1,600 Hz	1,250 Hz	100 Hz
Filter 1 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.5 octave / Q = 2.87
Filter 1 Level (dB):	- 2.0 dB	- 2.5 dB	+ 2.5 dB
Filter 2 Type:	PEQ	PEQ	
Filter 2 Frequency:	100 Hz	100 Hz	
Filter 2 Bandwidth:	0.5 octave / Q = 2.87	0.5 octave / Q = 2.87	
Filter 2 Level (dB):	+ 2.0 dB	+ 2.0 dB	

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PLATINUM SERIES LOUDSPEAKERS

MODEL	112.HTH with ET 60/40 Horn	112.HTH with ET 105/60 Horn	212.HC
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	50 Hz	50 Hz	55 Hz
Filter 1 Type:	PEQ	PEQ	PEQ
Filter 1 Frequency:	1,000 Hz	1,000 Hz	1,000 Hz
Filter 1 Bandwidth:	0.5 octave / Q = 2.87	0.4 octave / Q = 3.59	0.33 octave / Q = 4.3
Filter 1 Level:	- 2.0 dB	- 2.0 dB	- 2.5 dB
Filter 2 Type:	PEQ	PEQ	PEQ
Filter 2 Frequency:	65 Hz	65 Hz	70 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 2 Level:	+ 3.0 dB	+ 3.0 dB	+ 2.0 dB
Filter 1 Type:			PEQ
Filter 1 Frequency:			3,000 Hz
Filter 1 Bandwidth:			0.33 octave / Q = 4.3
Filter 1 Level:			- 2.5 dB

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PLATINUM SERIES LOUDSPEAKERS

MODEL	312.HC	CFA2.HTH
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	50 Hz	80 Hz
Filter 1 Type:	PEQ	PEQ
Filter 1 Frequency:	3,000 Hz	125 Hz
Filter 1 Bandwidth:	0.33 octave / Q = 4.3	0.5 octave / Q = 2.87
Filter 1 Level:	- 2.5 dB	+ 3.0 dB
Filter 2 Type:	PEQ	PEQ
Filter 2 Frequency:	60 Hz	800 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.5 octave / Q = 2.87
Filter 2 Level:	+ 2.0 dB	+ 2.0 dB
Filter 3 Type:	PEQ	PEQ
Filter 3 Frequency:	11,500 Hz	4,000 Hz
Filter 3 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 1 Level:	- 3.0 dB	- 2.0 dB
Filter 1 Type:		
Filter 1 Frequency:		
Filter 1 Bandwidth:		
Filter 1 Level:		

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PLATINUM SERIES SUBWOOFERS

MODEL	108.HSB	112.HSB	118.HSB
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	43 Hz	45 Hz	35 Hz
Filter 1 Type:		PEQ	PEQ
Filter 1 Frequency:		60 Hz	40 Hz
Filter 1 Bandwidth:		0.3 octave / Q = 4.3	0.5 octave / Q = 2.87
Filter 1 Level:		+ 4.0 dB	+ 3.5 dB
Filter 2 Type:	Low-Pass Filter	PEQ	Low-Pass Filter
Filter 2 Frequency:	130 Hz	80 Hz	80 Hz - 100 Hz
Filter 2 Bandwidth:	4th order Linkwitz-Riley	0.33 octave / Q = 4.3	4th order Linkwitz-Riley
Filter 2 Level:		+ 2.5 dB	
Filter 3 Type:		Low-Pass Filter	
Filter 3 Frequency:		80 - 120 Hz	
Filter 3 Bandwidth:		4th order Linkwitz-Riley	
Filter 3 Level:			

Please read "Optimizing System Performance With The 112.HSB" about the use of "Overlap" Mode

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SILVER SERIES LOUDSPEAKERS

MODEL	104.STH	106.STH	108.STC
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	80 Hz	80 Hz	65 Hz
Filter 1 Type:	Low Shelf	Low Shelf	PEQ
Filter 1 Frequency:	150 Hz	150 Hz	1,200 Hz
Filter 1 Bandwidth:	12 dB-per-octave	12 dB-per-octave	0.33 octave / Q = 4.3
Filter 1 Level (dB):	+ 2.0 dB	+ 2.0 dB	+ 2.0 dB
Filter 2 Type:	PEQ	PEQ	PEQ
Filter 2 Frequency:	1,000 Hz	1,600 Hz	3,000 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 2 Level (dB):	- 1.0 dB	- 1.0 dB	- 1.0 dB
Filter 3 Type:	PEQ	PEQ	PEQ
Filter 3 Frequency:	6,300 Hz	3,150 Hz	6,000 Hz
Filter 3 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 3 Level (dB):	- 1.0 dB	-2.0 dB	+ 2.0 dB
Filter 4 Type:			
Filter 4 Frequency:			
Filter 4 Bandwidth:			
Filter 4 Level (dB):			

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SILVER SERIES LOUDSPEAKERS

MODEL	ONE.SP6	ONE.SP8	ONE.SP12
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	110 Hz	90 Hz	80 Hz
Filter 1 Type:	Low Shelf	Low Shelf	Low Shelf
Filter 1 Frequency:	150 Hz	150 Hz	150 Hz
Filter 1 Bandwidth:	12 dB-per-octave	12 dB-per-octave	12 dB-per-octave
Filter 1 Level (dB):	+ 3.0 dB	+ 3.0 dB	+ 3.0 dB
Filter 2 Type:	PEQ	PEQ	PEQ
Filter 2 Frequency:	4,000 Hz	450 Hz	630 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 2 Level (dB):	- 2.0 dB	- 1.0 dB	+ 2.0 dB
Filter 3 Type:	PEQ	PEQ	PEQ
Filter 3 Frequency:	8,000 Hz	800 Hz	4,000 Hz
Filter 3 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 3 Level (dB):	- 1.0 dB	+ 2.0 dB	- 1.0 dB
Filter 4 Type:			
Filter 4 Frequency:			
Filter 4 Bandwidth:			
Filter 4 Level (dB):			

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SILVER SERIES LOUDSPEAKERS

MODEL	ONE.SL12	ONE.SL15
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	50 Hz	45 Hz
Filter 1 Type:	Low Shelf	Low Shelf
Filter 1 Frequency:	100 Hz	100 Hz
Filter 1 Bandwidth:	12 dB-per-octave	12 dB-per-octave
Filter 1 Level (dB):	+ 3.0 dB	+ 3.0 dB
Filter 2 Type:	PEQ	PEQ
Filter 2 Frequency:	8,000 Hz	8,000 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 2 Level (dB):	- 2.0 dB	- 2.0 dB
Filter 3 Type:	High Shelf	PEQ
Filter 3 Frequency:	8,000 Hz	8,000 Hz
Filter 3 Bandwidth:	6 dB-per-octave	6 dB-per-octave
Filter 3 Level (dB):	- 3.0 dB	- 3.0 dB
Filter 4 Type:		
Filter 4 Frequency:		
Filter 4 Bandwidth:		
Filter 4 Level (dB):		

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Discontinued Speaker Models

MODEL	115TW (105 x 60)	115RW	115TW (60 x 40)
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	40 Hz	40 Hz	40 Hz
Filter 1 Type:	PEQ	PEQ	PEQ
Filter 1 Frequency:	1,250 Hz	1,250 Hz	1,250 Hz
Filter 1 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 1 Level (dB):	-2.5 dB	-2.5 dB	-2.5 dB
Filter 2 Type:	PEQ	PEQ	PEQ
Filter 2 Frequency:	55 Hz	55 Hz	55 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 2 Level (dB):	+ 3.0 dB	+ 2.0 dB	+ 3.0 dB
Filter 3 Type:	High Shelf	PEQ	PEQ
Filter 3 Frequency:	2,500 Hz	2,500 Hz	2,500 Hz
Filter 3 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 3 Level (dB):	- 2.0 dB	- 2.0 dB	- 2.0 dB

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Discontinued Speaker Models

MODEL	115TW (105 x 60)	115RW (105 x 60)	115TW (60 x 40)
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	40 Hz	40 Hz	40 Hz
Filter 1 Type:	PEQ	PEQ	PEQ
Filter 1 Frequency:	1,250 Hz	1,250 Hz	1,250 Hz
Filter 1 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 1 Level (dB):	-2.5 dB	-2.5 dB	-2.5 dB
Filter 2 Type:	PEQ	PEQ	PEQ
Filter 2 Frequency:	55 Hz	55 Hz	55 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 2 Level (dB):	+ 3.0 dB	+ 2.0 dB	+ 3.0 dB
Filter 3 Type:	High Shelf	PEQ	PEQ
Filter 3 Frequency:	2,500 Hz	2,500 Hz	2,500 Hz
Filter 3 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 3 Level (dB):	- 2.0 dB	- 2.0 dB	- 2.0 dB

MODEL	112UM	115UM	212IM (60 x 40)
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	65 Hz	60 Hz	50 Hz
Filter 1 Type:	PEQ	PEQ	PEQ
Filter 1 Frequency:	2,500 Hz	2,500 Hz	900 Hz
Filter 1 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 1 Level (dB):	- 2.5 dB	- 2.5 dB	- 2.5 dB

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Discontinued Speaker Models

MODEL	115RW (60 x 40)	215RW	CrossFieldArray
High-Pass Filter:	Butterworth 24 dB	Butterworth 24 dB	Butterworth 24 dB
High-Pass Frequency:	40 Hz	40 Hz	70 Hz
Filter 1 Type:	PEQ	PEQ	PEQ
Filter 1 Frequency:	600 Hz	1,250 Hz	800 Hz
Filter 1 Bandwidth:	0.5 octave / Q = 2.87	0.33 octave / Q = 4.3	0.5 octave / Q = 2.87
Filter 1 Level (dB):	- 2.0 dB	- 2.5 dB	+ 2.0 dB
Filter 2 Type:	PEQ	PEQ	PEQ
Filter 2 Frequency:	55 Hz	50 Hz	125 Hz
Filter 2 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	1 octave
Filter 2 Level (dB):	+ 2.0 dB	+ 3.0 dB	+ 2.0 dB
Filter 3 Type:	High Shelf	PEQ	PEQ
Filter 3 Frequency:	2,500 Hz	2,500 Hz	4,000 Hz
Filter 3 Bandwidth:	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3	0.33 octave / Q = 4.3
Filter 3 Level (dB):	- 2.5 dB	- 2.0 dB	-2.0 dB

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