AMPLIFIER CAPABILITIES

Quick Reference Guide

emacoustics

Introduction

This document is intended as a quick reference for the capabilities and limitations of how many products can be connected to each amplifier. There are two sets of numbers given – the maximum loudspeakers to ensure full headroom, and the maximum possible. The latter are often higher numbers, and whilst they will not allow you to achieve the full output from your loudspeakers, they will work without causing damage. If you are in any doubt or have any questions, please do contact your local representative or contact the EM Acoustics factory directly.

General Power Recommendations

It has always been the normal recommendation from EM Acoustics that to ensure full headroom, your amplifier should have at least twice the RMS power available for a given loudspeaker load – this ensures that the amplifier can handle transients without clipping or compromising performance.

It is possible to drive EM Acoustics loudspeakers with less power than recommended, with an associated drop in maximum available output. Care and attention must be taken to ensure the amplifier does not clip – limiters act as protection but will not prevent damage if the amplifier is consistently driven into a clipping state. Visual indicators on the front of the amplifier as well as in the System Engineer control software alert the user to potential issues.

A loudspeaker is far more likely to be damaged by an under-powered amplifier working too hard, than an over-powered amplifier working well within its limits.

Loudspeaker Impedances

The majority of EM Acoustics loudspeakers have a nominal impedance of eight ohms, with a few exceptions as detailed below:

16 ohms:
- HALO-A HF section
- HALO-B HF section

12 ohms:
- EMS-41 loudspeaker

4 ohms:
- R12 loudspeaker
- S-215/ST-215 subwoofer
- S-18 subwoofer
- S-48 subwoofer

2 ohms:
- S-218/ST-218 subwoofer

Advanced System Amplifier output powers

Model	8Ω	4Ω	2Ω
DQ6/DQ6D	4 x 1500W	4 x 1500W	4 x 1500W
DQ10/DQ10D	4 x 1500W	4 x 2500W	4 x 2500W
DQ20/DQ20D	4 x 1500W	4 x 3000W	4 x 5000W
Di06/Di06D	8 x 750W	8 x 750W	8 x 750W
Di10/Di10D	8 x 1250W	8 x 1250W	8 x 1250W
Di20/Di20D	8 x 1500W	8 x 2500W	8 x 1500W

RMS output power per channel, all channels driven with continuous program material and a nominal ambient temperature of 40°C / 105°F

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Loudspeaker Drive Capacity (for full SPL output)

	DQ6	DQ10	DQ20	Di06	Di10	Di20
	qty per output/Total	qty per output/Total	qty per output/Total	qty per output/Total	qty per output/Total	qty per output/Total
EMS-41	6 / 24	6 / 24	6 / 24	3 / 24	4 / 32	6 / 48
EMS-51X	4 / 16	4 / 16	4 / 16	2 / 16	3 / 24	4 / 32
EMS-61	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
EMS-81X	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
EMS-101X	2 / 8	4 / 16	4 / 16	1 / 8	1 / 8	2 / 16
EMS-126/129	1 / 4	2 / 8	4 / 16	-	1 / 8	2 / 16
EMS-156/159	1 / 4	1 / 4	2 / 8	-	-	1 / 8
R4	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
R5	2 / 8	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
R6	1 / 4	2 / 8	4 / 16	-	1 / 8	2 / 16
R8	1 / 4	2 / 8	3 / 12	-	-	1 / 8
R10	1 / 4	1 / 4	2 / 8	-	-	1 / 8
R12	-	1 / 4	2 / 8	-	-	1 / 8
HALO-A (LF)*	-	1	2	-	-	1
HALO-A (HF)*	-	1	2	-	-	1
HALO-B (LF)**	1	2	4	-	1	2
HALO-B (HF)**	1	2	4	-	1	2
HALO-C	2 / 8	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
HALO-CS	1 / 4	2 / 8	4 / 16	-	1 / 8	2 / 16
S-48	1 / 4	2 / 8	2 / 8	-	1 / 8	2 / 16
S-12	1 / 4	1 / 4	2 / 8	-	-	1 / 8
S-15	1 / 4	1 / 4	3 / 12	-	1 / 8	2 / 16
S-18	-	1 / 4	2 / 8	-	-	1 / 8
S-215/ST-215	-	-	1 / 4	-	-	-
S-218/ST-218	-	-	1 / 4	-	-	-
M-C12	2 / 8	3 / 12	4 / 16	1 / 8	1 / 8	2 / 16
M-C15	2 / 8	3 / 12	4 / 16	1 / 8	1 / 8	2 / 16
i-C12	2 / 8	3 / 12	4 / 16	1 / 8	1 / 8	2 / 16
i-C15	2 / 8	3 / 12	4 / 16	1 / 8	1 / 8	2 / 16

* - The numbers given correspond to the number of frequency sections wired in parallel for the output. Common practice would be to use half the channels in an amplifier to drive LF, and half to drive HF – so complete loudspeakers are driven from a given amplifier. In this way, for example a DQ10 would be able to power two HALO-A loudspeakers (CH1 LF-A, CH2 HF-A, CH3 LF-B, CH4 HF-B) or a Di20 could power four HALO-A loudspeakers (CH1 LF-A, CH2 HF-A, CH3 LF-B, CH4 LF-B, CH5 LF-C, CH6 HF-C, CH7 LF-D, CH8 LF-D).

** - The numbers given correspond to the number of frequency sections wired in parallel for the output. Common practice would be to use half the channels in the amplifier to drive LF, and half to drive HF – so complete loudspeakers are driven from a given amplifier. In this way, for example a DQ6 would be able to power two HALO-B loudspeakers (CH1 LF-A, CH2 HF-A, CH3 LF-B, CH4 HF-B) or a Di10 could power four HALO-B loudspeakers (CH1 LF-A, CH2 HF-A, CH3 LF-B, CH4 LF-B, CH5 LF-C, CH6 HF-C, CH7 LF-D, CH8 LF-D).

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Loudspeaker Drive Capacity (maximum permitted)

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	DQ6	DQ10	DQ20	Di06	Di10	Di20
	qty per output/Total	qty per output/Total	qty per output/Total	qty per output/Total	qty per output/Total	qty per output/Total
EMS-41	6 / 24	6 / 24	6 / 24	6 / 48	6 / 48	6 / 48
EMS-51X	4 / 16	4 / 16	4 / 16	4 / 32	4 / 32	4 / 32
EMS-61	4 / 16	4 / 16	4 / 16	2 / 16	4 / 32	4 / 32
EMS-81X	4 / 16	4 / 16	4 / 16	2 / 16	4 / 32	4 / 32
EMS-101X	3 / 12	4 / 16	4 / 16	2 / 16	3 / 24	4 / 32
EMS-126/129	2 / 8	3 / 12	4 / 16	1 / 8	2 / 16	3 / 24
EMS-156/159	2 / 8	2 / 8	4 / 16	1 / 8	1 / 8	2 / 16
R4	4 / 16	4 / 16	4 / 16	2 / 16	3 / 24	4 / 32
R5	3 / 12	4 / 16	4 / 16	2 / 16	3 / 24	4 / 32
R6	2 / 8	3 / 12	4 / 16	1 / 8	2 / 16	2 / 16
R8	2 / 8	2 / 8	4 / 16	-	2 / 16	2 / 16
R10	1 / 4	2 / 8	2 / 8	-	1 / 8	2 / 16
R12	1 / 4	1 / 4	2 / 8	-	1 / 8	1 / 8
HALO-A (LF)*	1	2	4	-	1	2
HALO-A (HF)*	1	2	4	-	1	2
HALO-B (LF)**	3	3	4	-	1	3
HALO-B (HF)**	3	3	4	-	1	3
HALO-C	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
HALO-CS	2 / 8	3 / 12	4 / 16	1 / 8	2 / 16	3 / 24
S-48	2 / 8	2 / 8	2 / 8	1 / 8	2 / 16	2 / 16
S-12	1 / 4	2 / 8	4 / 16	1 / 8	1 / 8	2 / 16
S-15	1 / 4	2 / 8	4 / 16	-	1 / 8	2 / 16
S-18	1 / 4	2 / 8	2 / 8	-	1 / 8	2 / 16
S-215/ST-215	1 / 4	1 / 4	2 / 8	-	-	1 / 8
S-218/ST-218	-	1 / 4	1 / 4	-	-	1 / 8
M-C12	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
M-C15	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
i-C12	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24
i-C15	3 / 12	4 / 16	4 / 16	1 / 8	2 / 16	3 / 24

* - The numbers given correspond to the number of frequency sections wired in parallel for the output. Common practice would be to use half the channels in the amplifier to drive LF, and half to drive HF – so complete loudspeakers are driven from a given amplifier. In this way, for example a DQ10 would be able to power four HALO-A loudspeakers (CH1 LF-A&B, CH2 HF-A&B, CH3 LF-C&D, CH4 HF-C&D) or a Di20 could power eight HALO-A loudspeakers (CH1 LF-A&B, CH2 HF-A&B, CH3 LF-C&D, CH4 LF-C&D, CH5 LF-E&F, CH6 HF-E&F, CH7 LF-G&H, CH8 LF-G&H).

** - The numbers given correspond to the number of frequency sections wired in parallel for the output. Common practice would be to use half the channels in the amplifier to drive LF, and half to drive HF – so complete loudspeakers are driven from a given amplifier. In this way, for example a DQ6 would be able to power two HALO-B loudspeakers (CH1 LF-A, CH2 HF-A, CH3 LF-B, CH4 HF-B) or a Di10 could power four HALO-B loudspeakers (CH1 LF-A, CH2 HF-A, CH3 LF-B, CH4 LF-B, CH5 LF-C, CH6 HF-C, CH7 LF-D, CH8 LF-D).

These limits must not be exceeded – damage to both loudspeakers and amplifiers can occur if exceeded.

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