



FEATURES

- Dual 18 in subwoofer
- SB1000 performance in an 850 format enclosure
- Stacking enclosure without fly-track hardware
- Companion to KF850z full-range

DESCRIPTION

The SB850zR incorporates recently developed advances in loudspeaker technology and performance by EAW Engineers. A deeper enclosure was designed to allow use of the same driver used in the legendary SB1000. This significantly enhances the SB850zR performance, providing the same high impact and low frequency response of the SB1000 but in an enclosure footprint matched to the KF850z. The "z" enclosures incorporate a stacking pad on top that mates with a recess in the bottoms. This facilitates stacking the SB850zR with the KF850z.

SB850zR DSP processor settings are available online for EAW's MX8750 as well as a select group of other popular touring processors. DSP settings have been engineered to acoustically integrate the SB850zR with the KF850z.

SB850 applications continue to include: concert tours, corporate events, large theaters, stadiums, cathedrals, large live music clubs. Six year warranty.

DUAL 18-IN SUBWOOFER

See TABULAR DATA notes for details

CONFIGURATION

Subsystem	Transducer	Loading
Sub	2x 18 in cone	Vented

Operating Mode	Amplifier Channels	External Signal Processing
Single amp	LF1/LF2	DSP w/1-way filters
Dual amp	LF1, LF2	DSP w/1-way filters

PERFORMANCE ¹

Operating Range	30 Hz to 150 Hz	
Nominal Beamwidth	Horz	360°
	Vert	360°
Axial Sensitivity (whole space SPL)	LF1/LF2	100 dB
		30 Hz to 150 Hz
Peak Sensitivity (whole space SPL)	LF1/LF2	109 dB
		20 Hz to 20 kHz
Input Impedance (ohms)	Nominal	Minimum
	LF1/LF2	4
		4.1 @ 33 Hz & 130 Hz
	LF1, LF2	8
		8.2 @ 33 Hz & 130 Hz
Recommended High Pass Filter	High Pass =>20 Hz, 24 dB/octave Butterworth	

Accelerated Life Test ²

LF1/LF2	89 V	2000 W @ 4 ohm
LF1, LF2	89 V each	1000 W each @ 8 ohm

Calculated Axial Output Limit (whole space SPL)

	Average	Peak
LF1/LF2	133 dB	139 dB

ORDERING DATA

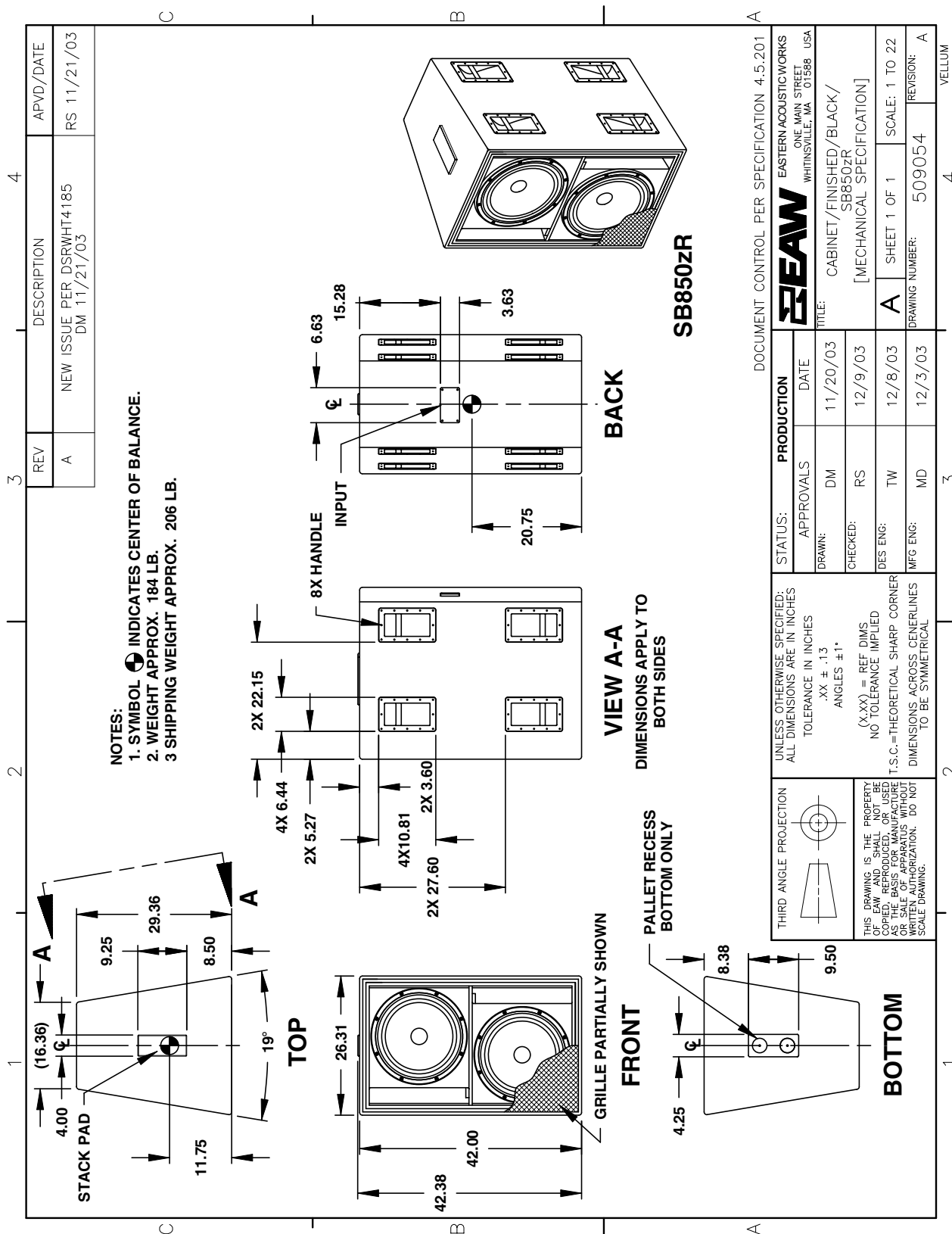
Description	Part Number
SB850zR Black	0006816
Optional Accessories	
KF850z/SB850z caster pallet	0007683
KF850z/SB850z caster pallet kit	0008835

¹ To achieve specified performance, the listed external signal processing with EAW-provided settings is required.

² For recommendations to select power amplifier size refer to: "HOW MUCH AMPLIFIER POWER DO I NEED?" on the EAW web site.

ENCLOSURE

Material Baltic birch plywood
 Finish Wear resistant textured black paint
 Grille Powder-coated perforated steel

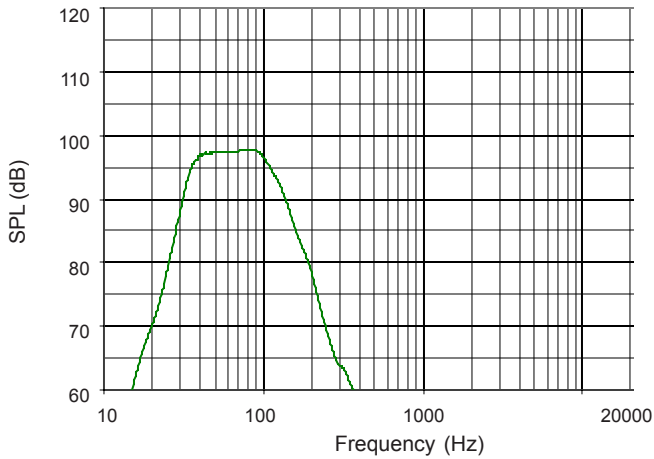


NOTE: This drawing has been reduced. Do not scale.

PERFORMANCE DATA See NOTES GRAPHIC DATA Notes for details

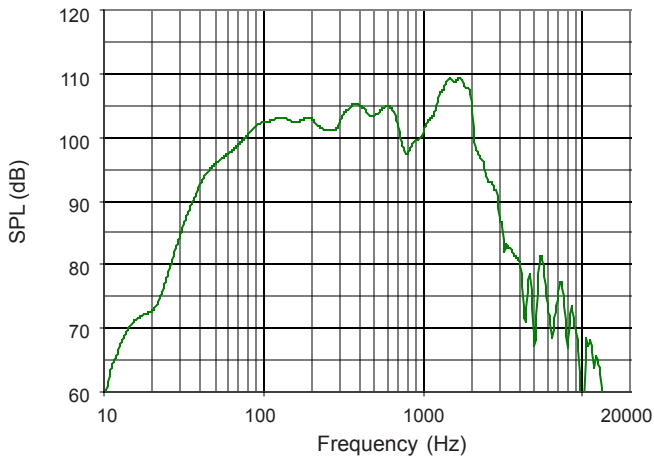
Frequency Response: Processed Single-amplified

LF = green



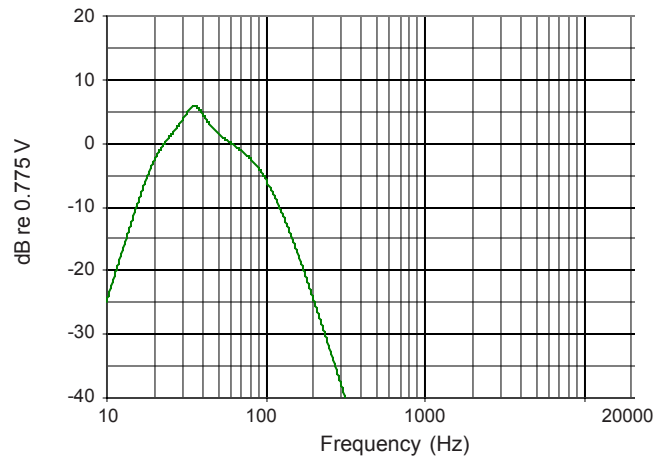
Frequency Response: Unprocessed: LF1/LF2

LF = green



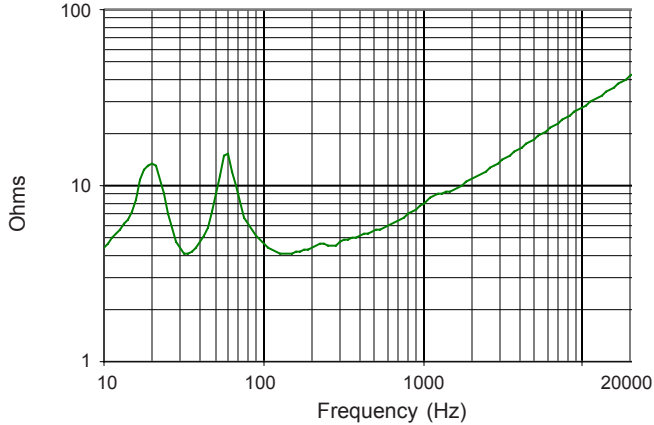
Frequency Response: Digital Signal Processor

LF = green

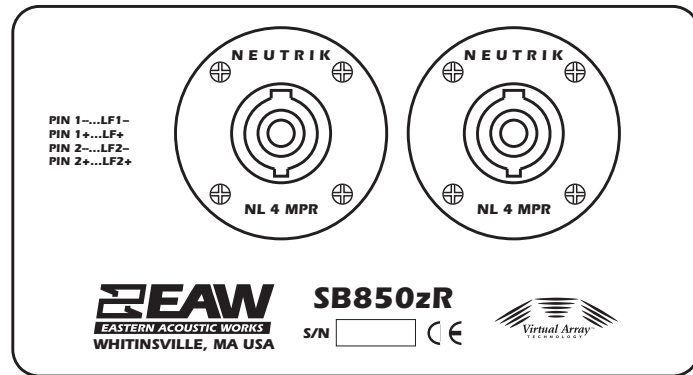


Impedance Magnitude: LF1/LF2

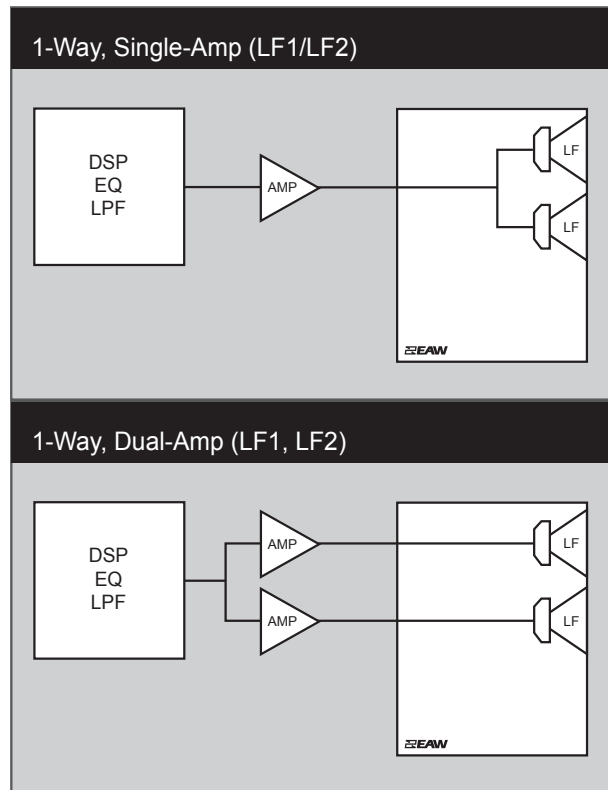
LF = green



INPUT PANEL



SIGNAL DIAGRAM



LEGEND

- DSP:** User-supplied Digital Signal Processor for EQ, crossover, and delay.
- HPF:** High Pass Filter for crossover or Recommended High Pass Filter.
- LPF:** Low Pass Filter for crossover.
- LF/MF/HF:** Low Frequency / Mid Frequency / High Frequency.
- AMP:** User-supplied Power Amplifier.
- XVR:** Passive LPFs, HPFs, and EQ integral to the loudspeaker.

NOTES

TABULAR DATA

1. **Primary Measurement/Data Processing System:** FChart: proprietary EAW software.
2. **Secondary Measurement System:** Brüel & Kjær 2012.
3. **Microphone Systems:** Earthworks M30; Brüel & Kjær 4133
4. **Measurements:** Dual channel FFT; length: 32 768 samples; sample rate: 48 kHz; logarithmic sine wave sweep.
5. **Measurement System Qualification** (includes all uncertainties): SPL: accuracy +/-0.2 dB @ 1 kHz, precision +/-0.5 dB 20 Hz to 20 kHz, resolution 0.05 dB; Frequency: accuracy +/- 1 %, precision +/-0.1 Hz, resolution the larger of 1.5 Hz or 1/48 octave; Time: accuracy +/-10.4 µs, precision +/-0.5 µs, resolution 10.4 µs; Angular: accuracy +/-1°, precision +/-0.5°, resolution 0.5°.
6. **Environment:** Measurements time-widowed and processed to eliminate room effects, approximating an anechoic environment. Data processed as anechoic or fractional space, as noted.
7. **Measurement Distance:** 7.6 to 8.0 m. Data is referenced to other distances using the Inverse Square Law.
8. **Volts:** Measured rms value of the test signal.
9. **Watts:** Per audio industry practice, "loudspeaker watts" are calculated as voltage squared divided by rated nominal impedance. Thus, these are not True Watt units of energy as defined by International Standard.
10. **SPL:** (Sound Pressure Level) Equivalent to the average level of a signal referenced to 0 dB SPL = 20 microPascals.
11. **Subsystem:** This lists the transducer(s) and their acoustic loading for each passband. Sub = Subwoofer, LF = Low Frequency, MF = Mid Frequency, HF = High Frequency.
12. **Operating Mode:** User selectable configurations. Between system elements, a comma (,) = separate amplifier channels; a slash (/) = single amplifier channel. DSP = Digital Signal Processor. IMPORTANT: To achieve the specified performance, the listed external signal processing must be used with EAW-provided settings.
13. **Operating Range:** Range where the processed Frequency Response stays within -10 dB SPL of the power averaged SPL within this range; measured on the geometric axis. Narrow band dips are excepted.
14. **Nominal Beamwidth:** Design angle for the -6 dB SPL points, referenced to 0 dB SPL as the highest level.
15. **Axial Sensitivity:** Power averaged SPL over the Operating Range with an input voltage that would produce 1 W at the nominal impedance; measured with no external processing on the geometric axis, referenced to 1 m.
16. **Peak Sensitivity:** Highest axial SPL measured within the 20 Hz to 20 kHz bandpass with an input voltage that would produce 1 W at the nominal impedance; measured with no external processing on the geometric axis, referenced to 1 m.
17. **Nominal Impedance:** Selected 4, 8, or 16 ohm resistance such that the minimum impedance point is no more than 20% below this resistance over the Operating Range.
18. **Accelerated Life Test:** Maximum test input voltage applied with an EIA-426B defined spectrum; measured with recommended signal processing and Recommended Protection Filter.
19. **Calculated Axial Output Limit:** Highest average and peak SPLs possible during the Accelerated Life Test. The Peak SPL represents the 2:1 (6 dB) crest factor of the Life Test signal.
20. **Recommended High Pass Filter:** This should be used to help protect the loudspeaker from excessive input signal levels below the Operating Range.

GRAPHIC DATA

1. **Resolution:** To remove insignificant fine details, 1/12 octave cepstral smoothing was applied to acoustic frequency response and 1/3 octave cepstral smoothing was applied to the beamwidth and impedance data. Other graphs are plotted using raw data.
2. **Frequency Responses:** The variation in acoustic output level with frequency for a constant input signal of 2 volts (4 ohm nominal impedance), 2.83 volts (8 ohm nominal impedance), or 4 volts (16 ohm nominal impedance) referenced to a distance of 1 m. For processed systems, this applies where the processor gain is 0 dB in the Processor Frequency Response graph.
3. **Processor Response:** The variation in output level with frequency for a constant input signal of 0.775 V = 0 dB reference.
4. **Beamwidth:** Average angle for each 1/3 octave frequency band where, starting from the rear of the loudspeaker, the output first reaches -6 dB SPL referenced to 0 dB SPL as the highest level. This method means the output may drop below -6 dB SPL within the beamwidth angle. Referenced to 20 m.
5. **Impedance:** Variation in impedance magnitude, in ohms, with frequency without regard to voltage/current phase. This means the impedance values may not be used to calculate True Watts (see 9 above).

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