



(shown without grille)

DESCRIPTION

- Extraordinary impact
- High efficiency
- Extended response

The KF940 is a horn loaded subwoofer that provides output levels, frequency response extension, and efficiency completely out of proportion to its size. Widely known as the SuperSub™, The KF940 is engineered to be used in arrays of four or more to produce extremely high output sub bass response to the very bottom of the audible spectrum.

To provide the 13-foot horn length needed for the desired enclosure size, EAW Engineers used advanced, bent rather than folded horn technology. Folding creates sharp corners that do not allow the expanding sound wave front to maneuver well above certain frequencies. This reduces output and increases distortion through air turbulence. Bending instead of folding allows all frequencies to easily pass without interference. This minimizes size without minimizing sound quality and output. The two 12-in drivers are specially designed to endure the extreme conditions the SuperSub imposes.

For portability, the KF940 includes balance-optimized handles and a heavy duty, caster pallet that bolts to its rear.

The KF940 is appropriate for any application requiring extremely high output levels of sub bass information. Relatively small SuperSub™ arrays have successfully filled the largest stadiums and arenas with high impact, sub bass information. Applications include stadiums concert tours, nightclubs, raves, dance clubs, houses of worship, corporate A/V, and theatres.

The KF940 is designed to be used with today's sophisticated digital signal processing to optimize the LF response. EAW's MX Series processors are recommended for the required crossover and equalization. Six Year Warranty.

DUAL 12 INCH HORN SUBWOOFER

See NOTES TABULAR DATA for details, half space = floor-mounted

CONFIGURATION

| Subsystem | | |
|----------------|--------------------|----------------------------|
| | Transducer | Loading |
| SUB | 2x 12 in cone | Horn-loaded |
| Operating Mode | | |
| | Amplifier Channels | External Signal Processing |
| Single-amp | LF1/LF2 | DSP w/1-way filter |
| Dual-amp | LF1, LF2 | DSP w/1-way filter |

PERFORMANCE ¹

| | |
|--------------------------|-----------------|
| Operating Range | 23 Hz to 185 Hz |
| Nominal Beamwidth | |
| Horz | 360° |
| Vert | 360° |

| Axial Sensitivity (SPL) | |
|-------------------------|--------|
| LF1/LF2 (whole space) | 106 dB |
| (half space) | 116 dB |
| 4x KF940 (whole space) | 110 dB |

| Input Impedance (ohms) | | |
|------------------------|----------|--------------------|
| | Nominal | Minimum |
| LF1/LF2 | 4 | 4.5 @ 35 Hz |
| LF1, LF2 | 8 (each) | 9.1 @ 33 Hz (each) |

| High Pass Filter | |
|------------------|-----------------------------------|
| High Pass | =>24 Hz, 12 dB/octave Butterworth |

| Accelerated Life Test ² | | |
|------------------------------------|----------------------|----------------------|
| System | LF1/LF2 80 V | 1600 W @ 4 ohm |
| | LF1, LF2 80 V (each) | 800 W @ 8 ohm (each) |
| Transducer (AES) | 1000 W (each) | |

| Calculated Axial Output Limit (SPL) | | |
|-------------------------------------|---------|--------|
| | Average | Peak |
| LF1/LF2 (whole space) | 138 dB | 144 dB |
| (half space) | 148 dB | 154 dB |
| 4x KF940 (whole space) | 142 dB | 148 dB |

ORDERING DATA

| Description | Part Number |
|--|-------------|
| KF940 Dual 12 inch Subwoofer Black (Caster Pallet included) | 510655 |

Optional Accessories

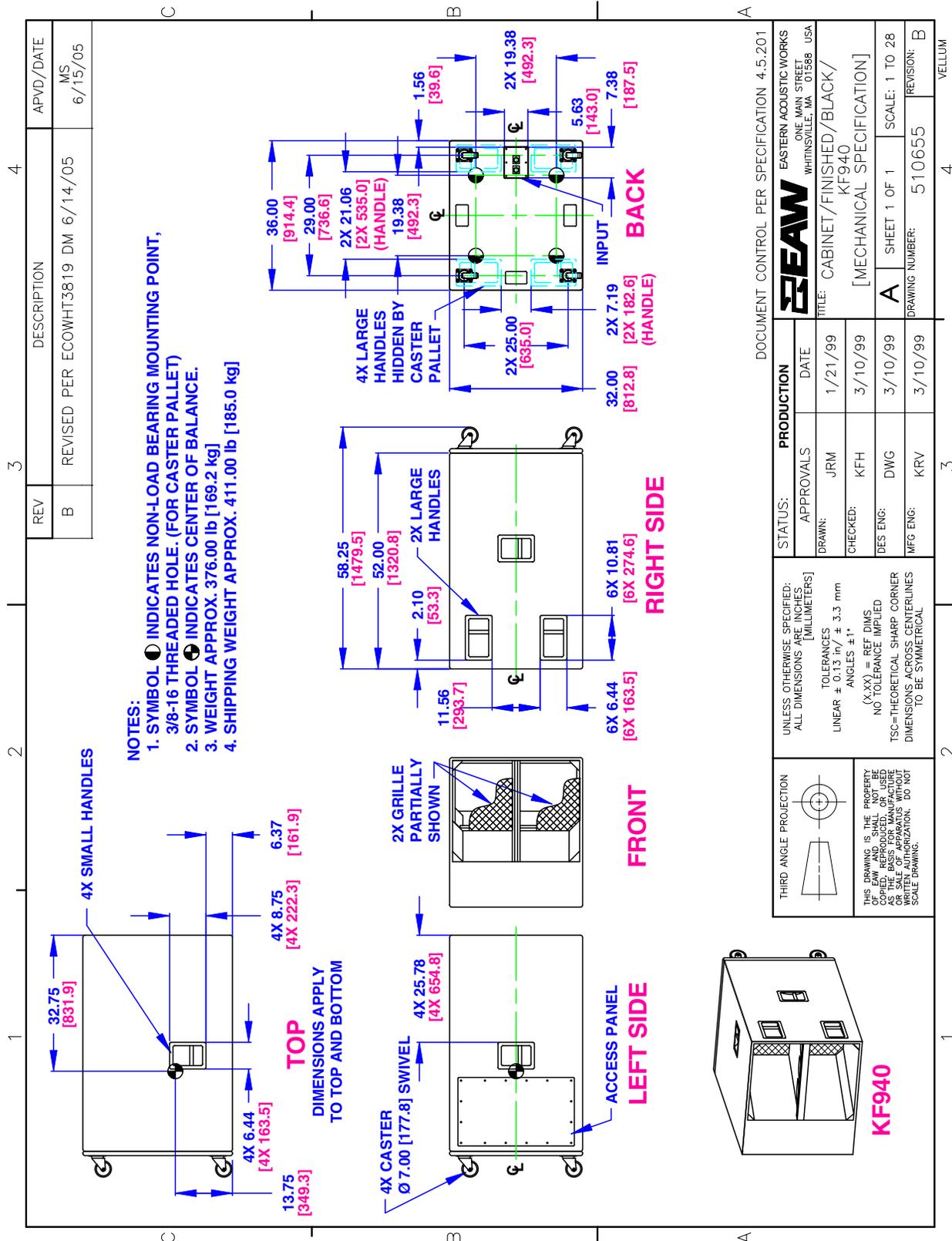
None

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 |



DOCUMENT CONTROL PER SPECIFICATION 4.5.201

| | |
|---|------------|
| EASTERN ACOUSTIC WORKS ONE MAIN STREET WHITINSVILLE, MA 01588 USA | |
| TITLE: CABINET/FINISHED/BLACK/ KF940 [MECHANICAL SPECIFICATION] | |
| A SHEET 1 OF 1 SCALE: 1 TO 28 DRAWING NUMBER: 510655 REVISION: B VELLUM | |
| STATUS: | |
| APPROVALS | PRODUCTION |
| DATE | DATE |
| DRAWN: JRM | 1/21/99 |
| CHECKED: KFH | 3/10/99 |
| DES ENG: DWG | 3/10/99 |
| MFG ENG: KRV | 3/10/99 |
| UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE INCHES [MILLIMETERS] | |
| TOLERANCES LINEAR ± 0.13 TO ± 3.3 mm ANGLES ± 1° | |
| (X.XX) = REF DIMS NO TOLERANCE IMPLIED TSC=THEORETICAL SHARP CORNER DIMENSIONS ACROSS CENTERLINES TO BE SYMMETRICAL | |
| THIRD ANGLE PROJECTION | |
| THIS DRAWING IS THE PROPERTY OF EAW. IT IS TO BE USED AS THE BASIS FOR MANUFACTURE AND REPAIR ONLY. WITHOUT WRITTEN AUTHORIZATION, IT IS NOT TO BE REPRODUCED AT ANY SCALE DRAWING. | |

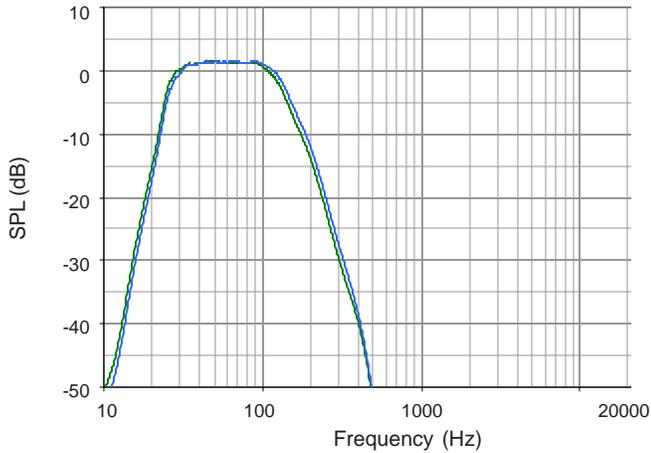
NOTES: This drawing has been reduced. Do not scale.
For WP version, add 0.25 in / 6.4 mm to the outside dimensions = 0.125 in / 3.2 mm all around.

PERFORMANCE DATA

See **NOTES GRAPHIC DATA** for details

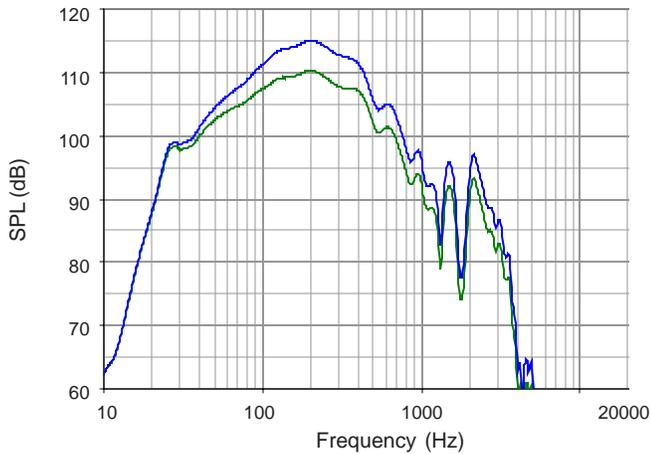
Frequency Response: Processed

Whole Space 1x = green, 2x2 = blue



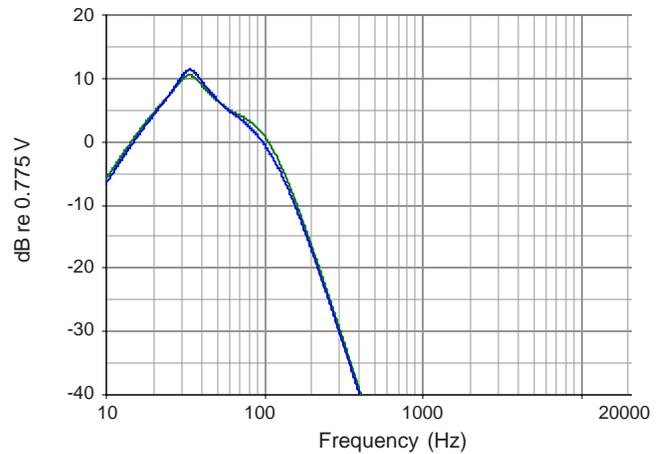
Frequency Response: Unprocessed

Whole Space 1x = green, 2x2 = blue



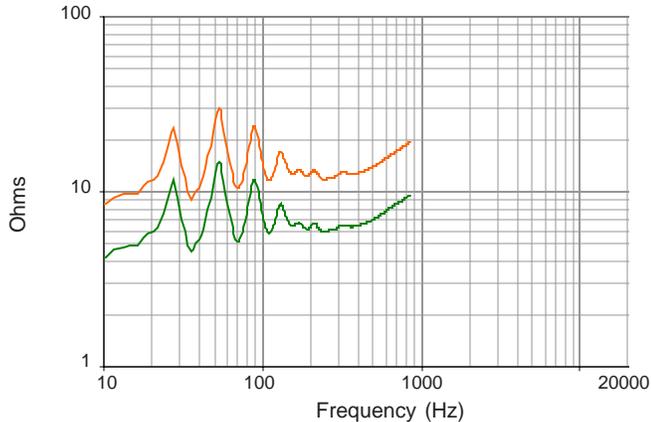
Frequency Response: Digital Signal Processor

1x = green, 2x2 = blue



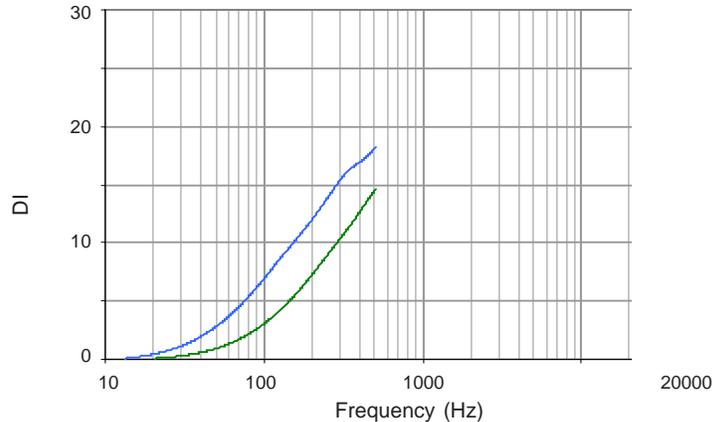
Impedance Magnitude

LF1/2 = green LF1, LF 2 (each) = orange

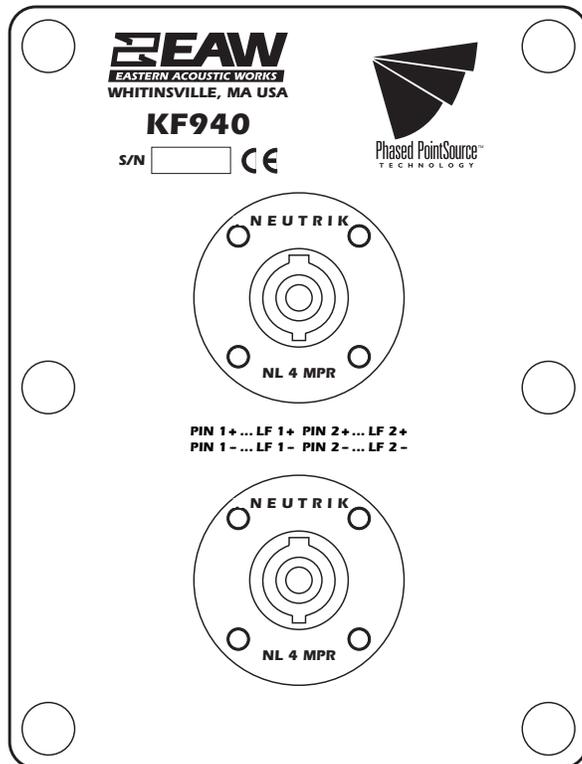


Directivity Index: Processed

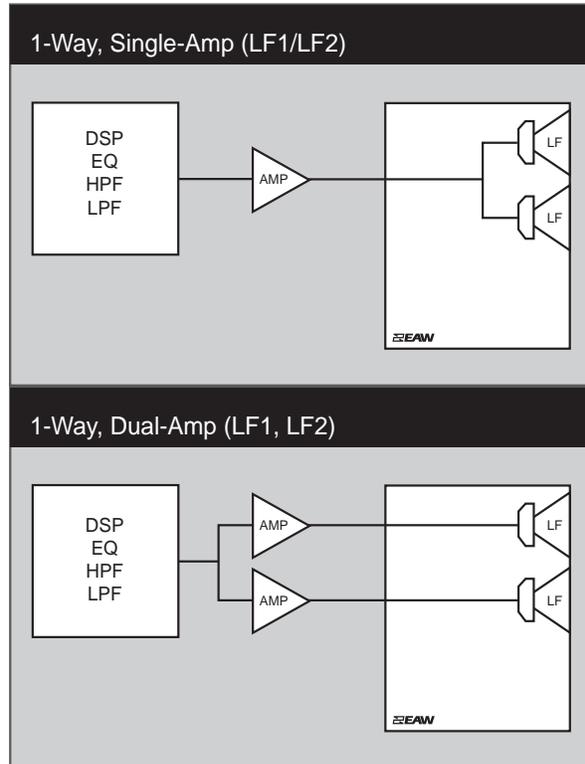
1x = green, 2x2 = blue



INPUT PANEL



SIGNAL DIAGRAM



LEGEND

- DSP:** User-supplied Digital Signal Processor.
- HPF:** High Pass Filter for crossover or specified 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. **Measurement/Data Processing Systems:** Primary - FChart: proprietary EAW software; Secondary - Brüel & Kjær 2012.
2. **Microphone Systems:** Earthworks M30; Brüel & Kjær 4133
3. **Measurements:** Dual channel FFT; length: 32 768 samples; sample rate: 48 kHz; logarithmic sine wave sweep.
4. **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°.
5. **Environment:** Measurements time-widowed and processed to eliminate room effects, approximating an anechoic environment. Data processed as anechoic or fractional space, as noted.
6. **Measurement Distance:** 7.46 m. Acoustic responses represent complex summation of the subsystems at 20 m. SPL is referenced to other distances using the Inverse Square Law.
7. **Volts:** Measured rms value of the test signal.
8. **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.
9. **SPL:** (Sound Pressure Level) Equivalent to the average level of a signal referenced to 0 dB SPL = 20 microPascals.
10. **Subsystem:** This lists the transducer(s) and their acoustic loading for each passband. Sub = Subwoofer, LF = Low Frequency, MF = Mid Frequency, HF = High Frequency.
11. **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.
12. **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.
13. **Nominal Beamwidth:** Design angle for the -6 dB SPL points, referenced to 0 dB SPL as the highest level.
14. **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.
15. **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.
16. **High Pass Filter:** This helps protect the loudspeaker from excessive input signal levels at frequencies below the Operating Range.
17. **Accelerated Life Test:** System: Maximum test input voltage applied with an EIA-426B defined spectrum; measured with specified signal processing; Transducer: AES2-1984 R 1997.
18. **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.

GRAPHIC DATA

1. **Resolution:** To remove insignificant fine details, 1/12 octave cepstral smoothing was applied to acoustic frequency responses and 1/3 octave cepstral smoothing was applied to the beamwidth and impedance data. Other graphs are plotted using raw data.
2. **Frequency Responses:** Variation in acoustic output level with frequency for a constant input signal. Processed: normalized to 0 dB SPL. Unprocessed inputs: 2 V (4 ohm nominal impedance), 2.83 V (8 ohm nominal impedance), or 4 V (16 ohm nominal impedance) referenced to a distance of 1 m.
3. **Processor Response:** The variation in output level with frequency for a constant input signal of 0.775 V = 0 dB reference.
4. **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 8 above).