FEATURES
• Two-way, full range loudspeaker
• Beamwidth-matching crossover point
• User-rotatable horn for optimized pattern control
• Easy lift handles (Black version only)

DESCRIPTION
The new VFR “i” revision brings the VF concept more fully into the EAW product line. VFR “i” Series black versions provide a handle designed into the rear of the cabinet. An installation only white version comes without handles or a pole mount cup.

The VFR89i two-way, full range loudspeaker system includes a direct-radiating, vented, 8-in LF cone transducer and a 1-in exit / 1.25-in voice coil HF compression driver loaded with a large, square, user-rotatable 90x50 coverage pattern horn built on the classic MK Series horns. These horns deliver exceptional high frequency dispersion, and their square shape lets users “rotate the enclosure around the horn” to maintain directivity in a horizontal configuration.

Because VF Series full range systems (VFR/VFM) use HF sections similar to those developed for the MK Series, EAW engineers could employ the same revolutionary “beamwidth-matching” internal passive crossover/filter networks that set the MK Series apart from all other two-way systems. If powered by an EAW-specified amplifier or via a UX Series digital signal processor, the VFR89i can enjoy the benefits of EAW Focusing, a technology that eliminates the anomalies inherent in the time domain of any loudspeaker.

The VFR89i black version includes traditional portable features such as a pole-mount cup, parallel NL4 4-terminal connectors, barrier strip connectors, an optional transformer and handles that accept accessory covers for permanent installation. The white, installation-only versions omit handles and the pole-mount cup but include NL4 connector, barrier strip connector, an optional transformer, and multiple mounting points. The new design leaves the enclosure sides completely smooth and attractive.

Six year warranty.

2-WAY FULL-RANGE LOUDSPEAKER  90° × 50°
See NOTES TABULAR DATA for details

CONFIGURATION

<table>
<thead>
<tr>
<th>Subsystem</th>
<th>Transducer</th>
<th>Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF</td>
<td>1× 8-in cone</td>
<td>Vented</td>
</tr>
<tr>
<td>HF</td>
<td>1× 1-in exit, 1.25-in voice coil compression driver</td>
<td>Horn-loaded</td>
</tr>
</tbody>
</table>

Operating Mode:

<table>
<thead>
<tr>
<th>Amplifier Channels</th>
<th>External Signal Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-amp LF/HF</td>
<td>High pass filter</td>
</tr>
</tbody>
</table>

PERFORMANCE

Operating Range: 70 Hz to 20 kHz

Nominal Beamwidth: (rotatable)
  Horz 90°
  Vert 50°

Axial Sensitivity (whole space SPL):
  LF/HF 92 dB  70 Hz to 20 kHz

Input Impedance (ohms):
  Nominal
  Minimum
  LF/HF 8  6.7 @ 197 Hz

Input Taps (With ACC-TXVFR Transformer installed):
  70V  128W / 64W / 32W / 16W
  100V 128W / 64W / 32W

High Pass Filter: High Pass =>65 Hz, 12 dB/octave Butterworth

Accelerated Life Test:
  LF/HF 51 V  325 W @ 8 ohm

Calculated Axial Output Limit (whole space SPL):
  Average
  Peak
  LF/HF 118 dB  124 dB

ORDERING DATA

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAW VFR89i Black</td>
<td>2041020-90</td>
</tr>
<tr>
<td>EAW VFR89i White</td>
<td>2041036-90</td>
</tr>
</tbody>
</table>

Optional Accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAW ACC TX VFR [ACC-TXVFR]</td>
<td>2039034</td>
</tr>
<tr>
<td>Eye Bolt Forged Shoulder M10 X 1.5 X 37mm</td>
<td>0029818</td>
</tr>
<tr>
<td>EAW U-Bracket V8U BLK [UBKT-V8U]</td>
<td>2039250</td>
</tr>
<tr>
<td>EAW U-Bracket V8U WHT [UBKT-V8U]</td>
<td>2039251</td>
</tr>
</tbody>
</table>

Eastern Acoustic Works  One Main Street  Whitinsville, MA 01588 USA  tel 800 992 5013 / +1 508 234 6158  fax 508 234 8251  www.eaw.com

EAW products are continually improved. All specifications are therefore subject to change without notice. Part Number: RD0758 Rev C00  JUL2014
Material: Hardwood plywood
Finish: Wear resistant textured black paint
Grille: Powder-coated perforated steel

NOTES:
1. SYMBOL • INDICATES CENTER OF BALANCE.
2. SYMBOL ○ INDICATES MOUNTING POINT, M10 THREADED HOLE (PI ANGLE).
3. SYMBOL □ INDICATES MOUNTING POINT, M10 THREADED HOLE (RIVET T-NUT).
4. SYMBOL △ INDICATES 2.0 [51] x 4.3 [108] x M6 MOUNTING PATTERN FOR CUSTOMER SUPPLIED MOUNTING SOLUTION.
5. SYMBOL ◇ INDICATES MOUNTING POINT, M6 THREADED HOLE.
6. WEIGHT APPROX. 22 lb [10.0 kg].
7. SHIPPING WEIGHT APPROX. 30 lb [13.6 kg].
ENCLOSURE

Material: Hardwood plywood
Finish: Wear resistant textured white paint
Grille: Powder-coated perforated steel

VFR89i WHITE

NOTE: This drawing has been reduced. Do not scale.
PERFORMANCE DATA
See NOTES GRAPHIC DATA for details

**Frequency Response: Processed**
Complete = blue

**Frequency Response: Unprocessed**
Complete = blue

**Impedance**
Complete = blue

**Phase Linearity**
Complete = blue

**Beamwidth**
Horizontal = orange Vertical = black
HORIZONTAL POLAR DATA
See NOTES GRAPHIC DATA for details

90°  135°  45°  0°  180°  -135°  -90°  -45°

100Hz
125Hz
160Hz
200Hz

1600Hz
2000Hz
2500Hz
3150Hz

250Hz
315Hz
400Hz
500Hz

4000Hz
5000Hz
6300Hz
8000Hz

630Hz
800Hz
1000Hz
1250Hz

10000Hz
12500Hz
16000Hz

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JUL2014
VERTICAL POLAR DATA
See NOTES GRAPHIC DATA for details
NOTES

TABULAR DATA
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-windowed 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. Enclosure Orientation: For beamwidth and polar specifications, as shown in Mechanical Specification drawing.
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 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. 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.
17. Accelerated Life Test: Maximum test input voltage applied with an EIA-426B defined spectrum; measured with recommended signal processing and Recommended Protection Filter.
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.
19. High Pass Filter: This helps protect the loudspeaker from excessive input signal levels at frequencies below the Operating Range.

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. 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.
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).
6. Polar Data: Horizontal and vertical polar responses for each 1/3 octave frequency band 100 Hz to 16 kHz or Operating Range.

LEGAL NOTICES

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Part Number: RD0758 Rev C00

JUL2014