

The Essential Home Theatre Resource™

WIDESCREEN

REVIEW®

Issue 40

Vandersteen V2W Powered Subwoofer



Vandersteen V2W Powered Subwoofer

Vandersteen Audio is a well-established high-end manufacturer. The company has been in business for about twenty-five years, making time and phase-correct loudspeakers that please critical music listeners like me, as well as home theatre enthusiasts who demand accuracy. Vandersteen has established a reputation for innovative engineering and efficient manufacturing techniques that enable the company to offer products that provide exceptional performance and value.

Until recently, the Vandersteen line included only a single subwoofer model called the 2WQ. It was narrowly focused to provide the most refined musical accuracy possible from a low-bass reproducer, and designed for use with full-range main speakers rather than small satellites with limited bass response. Home theatre buffs were sometimes frustrated by the 2WQ's method of connection.

The Vandersteen 2WQ is my favorite music subwoofer, and I own four of them. I use them for both music listening and home theatre. While I'm extremely pleased with the performance of the 2WQ subwoofers, this model may not be the best choice for everyone. The 2WQ is integrated with full-range main speakers using a unique first-order filter system that provides maximum sound quality and the most seamless

blend between the subwoofer(s) and the main speakers that I've heard. This sophisticated integration system makes it nearly impossible to use the 2WQ with the signal from the subwoofer output of a digital controller or receiver. The lack of a line-level input makes the 2WQ unsuitable as a subwoofer for LFE signals or as a system subwoofer utilizing the controller's bass management system. In order to provide home theatre enthusiasts with an alternative model that could be used with line-level signals, Vandersteen developed the V2W subwoofer that is reviewed here.

The V2W is aimed at the home theatre enthusiast who desires higher output capability along with accurate bass reproduction and good transient response. True to the Vandersteen tradition of providing exceptional performance and value for money, the V2W is not just another "driver in a box," tuned to play as loud as possible. It's a very sophisticated device with some unique features.

Like the 2WQ, the Vandersteen V2W uses three small active drivers instead of one large unit and adds a 12-inch passive radiator to increase output level capability. The V2W utilizes feed-forward error correction, slot-loading for the active drivers and a 300-watt Class B amplifier like the 2WQ. The addition of a passive radiator makes the V2W a vented design, which usually means diminished transient performance and increased group delay and phase shift. Has some performance been sacrificed in order to achieve higher output levels and offer a conventional line-level input? Let's examine the Vandersteen V2W and compare it to the 2WQ.

Outside

The Vandersteen V2W powered subwoofer is indistinguishable from the 2WQ model at first glance. It's a cube-shaped unit, about 18 inches on a side, that has grille cloth wrapped all the way around the middle with wood-veneered caps at the top and bottom. Corners on the end caps and the main enclosure are gently

rounded for a clean, subtle appearance. The review sample was finished in a honey-oak veneer with black cloth but other wood finishes and grille cloth colors are available. Three threaded inserts on the bottom accept spikes (furnished) for a firm foundation on carpeted floors.

The grille cloth that covers four sides of the enclosure is interrupted only by the amplifier heat sink and the integrated control/connector panel at the back of the unit. The generous 6.5 x 10-inch finned heat sink has a recessed area in the center containing the minimal connectors and controls. There are two RCA jacks for positive and reverse-phase input plus a knob that continuously varies phase an additional $\pm 90^\circ$ for a complete range of control. There is a gain control to vary output level from -10 to +10dB, and a ground connector. A fixed power cord is the only other feature on the back of the subwoofer.

Inside

The V2W subwoofer utilizes three 8-inch active drivers plus a 12-inch passive radiator. The drivers are identical to those used in the 2WQ model. They have 1.5-inch four-layer voice coils with winding length over one inch for extended linear travel, and carbon-loaded paper cones with butyl surrounds. Each driver has a 2.5-pound magnet. The total cone area of the three 8-inch drivers is almost equal to a single 15-inch driver, but the diaphragms are driven by three powerful motor systems, providing much tighter control over the smaller, stiffer cones. And the V2W has a forward-facing 12-inch passive radiator to minimize active driver excursion and augment response at low frequencies for higher output capability.

The three active drivers face downward and are slot-loaded into the room through openings around the enclosure just above the bottom wooden cap. (See the review of the 2WQ for details about slot-loading.) The passive radiator faces forward and radiates directly into the room through the grille cloth. It has a filled cone with exten-

sive damping to prevent out-of-band signals, which might cause midrange coloration from passing through the diaphragm.

The enclosure is rigidly braced and very solid and nonresonant. Some panels are 1.5 inches thick. Rapping your knuckles on this box will give you sore knuckles—it's like knocking on a rock. The two Vandersteen subwoofer models have the most solidly constructed and acoustically dead enclosures of any subwoofers I've reviewed.

The amplifier is the same 300-watt unit found in the renowned 2WQ model. It has a single pair of output devices capable of delivering 70 amperes of current. A sophisticated feed-forward error correction system prevents distortion from amplifier clipping or driver overload under any conditions (see the review of the 2WQ for details).

The V2W has line-level inputs only and is designed to use the crossover or bass management filters in a digital controller or receiver. It has no internal filters.

Sound

A vented subwoofer is nominally a fourth-order high-pass system, and adding equalization will take it to sixth-order or higher. Filters, whether they are electrical or mechanical, cause phase shift, group delay, and oscillation after the signal stops (ringing). The steeper the slope the greater these effects. Vented subwoofers typically have twice the phase shift and twice the group delay of sealed enclosure subwoofers and oscillate twice as long after the signal stops. The Vandersteen V2W is a vented subwoofer with a difference.

The V2W is electromechanically tuned to achieve a quasi-third-order Butterworth (QB3) alignment. Compared to a typical sixth-order vented subwoofer, it has half the phase shift, half the group delay and twice the damping to prevent oscillation. It plays much louder than its sealed box brother, the 2WQ, and is theoretically twice as good as its vented competitors. So how does it sound? About twice as good as any other vented subwoofer in the review and better than most of the sealed enclosure subs, too.

The V2W played about 6dB louder than the 2WQ at 35Hz and delivered a much greater sense of slam. Sound effects were presented with more authority and punch by the V2W, even though the output levels at 25Hz and 20Hz were identical to those measured from the 2WQ. The V2W main-

tained exceptionally flat response and provided unusually tight control and articulate definition for a vented design. I measured 108dB at 45Hz, 107dB at 40Hz, 108dB at 35Hz, 108dB at 30Hz, 104dB at 25Hz and 94dB at 20Hz.

Because the roll-off slope is slightly steeper, the V2W doesn't extend quite as deep into the infrasonic region as the 2WQ, but it gives the impression of more deep bass output on film sound because of its higher output capability at frequencies of 35Hz and above. Performance on sound effects was outstanding and there was never a whimper of distress, regardless of level or frequency. This subwoofer is unflappable.

The V2W's music reproduction capability was exceptional as well, rivaling but not quite equaling the performance of the outstanding 2WQ. The V2W did an excellent job of presenting the rhythm and pace of music. Pitch definition was excellent. There was almost no overhang and virtually no midrange coloration. The solidly constructed enclosure contributes essentially no sound to the room, and the slot-loaded drivers and damped passive diaphragm assure that any side band distortion from the active drivers will remain inaudible.

I managed to get a better blend with the main speakers using the V2W than with any other subwoofer in the review, except the 2WQ, which is unrivaled in this regard. When compared to other home theatre subs, the V2W sounded tighter and more integrated with the rest of the system, regardless of whether the source material was music or film sound.

Conclusion

The Vandersteen V2W doesn't play quite as loud as some of the others, but it does sound better than any other vented subwoofer in the review series so far. It outperforms all but the very best sealed enclosure subs, too.

One V2W will play as loud as two 2WQs and still do an outstanding job of accurately reproducing music. At just \$1,250, this is another incredible bargain from Vandersteen. If you are looking for a line-level compatible powered subwoofer for both home theatre and music listening, you'll not find a better candidate than the Vandersteen V2W no matter how much you pay. ■■

Music Rating	4.5
Effects Rating	5
Impact	5
Tonal Definition	5
Overhang	5
Rhythm and Pace	5
Midrange Coloration	5
Box Integrity	5
Distress	5
Subjective Deep Bass 105dB @ 35Hz? 25Hz?	5 Yes 5

Model: V2W Powered Subwoofer
 Enclosure Type: Vented (passive radiator)
 Drive Elements: Three 8-inch active drivers, one 12-inch passive
 Amplifier Power: 300 watts, Class B
 Low-Pass Filter: None
 High-Pass Filter: Line-level: none, speaker-level: none
 Size (WHD in inches): 17.75x18x17.75
 Weight: 80 lbs.
 Price: \$1,250
 Serial Number Of Unit Tested: 22004

Manufactured In The USA By:

Vandersteen Audio
 116 West Fourth Street
 Hanford, California 93230
 Tel: 559 582 0324
www.vandersteen.com

This review has been reprinted in its entirety from Issue 40 of Widescreen Review®, "The Essential Home Theatre Resource." Subscriptions may be obtained at the rate of \$34.00* for ten (10) issues. Telephone our Customer Relations Department at 909-676-4914 or 888-WSR-SUBS, or mail a check to: Widescreen Review, 27576 Commerce Center Drive, Suite 105, Temecula, CA 92590. All major credit cards are accepted.
 *Foreign subscription rates are \$40.00US Canada/Mexico, and \$75.00US International.

• Visit www.WidescreenReview.com for more reviews and related articles.

Visit:
www.audioperfectionist.com