



JBL VERTEC SUBCOMPACT VT4886 VT4883 README FILE



IMPORTANT NOTE:

JBL Professional VerTec VT4886 and VT4883 subcompact models must be used with JBL Professional factory presets.

Supported digital signal processing (DSP) platforms include: Crown Audio® I-Tech HD, Crown Audio® I-Tech, dbx® DriveRack® 4800, BSS Audio FDS-366T Omnidrive Compact Plus, BSS Audio Soundweb™ London.

Note: Refer to the appropriate Preset Summary sheet for the specific DSP unit that is being used to process your VerTec Subcompact system for channel assignments and preset descriptions.

Application-engineered VerTec subcompact presets provide a high degree of flexibility for a wide variety of configurations.

Short Throw (ST) presets are for smaller configurations (typically 1-3 enclosures) with nominally-flat high frequency response. ST presets are suitable for throw distances of up to approximately 30 meters (100 feet) and are intended for applications such as: distributed front fill, under-balcony and small format suspended or stacked Front-of-House and sidefill systems.

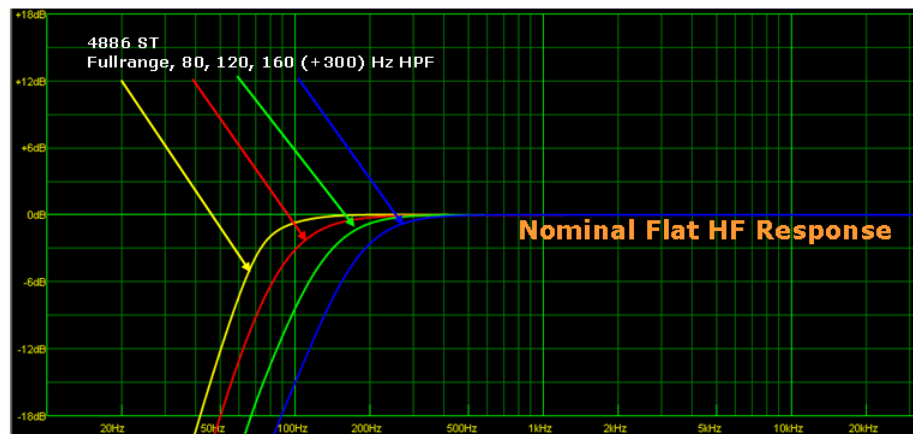
1x, 2x, 3x ST presets include specific equalization to compensate for low frequency coupling with one, two or three VT4886 enclosures, providing nominal flat response.

VT4886 STANDALONE

Short Throw Applications : Front Fill, Underbalcony, Stacked



1x, 2x, 3x Enclosure Presets Compensate for LF Coupling



ST = Short Throw



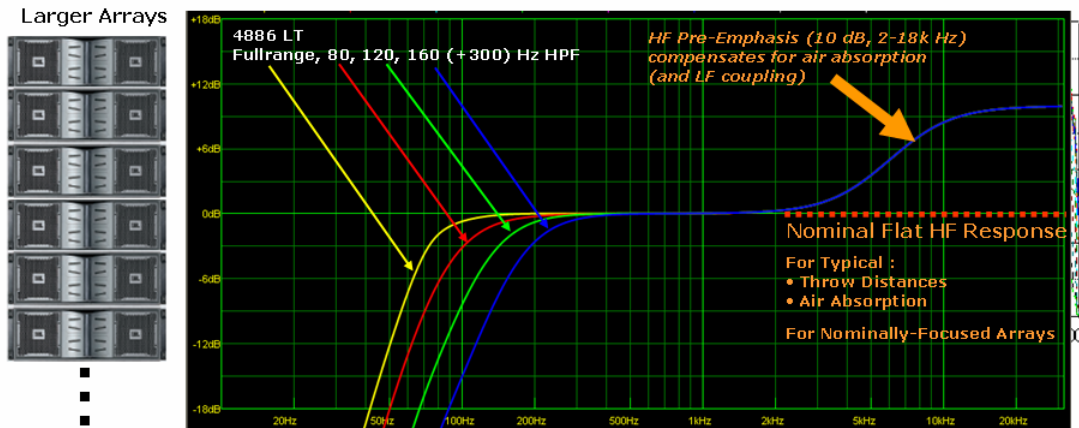
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Long Throw (LT) presets include additional HF shelving equalization to help offset air absorption and are suitable for longer throw applications (over 30 meters). Additional equalization is applied in the 120-300 Hz region to compensate for low frequency coupling effects of larger arrays.

VT4886 STANDALONE

Medium / Long Throw Applications (suspended)



LT = Long Throw

1x, 2x, 3x and LT Fullrange presets feature a 60 Hz high pass filter with low frequency shelving equalization providing flat low frequency response under half-space loading conditions. Fullrange presets allow the VT4886 to be used without additional subwoofers for limited bandwidth applications with more modest sound pressure level (SPL) expectations (although the VT4886 is capable of producing deceptively high SPL for its compact size). When using Fullrange presets without subwoofers, additional high pass filtering and/or equalization can be applied (for example, using the input EQ section on Crown iTech HD amplifiers) in order to achieve higher SPL output. For example, for underbalcony, center cluster or distributed front fill applications, in some cases high-pass filtering is desirable. Alternatively, 80 Hz or 120 Hz presets can be selected, depending on the application.

VT4886 / VT4883 2-Way presets are available with 80, 120, 160 and 300 Hz crossover points. The 80 Hz crossover point is recommended when VT4886 enclosures are suspended and VT4883 enclosures are ground-stacked or for any other configuration where VT4886 enclosures are physically separate from VT4883 enclosures. When physically-separated, additional subwoofer time delay will typically be required to account for the physical path difference between VT4886 and VT4883 enclosures (see below).

Selecting 120 Hz or 160 Hz crossover points simultaneously optimizes the power/bandwidth for both VT4883 subwoofers and the VT4886 enclosure, allowing for increased maximum SPL output. The 300 Hz crossover point provides “power response



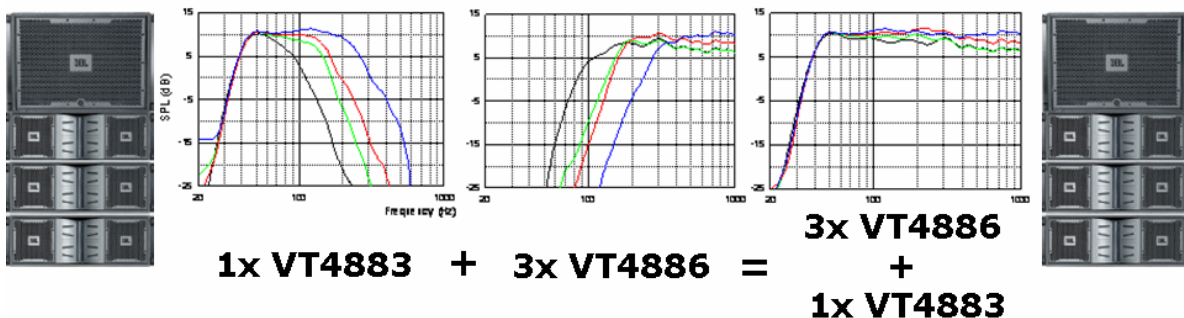
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compatibility” between the VT4886/VT4883 system and mid-size VT4888 and full-size VT4889 models since these models employ low/mid crossover points of 280 Hz and 300 Hz, respectively. The 300 Hz crossover point can also provide improved bass articulation and output by utilizing 12” transducers in the VT4883 over a wider bandwidth. A final advantage of the 300 Hz crossover point is the fact that it is possible to achieve broadband rear rejection (40-300 Hz) when the VT4883 is deployed in cardioid mode (see below).

For a 3:1 VT4886:VT4883 cabinet ratio, the VT4883 acts as a low frequency extension and nominal flat frequency response is obtained with 2x presets. Relative VT4883 and VT4886 gain scaling has been adjusted so that VT4886 3x ST and VT4886 LT presets have compatible tonal balance with approximately 6 dB low-frequency acoustical shelving characteristics below 140 Hz. Depending on exact cabinet ratios (3:1, 3:2, 1:1 etc) and the target low frequency contour characteristic, adjust VT4886 and VT4883 output gains to achieve the desired tonal balance and gain structure.

VT4883 = LOW FREQUENCY EXTENSION **2x VT4886 PRESETS 3:1 RATIO = NOMINAL FLAT**



80, 120, 160, 300 Hz Crossover Points
120 or 160 Hz : optimum 86/83 power bandwidth

To summarize, for 2-way use with VT4883 subwoofers (with subwoofers configured in either normal, i.e., all front-firing or cardioid configurations), VT4886 2x ST, 3x ST and LT presets are available with the following high pass filter options: 80 Hz, 120 Hz, 160 Hz, 300 Hz. Select the appropriate, complementary VT4883 subwoofer low pass filter according to the selected VT4886 preset and apply time delay to subwoofers to compensate for any path difference, if necessary.



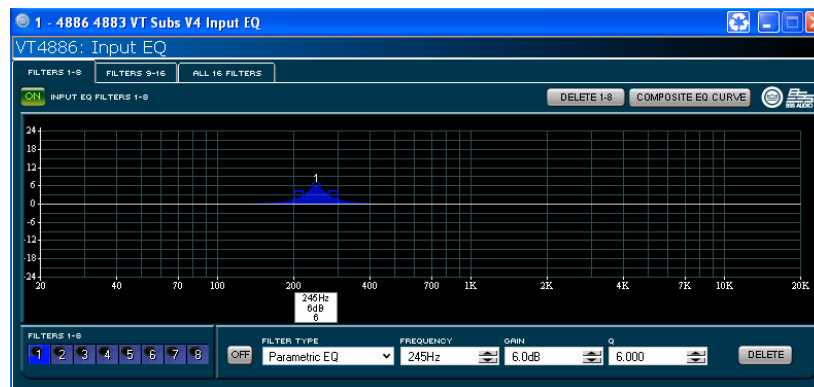
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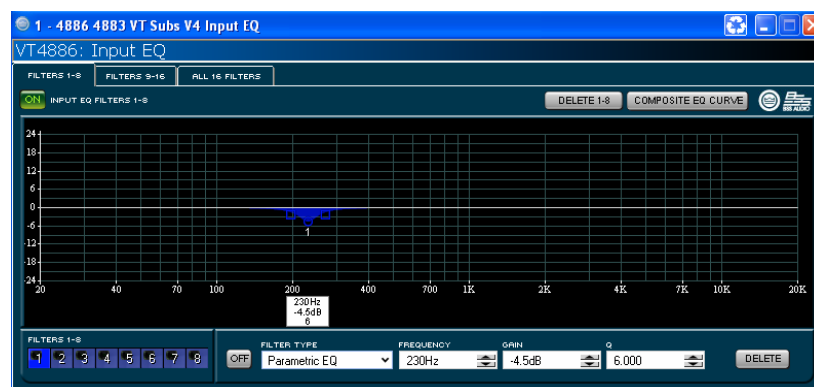
Additional / Optional 2-Way Preset Equalization (Input PEQ1)

For 2x and 3x 80, 120, 160, 300 ST presets, it is assumed that VT4886 enclosures are deployed in a physically separate configuration, for example, VT4886 enclosures are installed on top of VT4883 enclosures using the SS5-BK extension rod and UB-1 universal bracket. The same assumption holds for 4886 80 LT presets, i.e., VT4886 enclosures are suspended and physically-separate from ground-stacked VT4883 enclosures.

When VT4886s are stacked directly on top of VT4883s or suspended below VT4883s and 4886 80 LT or 2x 80, 120, 160, 300 ST or 3x 80, 120, 160, 300 ST presets employed, additional EQ can be applied to the VT4886 to compensate for VT4886/VT4883 mutual coupling conditions. An appropriate EQ filter has been pre-set as PEQ1 in the input section but is in bypass mode. For the above-described conditions, experiment with enabling PEQ1 to obtain the desired result:



The opposite holds true for 4886 120, 160 or 300 LT presets, i.e., the assumption is that VT4886 and VT4883 enclosures are normally closely-coupled when these presets are selected in order to optimize power bandwidth. When VT4886 enclosures are physically separate from VT4883 enclosures and 4886 120, 160 or 300 LT presets employed, additional EQ can be applied to compensate for the lack of VT4886/VT4883 mutual coupling (that is normally compensated for in these presets). An appropriate EQ filter has been pre-set as PEQ1 in the input section but is in bypass mode. When using 4886 120, 160 or 300 LT presets with physically-separate configurations, experiment with enabling PEQ1 to obtain the desired result:





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VT4886 / VT4883 / VERTEC SUBWOOFER 3-Way presets

For a 3:1:1 VT4886:VT4883:VerTec Subwoofer cabinet ratio, an enhanced sub/low contour is obtained that is suitable for more demanding sound reinforcement applications.

Two processing options are available: 60 Hz crossover point between VT4883 and VT subwoofers or overlap between VT4883 and VT subwoofers (X mode):



3W PRESETS

PROCESSING OPTION #1 (60 Hz Subwoofer Crossover Point)

VT4886 :	120 Hz HPF	160 Hz HPF	300 Hz HPF
VT4883 :	60-120 Hz	60-160 Hz	60-300 Hz
+			
VT4881A :	27-60 Hz		
VT4882 :	29-60 Hz		
VT4880 :	26-60 Hz		
VT4880A :	25-60 Hz		



3W PRESETS

PROCESSING OPTION #2 (X MODE : overlapping subwoofer operating bandwidths)

VT4886 :	80, 120, 160, 300 Hz HPF
VT4883 :	35-80, 120, 160, 300 Hz
+	
VT4881A :	27-80 Hz, inverted polarity
VT4882 :	29-80 Hz, inverted polarity
VT4880 :	26-80 Hz, inverted polarity
VT4880A :	25-80 Hz, inverted polarity

Note: Additional time delay will typically be required for ground-stacked VerTec subwoofers to account for the physical path difference relative to suspended VT4886 and VT4883 enclosures (see below).



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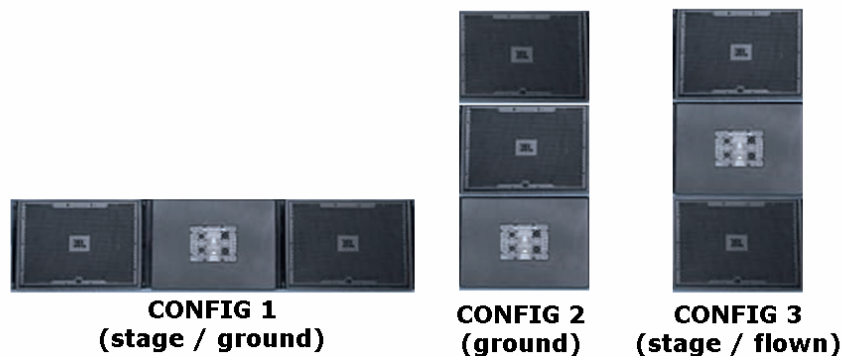


VT4883 CARDIOID CONFIGURATIONS

Front- and rear-firing processing is provided for three separate cardioid configurations termed: C1, C2 and C3. Cardioid configuration C1 is intended for low-profile, ground-stacked FOH use in corporate A/V, hotel ballroom, theater / performing arts center applications. Cardioid configuration C2 is intended for ground-stacked FOH or side fill. Cardioid configuration C3 is for suspended applications where VT4886 enclosures are flown below VT4883 enclosures but can also be used when ground stacking.

VT4883 CARDIOID CONFIGURATIONS

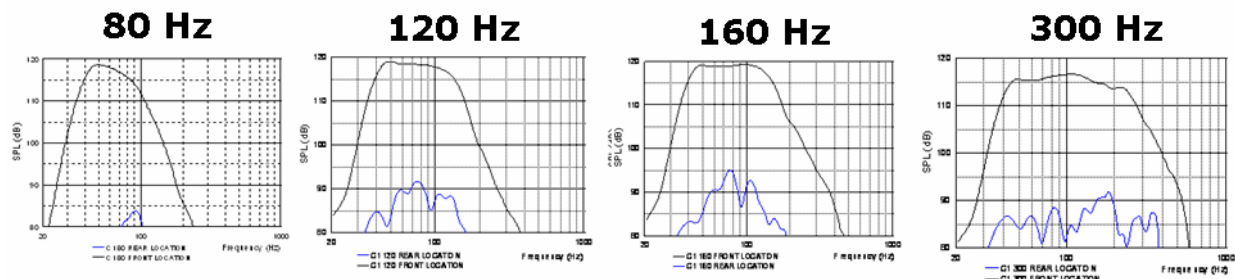
Configuration-Specific Presets:
80, 120, 160, 300 Hz LPF



Through advanced digital signal processing and cardioid configuration-specific presets, rear rejection on the order of 25-30 dB is obtained for these three configurations. As an example, results shown below are for the C1 configuration with a ground plane measurement location directly on-axis in front of the stack (black) versus directly on-axis behind the stack (blue):

CARDIOID CONFIGURATIONS

Configuration-Specific Presets:
80, 120, 160, 300 Hz LPF



25-30 dB Rear Rejection (broadband)



**CONFIG 1
(stage / ground)**



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As described above (VT4886 / VT4883 2-Way presets), a wide variety of crossover options are available that can be used with either normal subwoofer configurations (i.e., all enclosures front-firing) or cardioid configurations C1, C2, C3. Several examples are shown below to illustrate preset selection and processing options:

Example: Stacked Sidefill (cardioid config 2)

4886 / 4833 CROSSOVER OPTIONS:

	80 Hz	120 Hz	160 Hz	300 Hz
	4886 3x 80 ST	4886 3x 120 ST	4886 3x 160 ST	4886 3x 300 ST
	4883 4886 80	4883 4886 120	4883 4886 160	4883 4886 300
	4883 C2 80	4883 C2 120	4883 C2 160	4883 C2 300

Example: Flown FOH (cardioid config 3)

4886 / 4833 CROSSOVER OPTIONS:

	80 Hz	120 Hz	160 Hz	300 Hz
	4883 4886 80	4883 4886 120	4883 4886 160	4883 4886 300
	4883 C3 80	4883 C3 120	4883 C3 160	4883 C3 300
	4886 80 LT	4886 120 LT	4886 160 LT	4886 300 LT

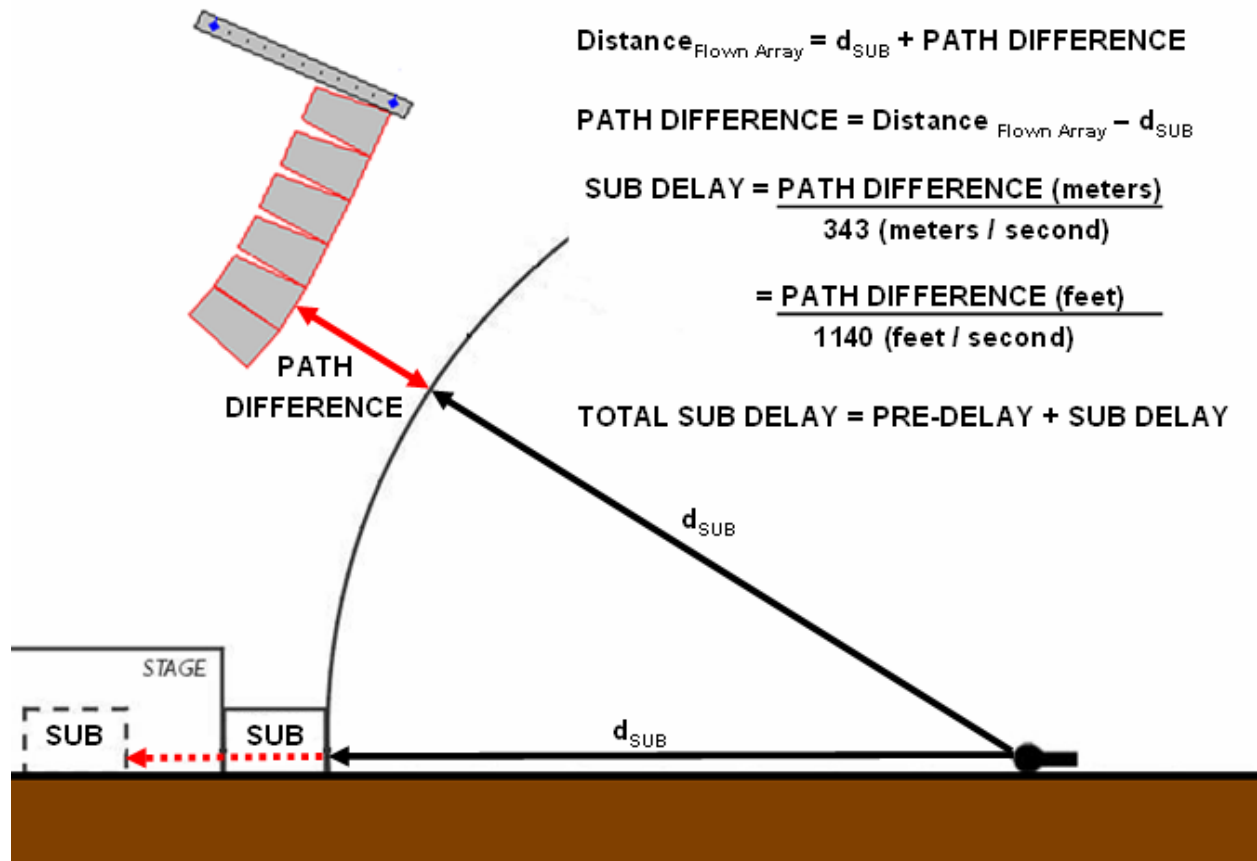


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SUBWOOFER TIME ALIGNMENT

Subwoofer sections for all presets are pre-time aligned for closely-coupled configurations where VT4886 enclosures are either stacked on top of VT4883 or suspended below VT4883 enclosures. For suspended VT4886 and ground-stacked VT4883 configurations or suspended VT4883/VT4886 and ground-stacked VT4881A, VT4882, VT4880 or VT4880A subwoofer configurations, simply add the measured geometric path length difference between flown versus ground stacked (at your reference location of choice) to the pre-aligned delay as a starting point for time alignment measurements and further adjustment.





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POWERING VERTEC SUBCOMPACT

Power handling specifications are as follows:

VT4886: 900 W continuous, 3600 W peak (AES / 2 hour)
700 W continuous, 2800 W peak (100 hour)

VT4883: 2000 W continuous, 8000 W peak (AES / 2 hour)
1600 W continuous, 6400 W peak (100 hour)

Recommended amplification:

VT4886: 1400 – 1800 W into 12 ohms (single enclosure)
2800 – 3600 W into 6 ohms (two enclosures in parallel)
4200 – 5400 W into 4 ohms (three enclosures in parallel)
5600 – 7200 W into 3 ohms (four enclosures in parallel)

VT4883: (2x) 1600 – 2000 W into 8 ohms (transducers powered individually)
3200 – 4000 W into 4 ohms (transducers powered in parallel)

As a minimum performance specification, the power amplifier should deliver twice the 100 hour power rating.

For optimum performance, the power amplifier should deliver twice the 2 hour power rating.

Power match for Crown I-Tech, Macro-Tech® i Series and I-Tech HD Series models are summarized below.

Note: Limiter thresholds for all VerTec Subcompact V4 presets have been specifically designed for Crown I-T12000HD power amplifiers.

For I-Tech 9000HD, the VT4886 HF peak limiter threshold should be lowered from 180 V to 170 V

For I-Tech 5000HD, the VT4886 HF peak limiter threshold should be lowered from 180 V to 160 V



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VT4886 MINIMUM POWER AMPLIFIER SPECIFICATION

(power amplifier delivers 2x 100 hour power rating)

NUMBER OF ENCLOSURES	LOAD (ohms)	REC'D POWER
1	12 ohms	1400 W
2	6 ohms	2800 W
3	4 ohms	4200 W
4	3 ohms	5600 W
6	2 ohms	8400 W

BOLD/ORANGE = RECOMMENDED

CROWN POWER AMPLIFIER OUTPUT SPECS

I-T4000	I-T6000	I-T8000	MA-5000i	MA-9000i	MA-12000i	I-T5000 HD	I-T9000 HD	I-T12000 HD
N/A	N/A	N/A	1100 W	1260 W	1680 W	1100 W	1260 W	1680 W
1625 W	2250 W	3050 W	1875 W	2500 W	3300 W	1875 W	2500 W	3300 W
2000 W	3000 W	4000 W	2500 W	3500 W	4500 W	2500 W	3500 W	4500 W
2280 W	3785 W	4950 W	2750 W	4100 W	5250 W	2750 W	4100 W	5250 W
2565 W	4570 W	5900 W	3000 W	4700 W	6000 W	3000 W	4700 W	6000 W

Note: Crown Macro-Tech 12000-i and I-Tech HD 12000 provide optimum power transfer for 4x VT4886 in parallel

VT4886 OPTIMUM POWER AMPLIFIER SPECIFICATION

(power amplifier delivers 2x 2 hour power rating)

VT4886 LF/MF/HF (PASSIVE)

NUMBER OF ENCLOSURES	LOAD (ohms)	REC'D POWER
1	12 ohms	1800 W
2	6 ohms	3600 W
3	4 ohms	5400 W
4	3 ohms	7200 W
6	2 ohms	10800 W

BOLD/ORANGE = RECOMMENDED

CROWN POWER AMPLIFIER OUTPUT SPECS

I-T4000	I-T6000	I-T8000	MA-5000i	MA-9000i	MA-12000i	I-T5000 HD	I-T9000 HD	I-T12000 HD
N/A	N/A	N/A	1100 W	1260 W	1680 W	1100 W	1260 W	1680 W
1625 W	2250 W	3050 W	1875 W	2500 W	3300 W	1875 W	2500 W	3300 W
2000 W	3000 W	4000 W	2500 W	3500 W	4500 W	2500 W	3500 W	4500 W
2280 W	3785 W	4950 W	2750 W	4100 W	5250 W	2750 W	4100 W	5250 W
2565 W	4570 W	5900 W	3000 W	4700 W	6000 W	3000 W	4700 W	6000 W

Note: Crown Macro-Tech 12000-i and I-Tech HD 12000 provide optimum power match for 3x VT4886 in parallel



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Since 12" transducers are individually circuited (NL4 or NL8 pins 1+/- and 2+/-) it is possible to operate VT4883 enclosures in parallel or discrete mode. In parallel mode, both 12" transducers are powered in parallel (output of one amplifier channel drives pins 1+/- and 2+/-). In discrete mode, 12" transducers are powered individually (one amplifier channel drives pins 1+/- and another amplifier channel drives pins 2+/-)

PARALLEL MODE (1 power amplifier channel drives 1+/- and 2+/-)

VT4883 MINIMUM POWER AMPLIFIER SPECIFICATION

(power amplifier delivers 2x 100 hour power rating)

NUMBER OF ENCLOSURES	LOAD (ohms)	REC'D POWER
1	4 ohms	3200 W
2	2 ohms	6400 W

BOLD/ORANGE = RECOMMENDED

CROWN POWER AMPLIFIER OUTPUT SPECS

I-T4000	I-T6000	I-T8000	MA-5000i	MA-9000i	MA-12000i	I-T5000 HD	I-T9000 HD	I-T12000 HD
2000 W	3000 W	4000 W	2500 W	3500 W	4500 W	2500 W	3500 W	4500 W
2565 W	4570 W	5900 W	3000 W	4700 W	6000 W	3000 W	4700 W	6000 W

VT4883 OPTIMUM POWER AMPLIFIER SPECIFICATION

(power amplifier delivers 2x 2 hour power rating)

NUMBER OF ENCLOSURES	LOAD (ohms)	REC'D POWER
1	4 ohms	4000 W
2	2 ohms	8000 W

BOLD/ORANGE = RECOMMENDED

CROWN POWER AMPLIFIER OUTPUT SPECS

I-T4000	I-T6000	I-T8000	MA-5000i	MA-9000i	MA-12000i	I-T5000 HD	I-T9000 HD	I-T12000 HD
2000 W	3000 W	4000 W	2500 W	3500 W	4500 W	2500 W	3500 W	4500 W
2565 W	4570 W	5900 W	3000 W	4700 W	6000 W	3000 W	4700 W	6000 W



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DISCRETE MODE (1 power amplifier channel drives 1+/- ; 1 power amplifier channel drives 2+/-)

VT4883 MINIMUM POWER AMPLIFIER SPECIFICATION

(power amplifier delivers 2x 100 hour power rating)

NUMBER OF ENCLOSURES	LOAD (ohms)	REC'D POWER
1	2 x 8 ohms	2 x 1600 W
2	2 x 4 ohms	2 x 3200 W
3	2 x 2.7 ohms	2 x 4800 W
4	2 x 2 ohms	2 x 6400 W

BOLD/ORANGE = RECOMMENDED

CROWN POWER AMPLIFIER OUTPUT SPECS

I-T4000	I-T6000	I-T8000	MA-5000i	MA-9000i	MA-12000i	I-T5000 HD	I-T9000 HD	I-T12000 HD
1250 W	1500 W	2100 W	1250 W	1500 W	2100 W	1250 W	1500 W	2100 W
2000 W	3000 W	4000 W	2500 W	3500 W	4500 W	2500 W	3500 W	4500 W
2375 W	4040 W	5260 W	2830 W	4295 W	5495 W	2830 W	4295 W	5495 W
2565 W	4570 W	5900 W	3000 W	4700 W	6000 W	3000 W	4700 W	6000 W

VT4883 OPTIMUM POWER AMPLIFIER SPECIFICATION

(power amplifier delivers 2x 2 hour power rating)

NUMBER OF ENCLOSURES	LOAD (ohms)	REC'D POWER
1	2 x 8 ohms	2 x 2000 W
2	2 x 4 ohms	2 x 4000 W
3	2 x 2.7 ohms	2 x 6000 W
4	2 x 2 ohms	2 x 8000 W

BOLD/ORANGE = RECOMMENDED

CROWN POWER AMPLIFIER OUTPUT SPECS

I-T4000	I-T6000	I-T8000	MA-5000i	MA-9000i	MA-12000i	I-T5000 HD	I-T9000 HD	I-T12000 HD
1250 W	1500 W	2100 W	1250 W	1500 W	2100 W	1250 W	1500 W	2100 W
2000 W	3000 W	4000 W	2500 W	3500 W	4500 W	2500 W	3500 W	4500 W
2375 W	4040 W	5260 W	2830 W	4295 W	5495 W	2830 W	4295 W	5495 W
2565 W	4570 W	5900 W	3000 W	4700 W	6000 W	3000 W	4700 W	6000 W



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POWERING VERTEC SUBCOMPACT WITH CROWN VRACK

Crown VRack provides a flexible, pre-packaged power amplifier rack solution that is ideal for powering VerTec Subcompact.

In the example below, a single NL8 cable per side can power 2x VT4883 (bottom amplifier: pins 1+/- and 2+/-); 3-4x VT4886 (top amplifier, pins 4+/-); 3-4x VT4886 (middle amplifier: pins 3+/-) for a total of 4x VT4883 and 12x VT4886



For further details on VRack, contact your Crown representative.