

W8VDQ

User's Guide



The Martin Experience

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1 Unpacking

Thank you for purchasing a Martin Audio W8VDQ system.

Each Martin Audio W8VDQ loudspeaker is built to the highest standard and thoroughly inspected before it leaves the factory. After unpacking the system, examine it carefully for any signs of transit damage and inform your dealer if any such damage is found. We suggest that you retain the original packaging so that the system can be repacked at a future date if necessary.

Please note that Martin Audio and its distributors cannot accept any responsibility for damage to any returned product through the use of non-approved packaging.

2 Introduction

The Martin Audio W8VDQ combines line array and differential dispersion technologies to provide an advanced solution to the requirement of even coverage over wide angles and throw distances. Short throw horizontal dispersion is 120°, narrowing to 100° as throw increases.

The vertical differential directivity, VDQ, creates progressively more HF output as throw distance increases. The resultant dispersion pattern is ideally suited to covering audiences located on flat or gradually sloping surfaces.

Features

- ✚ Compact, three-way, differential directivity system
- ✚ Hybrid™ quad 8" (200mm) LF + MF configuration
- ✚ LF + MF - 102dB @ 2.83V, 1m (single cabinet)
- ✚ Quad 1" (25mm) HF, all horn loaded - 106dB @ 2.83V, 1m
- ✚ Max 131dB continuous, 137dB peak output
- ✚ Consistent 100° long throw, 120° short throw (-6dB) horizontal mid and HF pattern control
- ✚ 30° vertical differential directivity, VDQ
- ✚ Passive or bi-amp operation
- ✚ Optional yoke/spigot mount adaptor
- ✚ Compatible with WMX, WS18X and WS218X sub-woofers

For maximum performance we recommend that W8VDQ systems are used with Martin Audio **DX1.5**, **DX2** or **Engineer** system controllers.

3 Safety first

It is important that loudspeaker systems are used in a safe manner. Please take some time to review the following points concerning safe use of W8VDQ loudspeaker systems.

Professional loudspeakers are capable of producing extremely high sound levels and should be used with care. Hearing loss is cumulative and can result from levels above 90dB if people are exposed for a long period.

Never stand close to loudspeakers driven at high level.

3.1 Pole or stand mounting

The W8VDQ incorporates a pole mounting ("top hat") sockets in the foot so that it may be pole or stand mounted.

When using poles or stands, the following precautions are advised:

- ✚ Ensure that the stand will support the weight of the speaker by checking the stand manufacturers rating.
- ✚ Make sure that the stand is placed on a level surface and that its legs are fully extended
- ✚ Do not place more than one speaker on each stand
- ✚ Run cables so that they do not present a trip hazard which could pull the speaker over
- ✚ When used outdoors in the wind, it may be necessary to add some weight to the base of the stand
- ✚ When using a pole mount with a sub-bass system, observe similar precautions.

3.2 Free standing

- ✚ Ensure that the floor, stage, platform or subwoofer is level and solid
- ✚ Ensure that the front of the W8VDQ does not overlap the front edge of the stage, platform or subwoofer. System stability relies on the whole front width of the W8VDQ – not just it's central foot
- ✚ Outdoor systems – or systems accessible by the audience – must be strapped down for safety
- ✚ Be aware that speakers producing very high power levels can vibrate, move or creep. Again, strapping will keep things safe

3.3 Yoke assembly

A yoke assembly (Martin Audio ASF20025) is available for easy suspension.

WARNING:

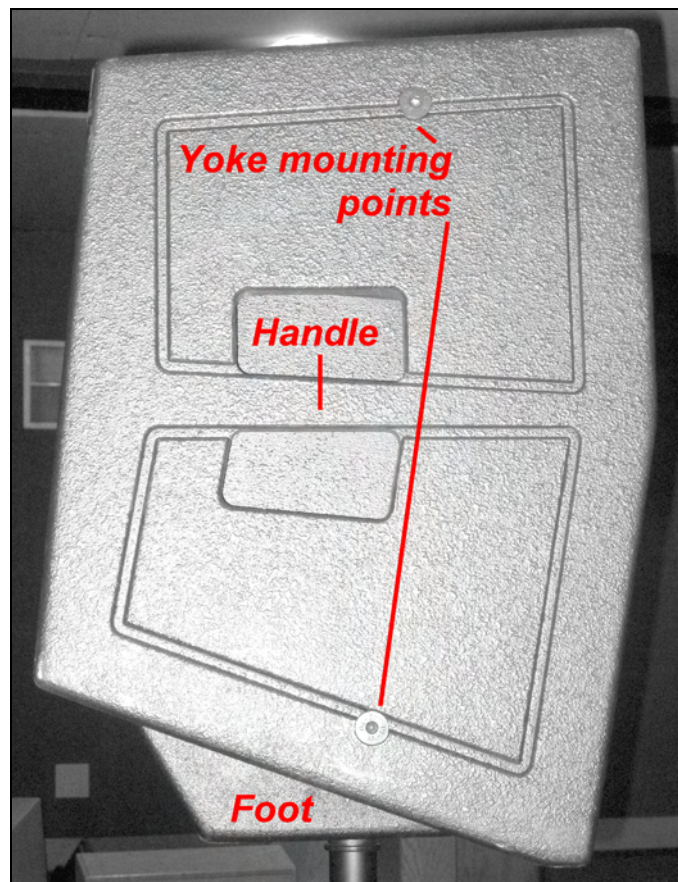
Suspending the system should only be done by qualified personnel following safe rigging practices. Secure fixings are vital. Seek help from architects, structural engineers or other specialists if in any doubt.

ASF20025 Yoke assembly & fitting

Assemble the yoke assemblies as follows...

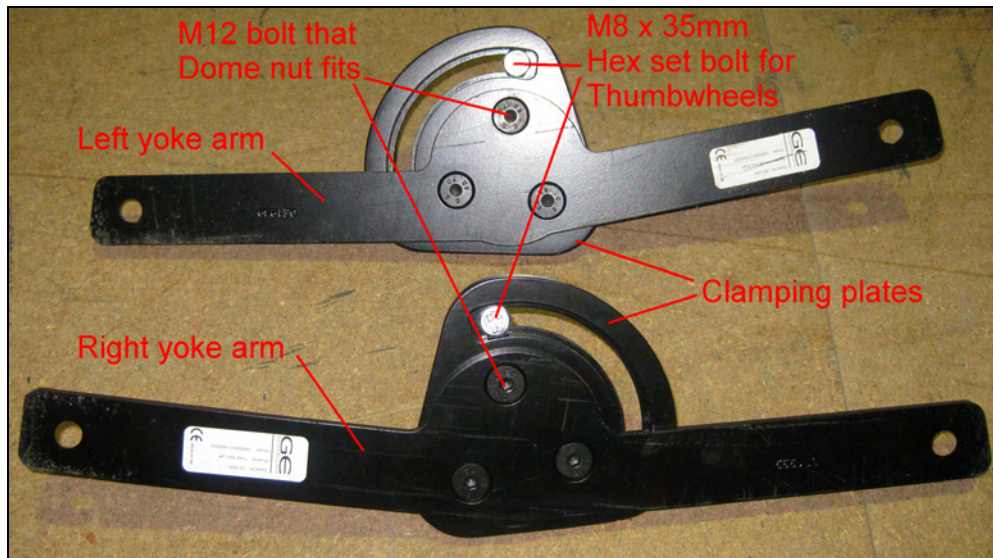
Important Note:

The yoke mounting point bolts must be removed in order to fit the yoke assembly. Always ensure that these bolts are replaced securely when the yoke is not in use.



Cabinet fittings

- a) Fit the clamping plate assemblies to the left and right yoke arms as illustrated.



Clamping plates fitted to left & right yoke arms.
Please note orientation.

- b) Fit the yoke arms to the yoke **before** bolting them to the W8VDQ.

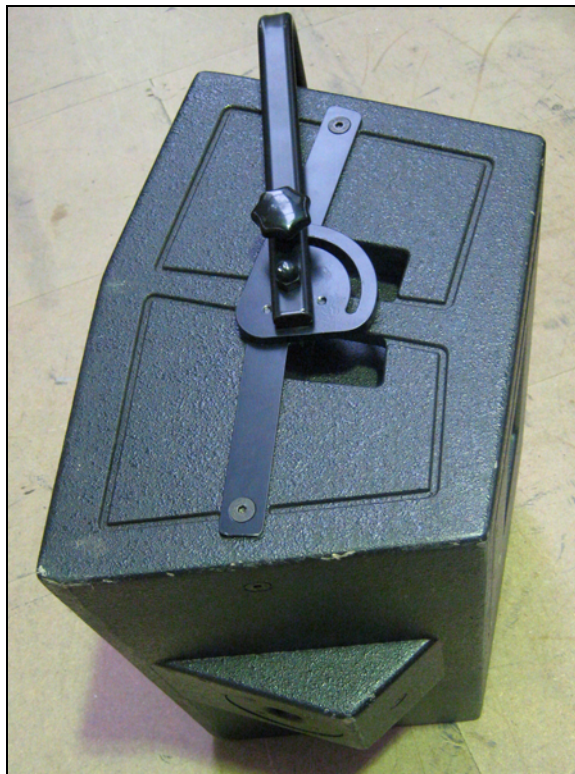


Ready to fit dome nut & thumbwheel



Dome nut & thumbwheel fitted

- c) Remove the yoke mounting bolts (see earlier) from the W8VDQ cabinet and fit the yoke assembly.



Note that the yoke arm follows the W8VDQ front curvature

The yoke may be turned upside down for an alternative tilt angle range...



Alternative orientation

4 Aiming for best coverage

The W8VDQ is designed for medium coverage – up to 25m distance x 100deg (120deg in the nearfield).

Height

The W8VDQ should always be mounted so that the bottom/foot is about 1m above near-field listener head-height (or 1m above front balcony listener level when used for a balcony fill) for the differential coverage to work correctly.

Nearfield attenuation

Note that the rear panel attenuation switch may be switched to -3dB if the nearfield audience is particularly close.

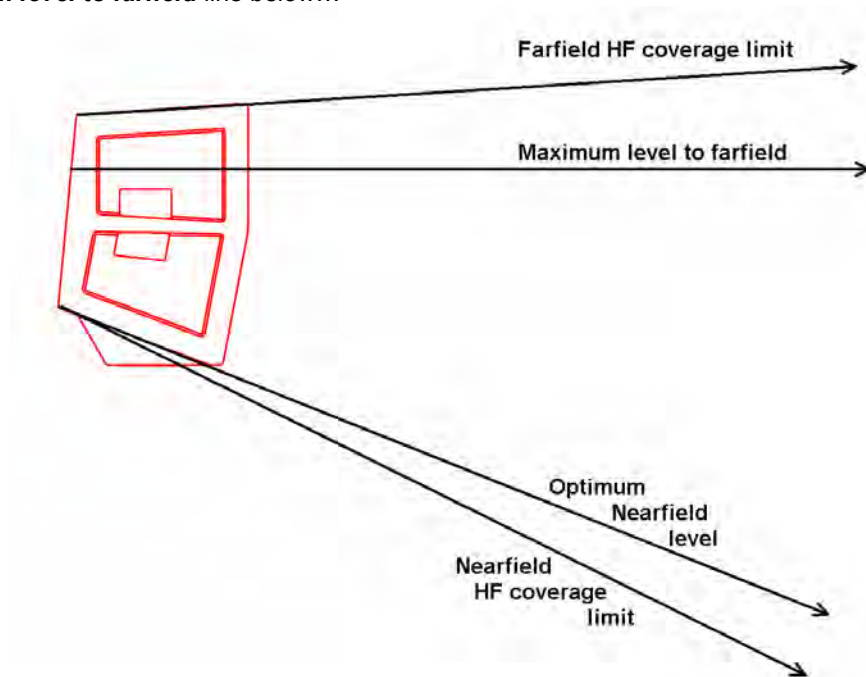


Nearfield attenuation switch

Aiming

The W8VDQ can cover approximately 30deg vertically. The easiest way to set the tilt angle for maximum rear audience level is to aim the top section of the grille straight towards the furthest seat.

See **Maximum level to farfield** line below...



Note that the W8VDQ's differential dispersion does not allow vertical arraying or stacking. The Martin Audio W8LM line array system provides optimal vertical coupling for vertical array applications.

Horizontal arraying (up to 60-100deg between W8VDQs) is possible.

5 Amplification & Control

Choosing a power amplifier

Martin Audio loudspeakers are capable of recreating musical dynamics accurately and with incredible impact if powered correctly. Martin Audio loudspeaker power ratings are quoted for **AES** power - a long-term average power rating, and **Peak** power – a short-term burst capability.

Moving coil loudspeakers can be run up to their **AES** power rating continuously and up to the higher **Peak** power rating for transient musical peaks.

- 1) Choose an amplifier with a power capability approaching 3200W into 6ohms. This means choosing a Martin Audio MA9.6 or MA12K power amplifier.
- 2) For spectral balance, set your amplifiers to the **same voltage gain throughout the system**. A common industry standard voltage gain is 32dB (x40). All Martin Audio limiters are set for this level.
- 3) If you use Crown amplifiers without a 32dB setting, set them to their 26dB (x20) standard and increase the recommended limiter thresholds by 6dB – making sure you double-check the amplifier gain setting before running the system at high level. Always check the amplifier **gain** settings – these are usually on the rear panel.
- 4) Avoid using **sensitivity** settings as these give different gains depending on the amplifier's power specification.

This policy avoids clipping transient peaks. Clipping not only sounds unacceptable but can seriously stress your system by dumping large amounts of distortion into the high frequency drivers - especially in passive mode.

Controllers

The W8VDQ must be used with a Martin Audio DX1.5, DX2 or Engineer controller system to ensure correct operation and protection.

DX1.5 (New for November 2008)

2 input, 6 output digital loudspeaker management system

The DX1.5 is a powerful 2in-6out DSP based audio processing unit for live applications and fixed installations.

The unit is configurable using its versatile 2input – 6output routing matrix. Each input has adjustable gain, delay and equalisation. Each output consists of a high and low pass filter, parametric equalisation, limiter, delay, gain and polarity controls.

DX2

4 input, 8 output digital loudspeaker management system

The 4in-8out DX2 embraces the very latest advances in technology to meet the ever increasing demand and expectations placed on professional audio systems. Based on a completely new processing platform, running at 96kHz, the DX2 sets a new standard in terms of performance, flexibility and ease of use.

The DX2 is a comprehensive digital loudspeaker management system, capable of being easily configured to meet the most demanding applications in both fixed installation and live touring environments. It is fully compatible with XTA's AudioCore remote control system.

Engineer

Installed system digital management processor

The Martin Audio Engineer 4in/8out and 8in/8out digital management processors provide comprehensive control and management of installed loudspeaker systems.

In addition to crossover, EQ and limiter functions, Engineer processors offer a flexible event scheduler, automatic programme level and tonality control to compensate for variations in programme sources and a unique psycho-acoustical BassCreator algorithm.

BassCreator is capable of extending the perceived range of small loudspeakers 1 to 1½ octaves below the resonance frequency of a loudspeaker without overloading the loudspeaker and without creating sub-sonic sound leakage.

See the following pages for DX1.5 and DX2 preset parameters...

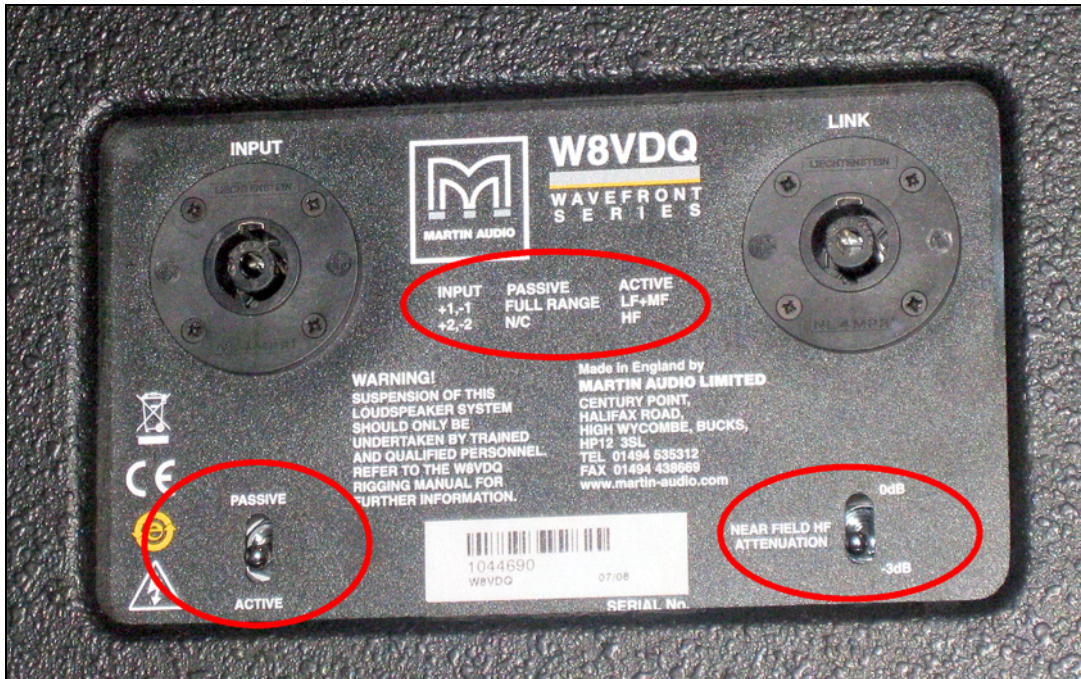
DX1.5/DX2 Presets	Driver	Delay	Gain	Phase	X-Over HPF	LR=Linkwitz Riley Slope	LPF	Slope	Eq	Longterm Limiter			ClipLim
										Threshold	Attack	Release	
5th Nov 2008										(Amp gain 32dB)	(Release x 16)		
1xW8VDQ	8"	0.101ms	0dB	In	35Hz	24dB/Oct LR	2k12	24dB/Oct LR	Freq. 90Hz	Gain 1.3 +7dB	16ms		+6dB
									198Hz	2.5 -3dB			
									454Hz	3 -2.5dB			
									583Hz	0.67 -2dB			
									642Hz	2 -6dB			
	1"	0ms	0dB	In	2k0	24dB/Oct LR	32k	24dB/Oct LR	4k0	1.2 -4.5dB	0.7ms		+6dB
1xW8VDQ	8"+1"	0ms	0dB	In	35Hz	24dB/Oct LR	32kHz	24dB/Oct LR	90Hz	1.3 +7dB	16ms		+6dB
Passive									198Hz	2.5 -3dB			
									454Hz	3 -2.5dB			
									583Hz	0.67 -2dB			
									642Hz	2 -6dB			
									4KHz	0.94 -5dB			

Contact your Martin Audio distributor or visit www.martin-audio.com for the latest W8VDQ presets – available in spreadsheet, binary and XTA AudioCore formats.

6 Connections

Active/Passive operation

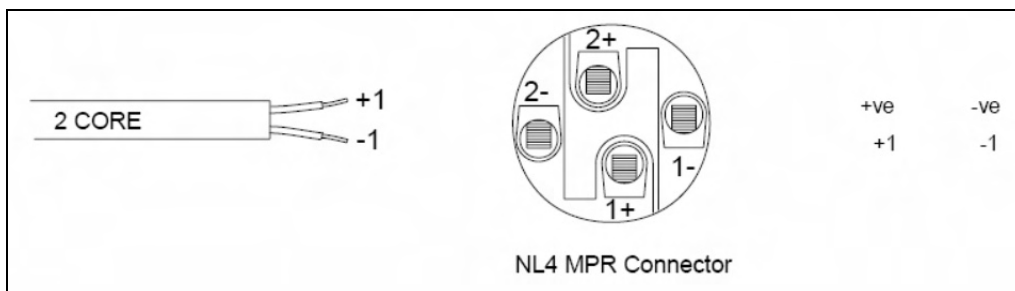
W8VDQs may be operated in Active (3way bi-amplified) or Passive (3way passive) mode.



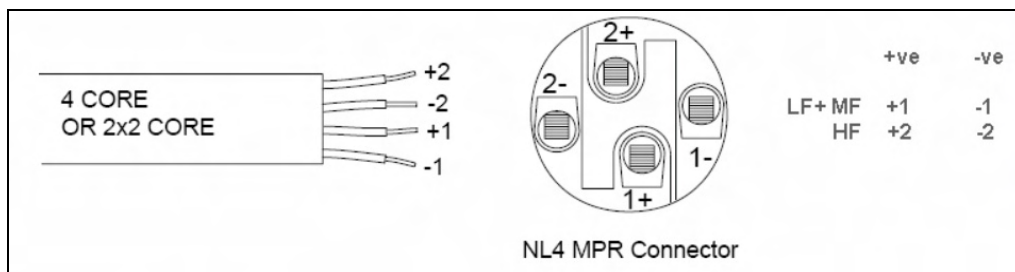
Rear panel showing Active/Passive switch, pinout & nearfield attenuator switch

The W8VDQ connector panel has two Neutrik Speakon connectors wired in parallel. The second connector allows use of a short link lead to power another W8VDQ loudspeaker for wider horizontal coverage.

The connectors are wired as follows:



W8VDQ passive wiring (ensure rear switch is in the *Passive* position)



W8VDQ active wiring (ensure rear switch is in the *Active* position)

7 Cable lengths

When connecting W8VDQ systems to an amplifier, it is recommended that the return resistance of the cable used is less than one tenth of the nominal impedance of the system or systems in parallel. The table below gives an indication of the maximum permissible cable runs for various conductor cross-sectional areas.

1.0mm ²	11m
1.5mm ²	17m
2.0mm ²	22m
2.5mm ²	29m
4.0mm ²	44m
6.0mm ²	66m

8 Warranty

Martin Audio ceiling loudspeaker products are warranted against manufacturing defects in materials or craftsmanship over a period of 5 years from the date of original purchase.

During the warranty period Martin Audio will, at its discretion, either repair or replace products which prove to be defective provided that the product is returned in its original packaging, shipping prepaid, to an authorised Martin Audio service agent or distributor.

Martin Audio Ltd. cannot be held responsible for defects caused by unauthorised modifications, improper use, negligence, exposure to inclement weather conditions, act of God or accident, or any use of this product that is not in accordance with the instructions provided by Martin Audio. Martin Audio is not liable for consequential damages.

This warranty is exclusive and no other warranty is expressed or implied. This warranty does not affect your statutory rights.

Preliminary Nov 2008