

# MAC Viper Quadray™ Module Installation and Control Guide

## Introduction

This Guide explains how to install the Martin MAC Viper Quadray™ Module, P/N 91614052, on a Martin MAC Viper AirFX™ fixture and control the Quadray functions via DMX.

Installation takes only a few minutes. If you keep the standard components you remove when you install the Quadray module, the Quadray components can be uninstalled and the fixture returned to standard configuration at any time.



**Warning!** Follow all the safety precautions in the MAC Viper AirFX user manual and use the manual for reference when installing the Quadray Module and using the modified product. The user manual is supplied with fixtures, but check that you have the latest revision of the user manual. This is available for download from the Product Support page for the MAC Viper AirFX at [www.martin.com](http://www.martin.com)



**Warning!** Disconnect the fixture from power and allow to cool for at least 2 hours and 45 minutes before starting work.

**Warning!** The Quadray Module must be installed by qualified professional technicians only. Read all of this Installation Guide carefully before starting to install the module.

**Important!** Make sure that the front of the head does not face the sun or any other strong light source directly for longer than a few seconds at any time. Lenses can focus the sun's rays inside the fixture, causing internal damage and creating a possible fire risk

**Important!** Do not use concentrated alcohol solutions, abrasive products or solvents to clean the components in the Quadray Module. If wiping with a soft, lint-free cloth dampened with distilled water is not effective, damp the cloth with distilled water containing 20% isopropyl alcohol in solution.

If you have any questions about how to install the Quadray Module or use it safely, please contact your local Martin distributor (see [www.martin.com/distributors](http://www.martin.com/distributors) for details) or call the Martin 24-hour service hotline on +45 8740 0000, or in the USA on 1-888-tech-180.

## Software compatibility

MAC Viper AirFX firmware version 1.2.0 or later is required for operation with the Quadray Module. The latest version of the MAC Viper AirFX firmware is available for download from the MAC Viper AirFX Product Support page on the Martin™ website at [www.martin.com](http://www.martin.com)

# Preparation

The Quadray Module accessory contains the following items:

- MAC Viper Quadray Module with integral wireset
- This Installation Guide

Keep the protective packaging supplied with the module for possible re-use.

Without damaging the wiring, remove the adhesive tape that is applied to avoid damage or loss during transport: tape holds the safety wire and wireset together and retains the two screws in the module connector on the end of the wireset.

Calibration values for each individual module are printed on a label on the module connector. Four values are given for the four lenses **L1** to **L4**. Each time you install a Quadray Module on a fixture, you must enter its calibration values in the **CALIBRATION** menu in the fixture's control panel. Note these values and store them for future use when installing the module on other fixtures.

## Installation procedure



**Warning! Disconnect from power and allow to cool for 30 minutes before opening the head.**

To install the Quadray Module on a standard Martin MAC Viper AirFX fixture:

1. Disconnect the fixture from power and allow components to cool for 30 minutes.
2. Place the fixture on a secure work surface. Tilt the head vertically upwards and apply the tilt lock.
3. See Figure 1. Remove the top head cover by loosening its Torx 25 captive retaining screws **A** until the screws turn freely (the top head cover is on top of the head with the text on the back of the head facing the right way up). Lift the front of the cover slightly away from the head, then slide the cover towards the front of the head to release the rear of the cover. You can allow the head cover to hang on its safety wire, but for easiest access press the cover's safety wire retaining clip **B** in towards the head chassis, slide the clip down until you can remove it, then remove the head cover completely from the fixture.

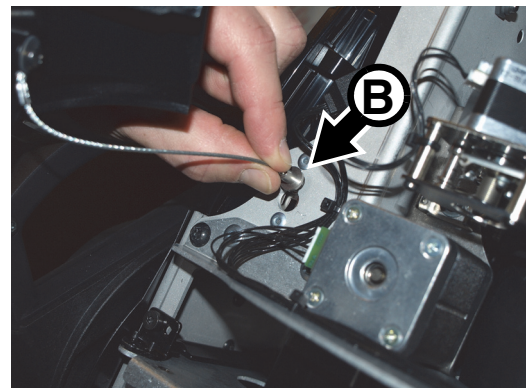
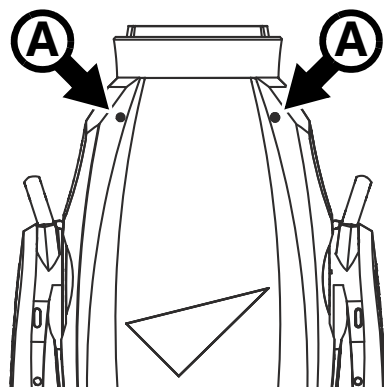


Figure 1: Removing the head covers

4. See Figure 2. Release the four screws from the front lens assembly, then release the front lens safety attachment. Remove the front lens assembly and store it for possible re-use if the fixture is returned to standard configuration at a later time.

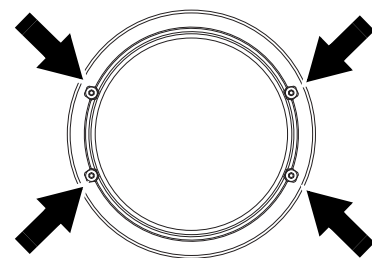


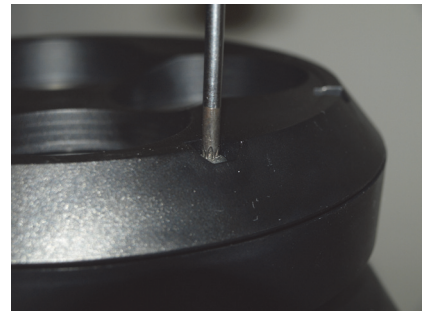
Figure 2

5. See Figure 3. Line up the Quadray Module over the head so that the module's safety wire will pass through the cutout in the front of the head above the safety wire attachment point **A** and the module's wireset will pass through the cutout **B** in the opposite side of the head.
6. Lower the Quadray Module onto the head, making sure that it sits completely square to the head. Do not use excessive force. You may need to rotate the module slightly to the left and to the right until you can feel that it has engaged correctly. Check also that the safety wire and wireset are not trapped between the module and the head.



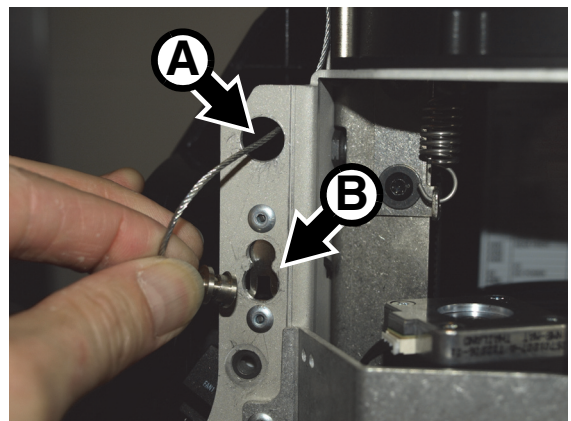
**Figure 3**

7. See Figure 4. Fasten the module in place by tightening the four screws on the front of the module.



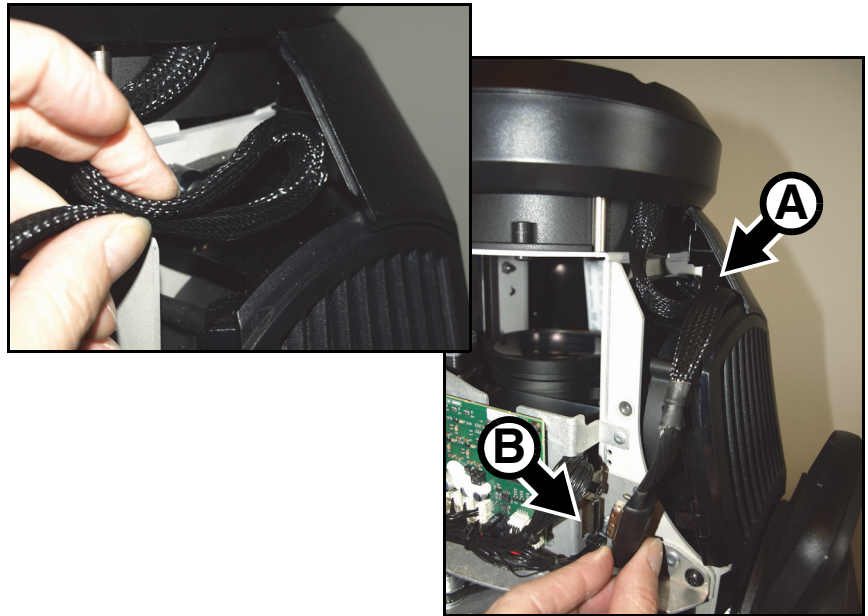
**Figure 4**

8. See Figure 5. Pass the Quadray Module's safety cable through the hole **A** in the head chassis and then into the safety wire attachment point **B**. Push and slide the fastener so that it is locked into the attachment point.



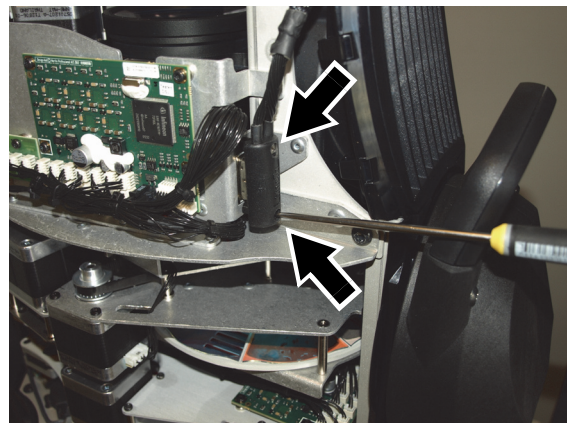
**Figure 5**

9. See Figure 6. Gather up a loop in the Quadray Module wireset and push it into the space **A** between the module and the head air filter. Push the wireset's multiconnector onto the corresponding socket **B** in the head.



**Figure 6**

10. See Figure 7. Fasten the multiconnector to the socket with the multiconnector's two screws (arrowed).
11. Reinstall the head cover, checking that its safety wire is securely attached before tightening its retaining screws.
12. Release the tilt lock, then apply power. With MAC Viper AirFX firmware version 1.2.0 or later installed, the fixture will recognize that the Quadray Module is installed.
13. In the control panel, scroll through the CALIBRATION menu until you reach **Ray1**. Enter the calibration value for **L1** that is printed on the module connector. Scroll to **Ray2 - Ray4** and enter the calibration values for **L2 - L4**.
14. Check and if necessary adjust the lamp alignment as described in the MAC Viper AirFX user manual. Remove any significant hotspot in the rays.



**Figure 7**

When the Quadray Module is installed and the fixture is powered on, the MAC Viper AirFX recognizes the new module automatically and configures itself for operation with the module.

If you remove the Quadray Module and reinstall the standard components, the fixture will recognize that no module is present and reconfigure itself for operation without the module.

The calibration values printed on the module connector must follow the module. If you install the Quadray Module on another fixture, remember to enter the module's calibration values in the new fixture's control panel.

Remember also to check lamp alignment each time you install the module.





# Quadray control

With the Quadray Module installed and the fixture running firmware version 1.2.0 or later and set to 16-bit Extended mode, five extra DMX channels become available after the 23 channels in the standard MAC Viper AirFX. These channels give the DMX control functions shown in the following table:

Channel	Value	Function	Fade Status	Default Value
29	0 - 40 41 - 80 81 - 100  101 - 130 131 - 180 181 - 183 184 - 255	<b>Quadray overall control</b> Indexing Rotation <i>No function</i> <b>FX selection (see Table 2)</b> Positions Continuous FX Static FX <i>No function</i>	Snap	101
30	0 - 255  0 - 2 3 - 126 127 - 129 130 - 253 254 - 255  0 - 255  0 - 2 3 - 126 127 - 129 130 - 253 254 - 255  0 - 255	<b>Ray 1 Indexing</b> Indexing 0° - 360° <b>Ray 1 Rotation</b> No rotation Rotating CW Fast → CW Slow No rotation Rotating CCW Slow → CCW Fast No rotation <b>FX position fade time*</b> 0 sec. - 10 sec. <b>Continuous FX rotation*</b> No rotation Rotating CW Fast → CW Slow No rotation (stops at current position) Rotating CCW Slow → CCW Fast No rotation <b>Static FX*</b> Min - Max	Fade	128
31	0 - 255  0 - 2 3 - 126 127 - 129 130 - 253 254 - 255  0 - 50 51 - 100 101 - 255	<b>Ray 2 Indexing</b> Indexing 0° - 360° <b>Ray 2 Rotation</b> No rotation Rotating CW Fast → CW Slow No rotation Rotating CCW Slow → CCW Fast No rotation <b>Continuous FX start times*</b> Synchronized (all fixtures start FX immediately) Random (0 - 6 seconds random offset between fixtures) <i>No function</i>	Fade	128

**Table 1: Quadray Module DMX channels**

32	0 - 255  0 - 2 3 - 126 127 - 129 130 - 253 254 - 255	<b>Ray 3 Indexing</b> Indexing 0° - 360° <b>Ray 3 Rotation</b> No rotation Rotating CW Fast → CW Slow No rotation Rotating CCW Slow → CCW Fast No rotation	Fade	128
33	0 - 255  0 - 2 3 - 126 127 - 129 130 - 253 254 - 255	<b>Ray 4 Indexing</b> Indexing 0° - 360° <b>Ray 4 Rotation</b> No rotation Rotating CW Fast → CW Slow No rotation Rotating CCW Slow → CCW Fast No rotation	Fade	128

**Table 1: Quadray Module DMX channels**

\*These functions become available if you select one of the pre-programmed FX on channel 29.

## Quadray FX

With the Quadray Module installed, the MAC Viper AirFX DMX protocol includes a range of pre-programmed effects. You can select these FX by sending values 101 and above on DMX channel 29 according to the following table. You can then adjust parameters of the effects on channels 30 and 31.

DMX value on ch. 29	FX	Description
	<b>Positions</b>	<b><i>Channel 30 adjusts fade time</i></b>
101	Home	
102	Out	
103	Horizontal V	
104	Vertical V	
105	Diagonal 1	
106	Diagonal 2	
107 - 109	<i>No function</i>	
110	3 ray fan	
111	3 ray top	
112	3 ray bottom	
113	3 ray left	
114	3 ray right	
115	Narrow 3 ray left	
116	Narrow 3 ray right	
117 - 119	<i>No function</i>	
120	4 ray fan H	
121	4 ray fan V	
122	4 ray fan 2	
123 - 128	<i>No function</i>	
129	Random	Every ray takes a random position
130	Random 2	Every ray takes a random position

**Table 2: Quadray FX**

	<b>Continuous FX</b>	<b>Channel 30 adjusts speed and direction</b> <b>Channel 31 sets synchronized or random start points</b>
131	Rotate	All rays rotate
132	Bounce	All rays 0° to 360°, small pause, then 360° to 0°, small pause
133	Pair H	1+4 rotate one way, 2+3 the opposite way
134	Pair V	1+2 rotate one way, 3+4 the opposite way
135	Cross	1+3 rotate one way, 2+4 the opposite way
136	Cross bounce	1+3 fade 0° - 360°, 2+4 fade 360° - 0°, pause, then reverse, pause
137	Pair bounce	2+3 fade 0°-360°, 1+4 fade 360° - 0°, pause, then reverse, pause
138	Cross bounce 2	1+3 fade 30°-330°, 2+4 fade 330° - 30°, pause, then reverse, pause
139	Singles	1 rotates 0°-360°, then 2, then 3, then 4, 1, 2, 3, 4, etc.
140	Singles reset	Same as singles, but one ray fades backwards as the next ray fades forwards
141	Singles bounce	1, 2, 3, 4 forward, pause, 4, 3, 2, 1 backwards, pause
142	Juggler	All rays start from 180°. then 1 to 0°, then 1 to 180°, 2 to 0°, then 2 to 180°, 3 to 0°, then 3 to 180°, 4 to 0°, then 4 to 180°, 1 to 0°
143	Fold out	1 to 180°, then 2 to 180°, then 3, then 4, Pause, All to Home
144	Fold in	All to 180°, pause, then 1 to 0°, 2 to 0°, 3 to 0°, 4 to 0°, pause
145	Fold in-out	1 to 180°, then 2 to 180°, then 3, then 4, Pause, 1 to 0°, 2 to 0°, 3 to 0°, 4 to 0°, pause
146	V-chase	Alternate horizontal and vertical V shape with small pause
147	Fan chase	Alternate horizontal and vertical fan with small pause
148	Pair chase	1+2 from 0° - 360°, then 3+4 from 0° to 360°, then 1+2 to 0°, then 3+4 to 0°
149	Ripple	1 at 0°, 2 at 45°, 3 at 90° and 4 at 135°, then rotate
150	Home - Out	Alternate Home and Out position: 1+3 go CW, 2+4 go opposite
151	Home and fan chase	Home, 4 ray fan H, Home, 4 ray fan V
152	Wide single rotation	All rays start at 180°, 1 rotates 180° to 180°, then 2, then 3, then 4
153	Wide mirror rotation	All rays start at 180°, 1+3 rotate 180° to 180°, then 2+4
154 - 159	<i>No function</i>	
160	'Shake It'	All rays move to 180° and shake
161 - 178	<i>No function</i>	
179	Random direction	All rays rotate from Home position, but in random directions
180	Random ray	All rays assume random positions and directions
	<b>Static FX</b>	<b>Channel 30 adjusts amount</b>
181	Expand	Home at 0°, then 1-4 move from 0° to 360°
182	Expand mirror	Home, then 1+3 move CW from 0° to 360° while 2+4 move CCW from 360° to 0°
183	Spread	Home, then 1 moves to 180°, then 2 moves to 180°, then 3 to 180°, then 4 to 180°
184 - 255	<i>No function</i>	

**Table 2: Quadray FX**



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