

MAC III™ Quadray Module Installation and Control Guide

Introduction

This Guide explains how to install the Martin MAC III Quadray Module™, P/N 91614042, on a Martin MAC III 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 III 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 III AirFX at 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. The lens 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 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 III AirFX firmware version 1.3 or later is required for operation with the Quadray Module. The latest version of the MAC III AirFX firmware is available for download from the MAC III AirFX Product Support page on the Martin™ website at www.martin.com

Overview

The Quadray Module accessory contains the following items:

- MAC III Quadray Module
- MAC III Quadray Module wireset
- This Installation Guide

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

Installation procedure

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

1. Disconnect the fixture from power and allow it to cool for at least 2 hours and 45 minutes.
2. Place the fixture on a secure work surface. See Figure 1. Tilt the head vertically upwards and apply the tilt lock.

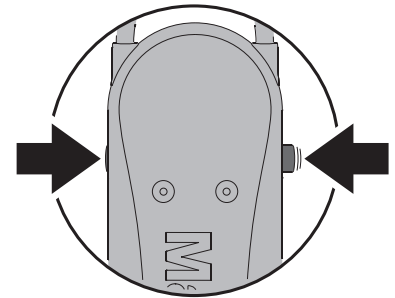


Figure 1

3. See Figure 2. Remove the top head cover by releasing the cover retaining screws and unclipping the cover safety wire carabiner (the top of the head is *above* the text printed on the back of the fixture with the text facing the right way up).

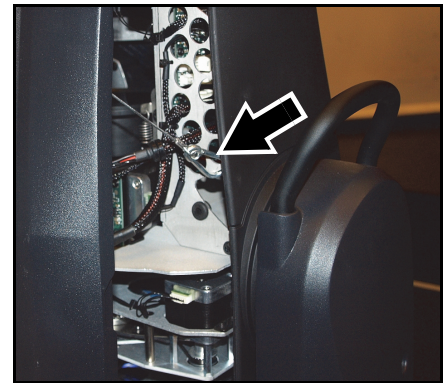
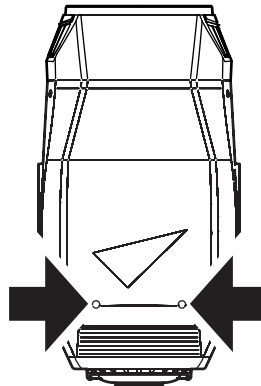


Figure 2

4. See Figure 3. Release the four screws (arrowed) 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 to be returned to standard configuration at a later time.
5. With the top of the fixture facing you, unclip the air filter from the right-hand side of the head as described in the MAC III AirFX user manual.

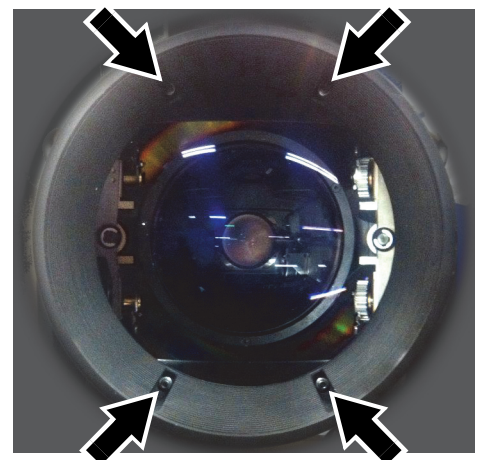


Figure 3

6. See Figure 4. Line up the Quadray Module so that the PCB in the Module is on the right-hand side of the head, where you have removed the air filter. Hold the Quadray Module up to the head and attach the module's safety wire as shown. Make sure that the safety wire is securely fastened in the head.

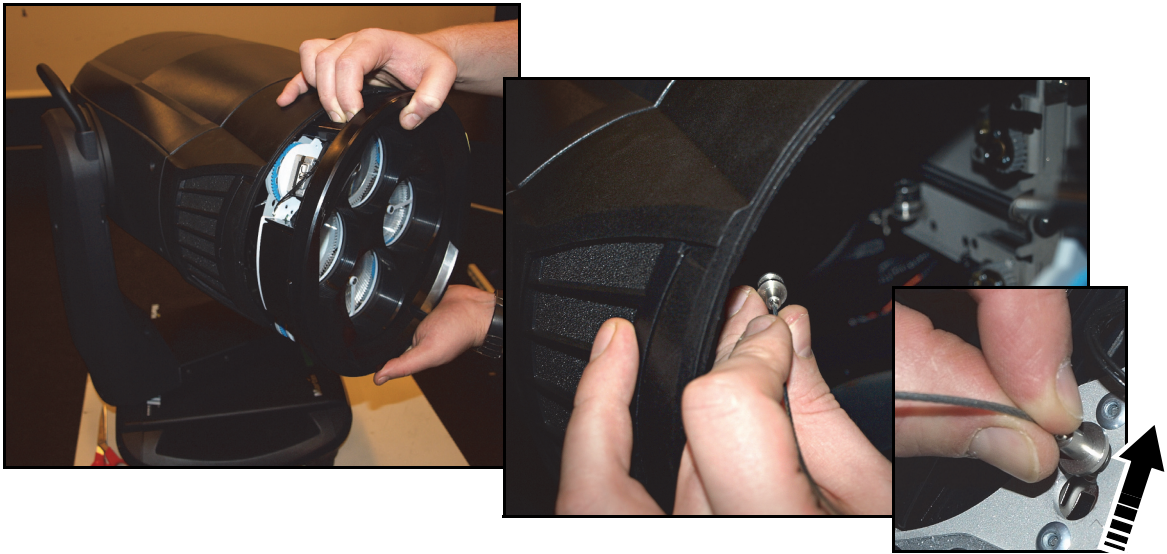


Figure 4

7. See Figure 5. Fasten the Quadray Module securely onto the front of the head with its four screws.

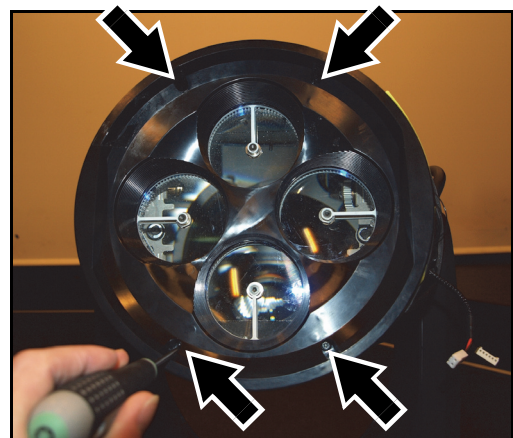


Figure 5

8. See Figure 6. Route the Quadray Module's wireset through the head chassis as shown. The connectors at each end are identical, so it does not matter which way round you install the wireset.

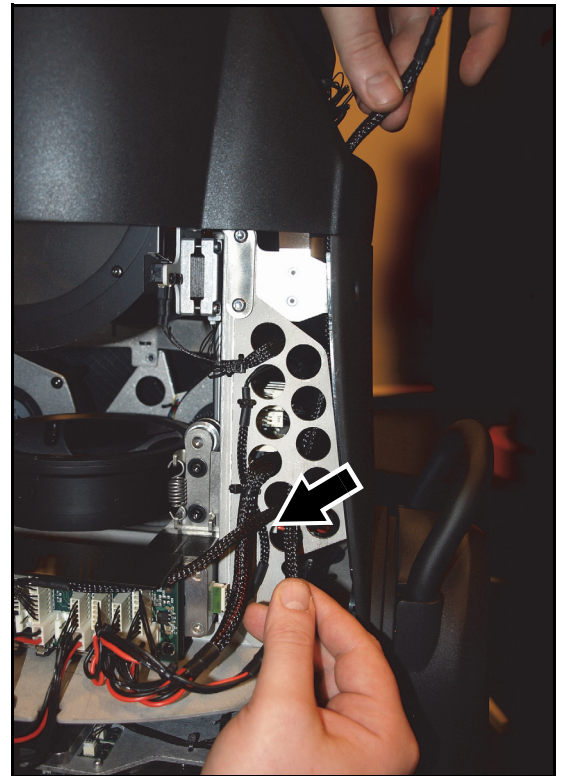


Figure 6

9. See Figure 7. Connect the module end of the wireset to the PCB in the Quadray Module as follows: power to connector PL18 and data to connector PL12.

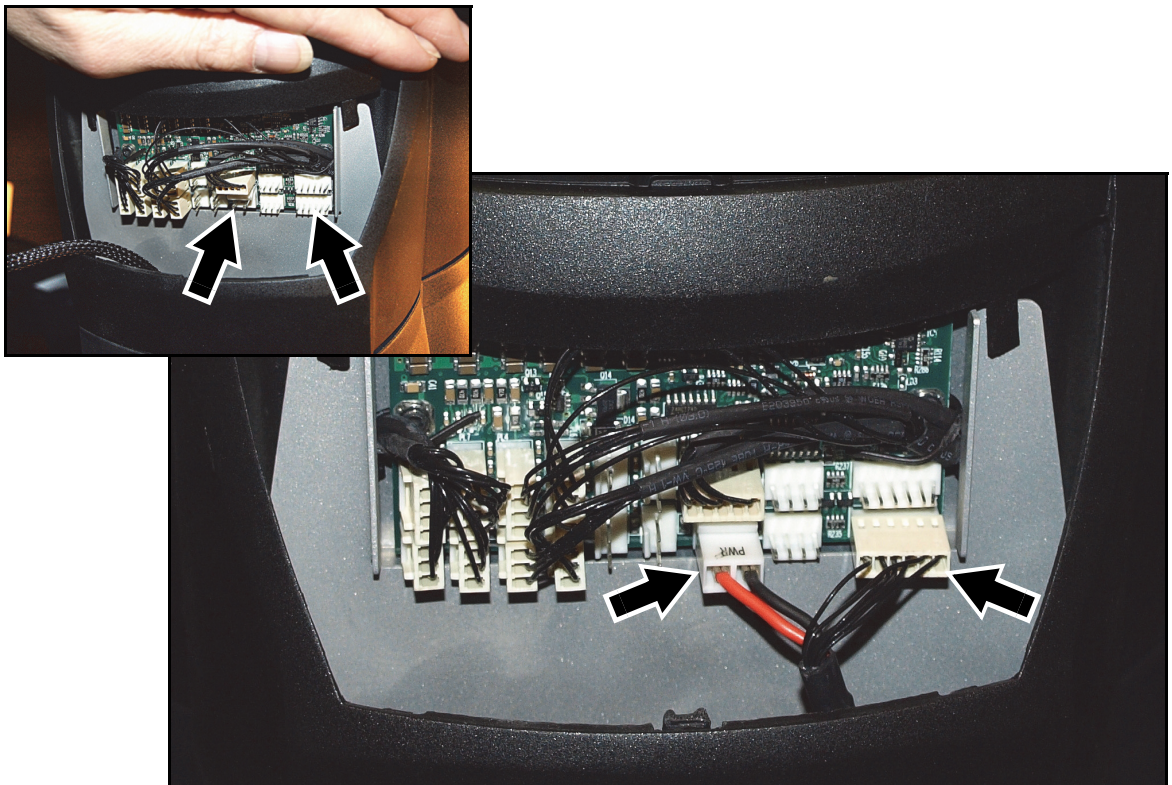


Figure 7

10. See Figure 8. Connect the other end of the wireset to the PCB shown in the head as follows: power to connector PL13 and data to connector PL3.

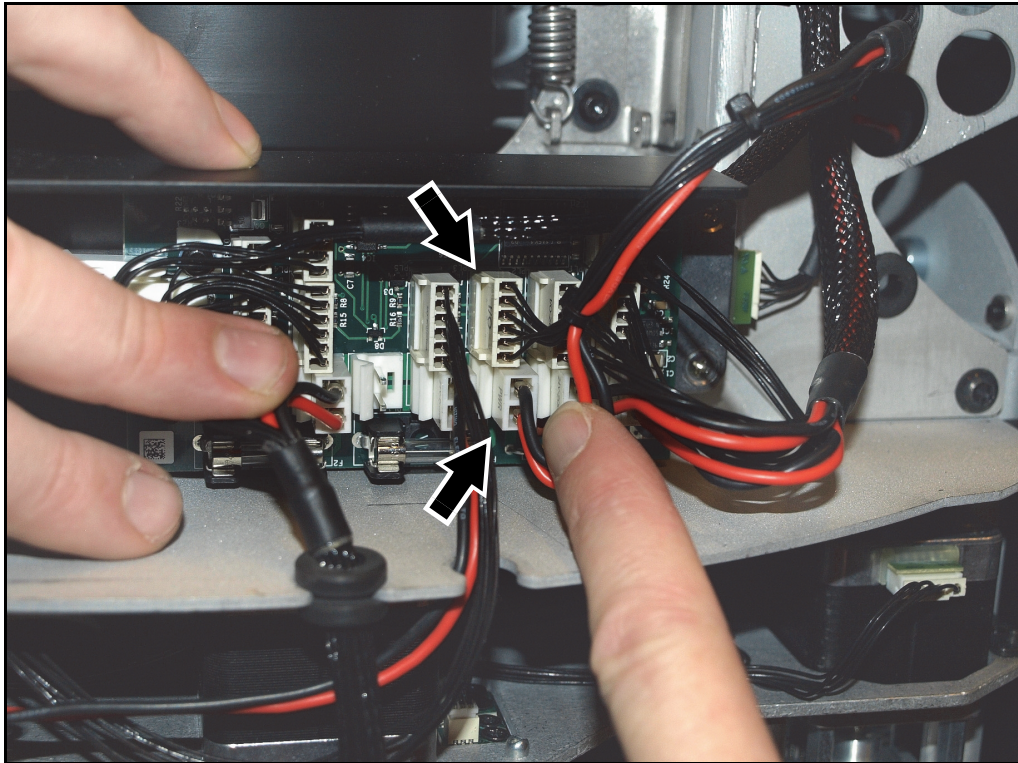


Figure 8

11. Reinstall the air filter and head covers, attaching safety wires securely.
12. Release the tilt lock before reapplying power.
13. Finally, check and if necessary adjust the lamp alignment as described in the MAC III AirFX user manual.

Quadray control

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

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

DMX Control

With the Quadray Module installed, five extra DMX channels become available after the 22 channels in the standard fixture. These channels give the DMX control functions shown in the following table:

Channel	Value	Function	Fade Status	Default Value
23	0 - 40 41 - 80 81 - 100 101 - 130 131 - 180 181 - 200 201 - 255	Quadray overall control Indexing Rotation No function FX selection (see Table 2) Positions Continuous FX Static FX No function	Snap	101
24	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	Ray 1 Indexing Indexing 0° - 360° Ray 1 Rotation No rotation Rotating CW Fast → CW Slow No rotation Rotating CCW Slow → CCW Fast No rotation FX position fade time* 0 sec. - 10 sec. Continuous FX rotation* No rotation Rotating CW Fast → CW Slow No rotation (stops at current position) Rotating CCW Slow → CCW Fast No rotation Static FX* Min - Max	Fade	128
25	0 - 255 0 - 2 3 - 126 127 - 129 130 - 253 254 - 255 0 - 50 51 - 100 100 - 255	Ray 2 Indexing Indexing 0° - 360° Ray 2 Rotation No rotation Rotating CW Fast → CW Slow No rotation Rotating CCW Slow → CCW Fast No rotation Continuous FX start points* Synchronized Random No function	Fade	128
26	0 - 255 0 - 2 3 - 126 127 - 129 130 - 253 254 - 255	Ray 3 Indexing Indexing 0° - 360° Ray 3 Rotation No rotation Rotating CW Fast → CW Slow No rotation Rotating CCW Slow → CCW Fast No rotation	Fade	128

Table 1: Quadray Module DMX channels

27	0 - 255	Ray 4 Indexing Indexing 0° - 360°	Fade	128
	0 - 2	Ray 4 Rotation No rotation		
	3 - 126	Rotating CW Fast → CW Slow		
	127 - 129	No rotation		
	130 - 253	Rotating CCW Slow → CCW Fast		
	254 - 255	No rotation		

Table 1: Quadray Module DMX channels

*These functions become available depending on FX selection on channel 23.

Quadray FX

With the Quadray Module installed, the MAC III AirFX DMX protocol includes a range of pre-programmed effects. You select these FX on channel 23 according to the following table and then adjust parameters of the effects on channels 24 and 25.

DMX value on ch. 23	FX	Description
	Positions	Channel 24 adjusts fade time
101	Home	
102	Out	
103	Horizontal V	
104	Vertical V	
105	Diagonal 1	
106	Diagonal 2	
-	-	
110	3 beam fan	
111	3 beam top	
112	3 beam bottom	
113	3 beam left	
114	3 beam right	
115	Narrow 3 beam left	
116	Narrow 3 beam right	
-	-	
120	4 beam fan H	
121	4 beam fan V	
122	4 beam fan 2	
-	-	
129	Random	Every ray takes a random position
130	Random 2	Every ray takes a random position

Table 2: Quadray FX

	Continuous FX	Channel 24 adjusts speed and direction Channel 25 sets sync or random start points
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	
138	Cross Bounce 2	2+3 fade 0°-360°, 1+4 fade 360° - 0°, pause, then reverse, pause
139	Singles	1+3 fade 30°-330°, 2+4 fade 330° - 30°, pause, then reverse, pause
140	Singles reset	Lens 1 rotates 0°-360°, then lens 2, then 3, then 4, 1, 2, 3, 4 etc.
141	Singles bounce	Same as singles, but the lens fades backwards as the next lens fades forwards
142	Juggler	1,2,3,4 forward, pause, 4,3,2,1 backwards, pause All lenses 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	Alternates Home and Out position, 1+3 go CW, 2+4 opposite
151	Home, Fan	Chases Home, 4 beam Fan H, Home, 4 beam Fan V
	-	
178	Random Sine	All beams assume 180°. every beam assumes a sine wave pattern between +/- 170°. All beams have the same speed within +/- 10%
179	Random Direction	All beams rotate from Home position, but random directions
180	Random Beam	All lenses assume a random position and directions
	Static FX	Channel 24 adjusts amount
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°, 2+4 move CCW from 360° to 0° at the same time
183	Spread	Home, then 1 moves to 180°, when 1 complete 2 moves to 180°, then 3 to 180° then 4 to 180°.

Table 2: Quadray FX



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