MAC Viper Performance™
USER GUIDE

Martin® by HARMAN

User Documentation update information

Any important changes in the MAC Viper Performance User Guide are listed below.

Revision B

First version released. Covers MAC Viper Performance firmware version 1.0.0.

P/N 35000275, Rev. B

Contents

Introduction

This User Guide is a supplement to the Installation and Safety Manual that is supplied with the MAC Viper Performance. Both documents are available for download from the Martin™ website at www.martin.com. The User Guide contains information that is mainly of interest for lighting designers and operators, whereas the Safety and Installation Manual contains important information for all users, especially installers and technicians.

Before using the MAC Viper Performance, check the latest version of the Installation and Safety Manual, paying particular attention to the Safety Precautions section.

We recommend that you check the Martin™ website regularly for updated documentation. A revised version of this User Guide will become available each time we can improve the quality of the information in the guide and each time a new firmware version is released that contains changes or new features. Each time this guide is revised, any important changes will be listed on page 2 so that you can keep track of updates.

Effects

This section gives details of the effects that can be controlled via DMX. See the DMX protocol table on page 21 for details of the channels used to control them.

Where fine control is available, the main control channel sets the first 8 bits (the most significant byte or MSB), and the fine channels set the second 8 bits (the least significant byte or LSB) of the 16-bit control byte. In other words, the fine channel works within the position set by the coarse channel.

Shutter and strobe effects

The MAC Viper Performance's dimmer/shutter provides instant blackout and snap open as well as regular or random strobe effects with variable speed from approx. 2 Hz to 10 Hz.

Dimming

The dimmer/shutter provides smooth, high-resolution 100 percent fading.

Fine dimming control is available in extended 16-bit mode.

Cyan, Magenta, Yellow and CTO

The amount of cyan, magenta, yellow and CTO (Color Temperature Control Orange) applied to the MAC Viper Performance's light output can be varied from zero to 100%.

The CTO flags installed as standard allow color temperature to be made warmer from 0 to +145 mireds, giving a reduction in color temperature from 6000 K at zero CTO to 3200 K at full CTO.

Color wheel

The color wheel has seven color filters that can be applied as split colors or in full-color steps. The color wheel can also be scrolled continuously, applying the color filters in sequence with control of color wheel speed and direction. Color filters can also be applied at random at fast, medium or slow speed.

Rotating gobos

The rotating gobo wheel has five rotating gobos that can be selected, indexed (positioned at an angle), rotated continuously, and shaken (bounced). The wheel can also be scrolled continuously or shaken. Gobo indexing, continuous gobo rotation, gobo shake and continuous wheel scrolling are selected on one channel. Depending on what is selected on this first channel, the gobo indexed angle or gobo rotation speed are set on the next channel. If gobo indexing is selected on the first channel, fine control of gobo indexed angle is available on the third control channel in both basic 16-bit and extended 16-bit modes.

Animation wheel

The gobo animation wheel lets you create animated effects by combining animation wheel movement with gobos. A huge number of possible combinations of beam pattern and movement types is available.

When using gobo animation, adjust the fixture's focus to obtain the most realistic results.

Framing

The 4-blade framing module in the MAC Viper Performance can be rotated to an indexed position within a range of 110°. With independent control of angle and amount of insertion for each blade, it can form the beam into any shape with three or four sides.

Beam effect (rotating prism)

The four-facet prism can be applied at indexed angles or rotated with variable direction and speed.

Iris

The iris diameter can be varied continuously from fully open to closed.

Frost

The extent to which the frost filter is added to the beam is variable 0 - 100%.

Focus and zoom

The focus system allows sharp or soft projections. Focus range varies with zoom angle. At the narrowest zoom angle, nearest focus is approximately 6 meters (20 feet). As the zoom angle is widened, the nearest focus distance is reduced, down to approximately 2 meters (6.8 ft.), and far focus can be set to approximately infinity.

The separate zoom lens varies the focused beam angle from 10° to 44° with the standard lens installed.

Zoom/focus linking

Focus can be linked to zoom so that it automatically adjusts to match changes in zoom angle. Focus on rotating gobos matches zoom closely, while focus on the gobo animation wheel matches zoom best in the center of the zoom range and slightly less precisely at the two extremes of the zoom range.

Linked zoom/focus works within 3 distance ranges (figures are approximate):

- Near (5 - 10 meters)
- Medium (10 - 20 meters)
- Far (20 meters - infinity)

To link zoom and focus, select a distance range using the Fixture Control/Settings DMX channel or **FOCUS TRACKING** in the control panel **PERSONALITY** menu. Then adjust focus to obtain the required degree of sharpness. Linking is now enabled and focus will auto-adjust.

Pan and tilt

Coarse and fine pan and tilt control are available in both basic 16-bit and extended 16-bit modes.

Optical configuration

Prism

The MAC Viper Performance is supplied with an interchangeable four-facet 15° rotating prism (P/N 41300070) installed.

Color wheel

The MAC Viper Performance color wheel has 7 interchangeable dichroic filters and an open position (illustration shows color wheel viewed from lamp side):

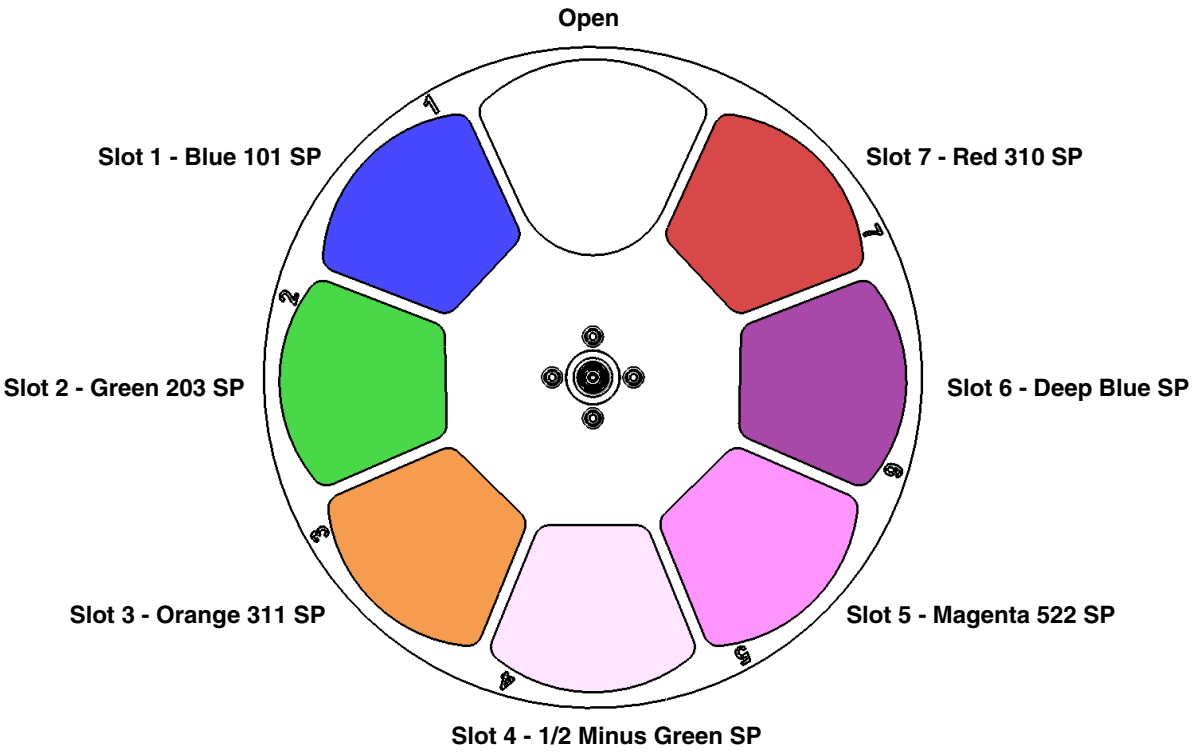


Figure 1: Color wheel

As standard, the MAC Viper Performance is supplied with the following color filters installed:

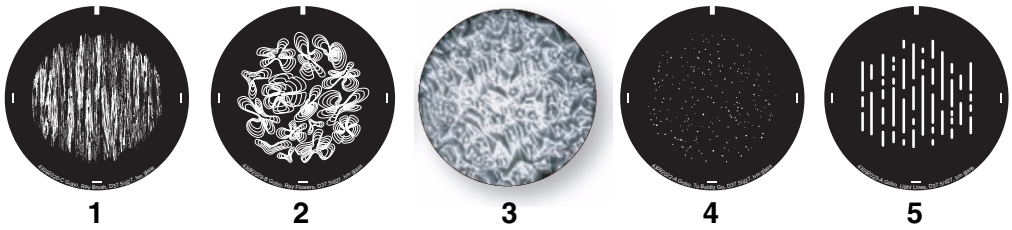
- Slot 1 - Blue 101 - P/N 46404500
- Slot 2 - Green 203 SP - P/N 46404510
- Slot 3 - Orange 311 SP - P/N 46404520
- Slot 4 - 1/2 Minus green SP - P/N 46404541
- Slot 5 - Magenta 522 SP - P/N 46404570
- Slot 6 - Deep Blue SP - P/N 46404550
- Slot 7 - Red 310 SP - P/N 46404560
- Slot 8 - Open

Rotating gobos

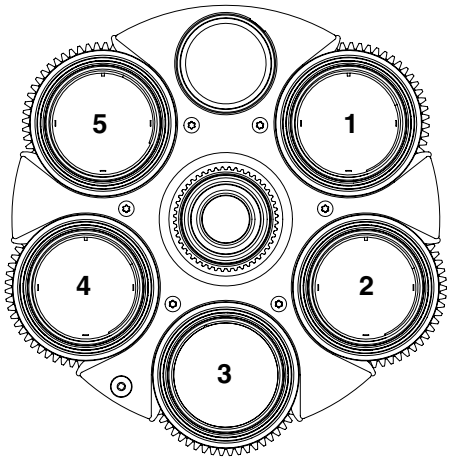
The gobo wheel in the MAC Viper Performance provides five rotating gobos plus an open position. The standard gobos are shown in the correct order in Figure 2.

All gobos are interchangeable, but replacement gobos must match the dimensions, construction and quality of the gobos supplied as standard. The gobos are E-27 size (standard E-size 37.5 mm external diameter, 27 mm image area diameter). Limbo/Crystal is a custom gobo glued permanently into its holder. If you replace Limbo/Crystal, you will therefore need to order an additional goboholder.

Handling, installing and storing the gobos requires special care. See the MAC Viper Performance Safety and Installation Guide for details.



Slot - Gobo	Part number
1. Ray Brush	P/N 43092020
2. Ray Flowers	P/N 43092029
3. Limbo/Crystal in holder	P/N 62325152
4. To Boldly Go	P/N 43092022
5. Light Lines	P/N 43092023



Gobo wheel seen from lamp side

Figure 2: Rotating gobos installed as standard

Animation wheel

The MAC Viper Performance is supplied with the “Ripple Waves” gobo animation wheel (P/N 43950063) installed. This wheel provides animation effects when used in conjunction with gobos.

The wheel can be inserted into the beam, indexed at any position or at one of seven predefined positions, and rotated with variable speed and direction.

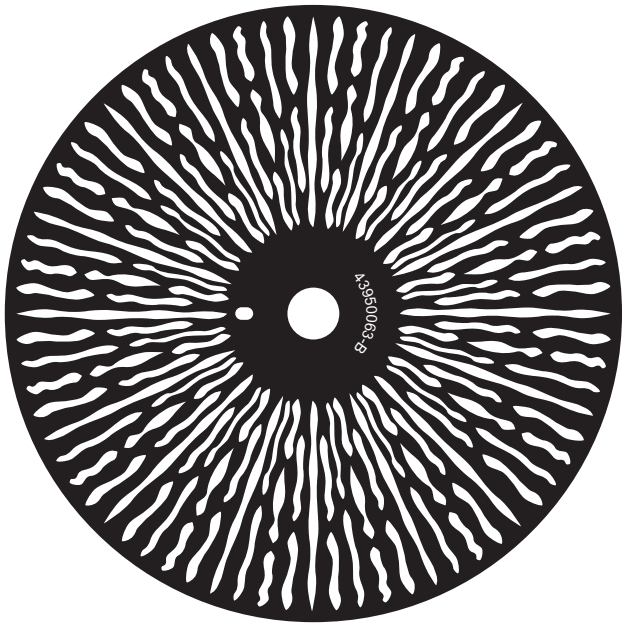


Figure 3: ‘Ripple Waves’ animation wheel

Figure 4: ‘Ripple Waves’ positions

Control panel operations

You can configure individual fixture settings (such as the MAC Viper Performance's DMX address), read out data, execute service operations and view error messages using the fixture's backlit graphic display and control panel.

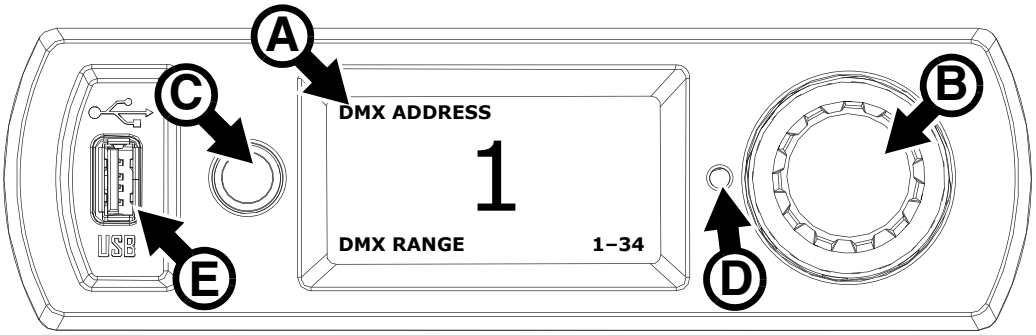


Figure 5: Display and control panel

When the MAC Viper Performance is powered on, it first boots and resets, then it displays its DMX address (or its fixture ID number, if one has been set) and any status messages (see page 30) in the display **A**.

The display can be set to automatically rotate to match standing or hanging fixture orientation in the **PERSONALITY** → **DISPLAY** menu or the Shortcuts menu (see "Shortcuts" on page 11).

Using the control panel

- Click (i.e. press in towards the fixture base once) the jog wheel **B** to access the menus.
- Rotate the jog wheel to scroll up and down menus.
- Click the jog wheel to enter a menu or make a selection.
- The currently selected item in a menu is indicated by a star ✜.
- Press the Escape button **C** to step backwards through the menus.

Status LED

An LED **D** next to the jog wheel indicates fixture status depending on the color displayed and DMX status depending on whether the LED flashes or lights constantly:

- **GREEN**: All parameters normal.
- **AMBER**: Warning (service interval exceeded, for example).
  If **ERROR MODE** is set to **Normal**, the warning message will be shown in the display. If **ERROR MODE** is set to **Silent**, the display must be activated with the jog wheel to display the warning message.
- **RED**: Error detected.
  If **ERROR MODE** is set to **Normal**, the error message will be shown in the display. If **ERROR MODE** is set to **Silent**, the display must be activated with the jog wheel to display the error message.
- **FLASHING**: No DMX signal detected.
- **CONSTANT**: Valid DMX signal detected.

If an error has been detected and the LED is red when the fixture is powered off, the LED will continue to flash red slowly. This feature allows easy identification of fixtures that require service intervention even if fixtures are disconnected from power.

Battery power

The display and control panel are powered by the MAC Viper Performance's onboard battery. This gives access to the most important functions in the control panel – including DMX addressing – when the fixture is not connected to AC power.

To activate the display when the fixture is not connected to power, press the Escape button. The display extinguishes after 10 seconds with no jog wheel activity and the control panel is de-activated after 1 minute with no jog wheel activity. Press the Escape button again to re-activate.The status LED flashes fixture status slowly when the fixture is not connected to power. The LED draws a minute current that can be sustained for several months without flattening the battery.

Shortcuts

If you hold the Escape button pressed in for 2 - 3 seconds, a shortcut menu with the most important commands appears. Select a command with the jog wheel and click the jog wheel to activate, or press Escape to cancel.

- **RESET ALL** resets the whole fixture
- **LAMP ON/OFF** strikes or douses the lamp.
- **ROTATE DISPLAY** rotates the MAC Viper Performance display 180°.

Settings stored permanently

The following settings are stored permanently in the fixture memory and are not affected by powering the MAC Viper Performance off and on or by updating the fixture software:

- DMX address
- DMX Protocol setting
- Fixture ID
- All personality settings (pan/tilt and pan/tilt limit, linked zoom/focus, lamp cooling, fan clean mode, dimming curve, DMX lamp off, DMX reset, parameter shortcuts, all display settings, error mode)
- Factory settings
- Fixture info (resettable power-on, lamp-on and lamp strike counters)
- All Service settings (adjust, calibration, firmware)

These settings can be returned to factory defaults using the control menus or via DMX.

Service mode

Holding the jog wheel and Escape button pressed in while powering the fixture on puts the fixture into service mode, in which pan and tilt are disabled and a **SERV** warning appears in the display. Service mode removes the risk of unexpected head movement during lamp adjustment. Cycling power and allowing the fixture to start normally takes it out of service mode.

DMX address

The DMX address, also known as the start channel, is the first channel used to receive instructions from the controller. For independent control, each fixture must be assigned its own control channels. If you give two MAC Viper Performances the same address, they will behave identically. Address sharing can be useful for diagnostic purposes and symmetrical control, particularly when combined with the inverse pan and tilt options.

DMX addressing is limited, depending which DMX mode the fixture is in, to make it impossible to set the DMX address so high that you are left without enough control channels for the fixture.

DMX address setting

To set the fixture's DMX address:

1. Click the jog wheel to enter the main menu.
2. Click the jog wheel to enter **DMX ADDRESS**, then rotate the jog wheel to scroll to the desired address and click the jog wheel to save.
3. Press the Escape button to step back to the main menu.

DMX modes

The **CONTROL MODE** menu lets you set the MAC Viper Performance to one of the two DMX operating modes, basic 16-bit and extended 16-bit:

- Basic 16-bit mode offers coarse control of all effects plus fine control of gobo indexing angle, pan and tilt.

- Extended 16-bit mode provides all the features of basic 16-bit mode plus fine control of the dimmer, zoom and focus.

The MAC Viper Performance uses 32 DMX channels in basic 16-bit mode and 35 DMX channels in extended 16-bit mode. Five more channels in extended 16-bit mode are reserved ready for future control options.

To set the fixture's DMX mode:

1. Click the jog wheel to enter the main menu.
2. Rotate the jog wheel to scroll down to **CONTROL MODE**, then click the jog wheel. Rotate the jog wheel to select either **BASIC** or **EXTENDED**, then click the jog wheel to save.
3. Press the Escape button to step back to the main menu.

Fixture ID

The MAC Viper Performance lets you set a four-digit ID number to ease identification of the fixtures in an installation. When a fixture is powered on for the first time, it displays its DMX address by default. As soon as you set an ID number other than **0** in **FIXTURE ID**, the MAC Viper Performance will display this ID number by default, and indicate **FIXTURE ID** in the display.

Personality

The MAC Viper Performance provides several options that let you optimize the fixture for different applications in the **PERSONALITY** menu:

- The **PAN/TILT** menu lets you swap and/or invert pan and tilt.
- The **SPEED** menu lets you set **PAN/TILT** to **NORMAL**, **FAST** (optimized for speed) or **SLOW** (optimized for smooth movement – useful for slow movements in long-throw applications). Likewise, you can select an overall speed for all the effects by setting **EFFECT** speed to **NORMAL**, **FAST** or **SLOW**. You can also set effect speed to **FOLLOW P/T**, in which effects will always use whatever speed is set for pan and tilt.
- **DIMMER CURVE** provides four dimming options (see Figure 6):

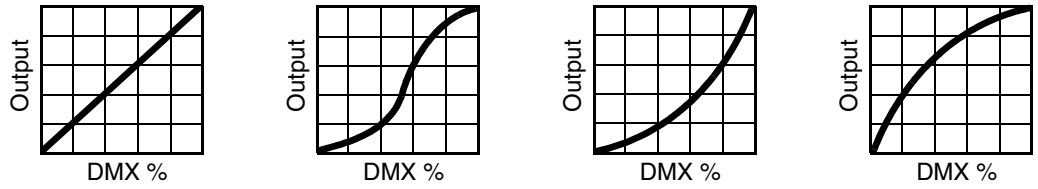


Figure 6: Dimming curve options

  - **LINEAR** – (optically linear) the increase in light intensity appears to be linear as DMX value is increased.
  - **S-CURVE** – light intensity control is finer at low levels and high levels and coarser at medium levels. This curve emulates the RMS voltage dimming characteristics of an incandescent lamp such as the tungsten halogen lamp of the Martin™ MAC TW1™.
  - **SQUARE LAW** – light intensity control is finer at low levels and coarser at high levels.
  - **INV SQUARE LAW** – light intensity control is coarser at low levels and finer at high levels.
- **FOCUS TRACKING** sets focus to automatically switch between the three zoom/focus settings when you use the zoom effect (see "Zoom/focus linking" on page 6).
- **GOBO 3 FX RANGE** sets the range of positions available on the FX wheel. It is intended to let you restrict the FX wheel so that only the gobo range or only the gobo animation range is active.
- **AUTO LAMP ON** gives three lamp strike options:
  - When set to **OFF**, the lamp remains off until a "lamp on" command is received via DMX.
  - When set to **ON**, the lamp strikes automatically after the fixture is powered on.
  - When set to **DMX**, the lamp strikes automatically when the fixture begins to receive DMX data, and lamp power is shut down 15 minutes after the fixture stops receiving DMX data. Automatic lamp strikes are staggered to prevent all lamps from striking at once. The delay is determined by the fixture address.

No matter what the **AUTOMATIC LAMP ON** setting is, the lamp can be struck by sending a Lamp on command via DMX on the Fixture control/settings channel.

- **DMX LAMP OFF** and **DMX RESET** define whether the lamp can be powered off, or whether fixture or individual effects can be reset by sending a DMX command on the Fixture control/settings channel. If either of these settings are set to **Off**, you can override this setting and cut lamp power or reset effects by applying a special combination of DMX values (see “DMX protocol” on page 21).
- **EFFECT SHORTCUT** determines whether the gobo wheel and color wheel take the shortest path between two positions (shortcuts enabled), crossing the open position if necessary, or always avoid the open position (shortcuts disabled).
- **AUTO BLACKOUT** lets you set two effects to deploy 5 seconds after a shutter/dimmer blackout to eliminate any stray light. When enabled, the iris closes and the rotating gobo
- wheel moves to the nearest available position between two slots. This ensures a highly effective blackout, but snapping open from blackout is not quite as fast because of the time it takes the effects to move away from their auto blackout positions.
- **DISPLAY** offers the following options for the LCD display:
  - **DISPLAY SLEEP** determines whether the display remains on permanently, or goes into sleep mode 2, 5 or 10 minutes after the last movement of the jog wheel or Escape button.
  - **DISPLAY INTENSITY** lets you define the brightness of the display backlighting. Select **Auto** for automatic adjustment to match the ambient light level, or manually set the intensity to a level from 0% to 100%.
  - **DISPLAY ROTATION** lets you rotate the display manually through 180° so that it can be read easily no matter how the fixture is oriented. If set to **Auto**, the MAC Viper Performance senses its orientation and rotates the display automatically.
  - **DISPLAY CONTRAST** lets you define the contrast of the backlit graphic display. Select **Auto** for automatic adjustment to match display intensity, or manually set the contrast to a level from 0% to 100%.
- **ERROR MODE** enables or disables error warnings. If set to **NORMAL**, the display is activated and lights up if the fixture needs to report an error. If set to **SILENT**, the fixture does not light the display with error warnings but error messages can still be read when the display is activated manually. In both **NORMAL** and **SILENT** modes, the status LED lights amber to indicate a warning and red to indicate an error.

Factory defaults

FACTORY DEFAULT lets you reload the fixture’s factory default settings. Effect calibration is not affected, so any effects that have been re-calibrated will not be returned to factory calibration settings.

Fixture information readouts

The following fixture information can be called up in the display:

- **POWER ON TIME** provides two counters:
  - The **TOTAL** counter is not user-resettable and displays total hours powered on since manufacture.
  - The **RESETTABLE** counter is user-resettable and displays the number of hours the fixture has been powered on since the counter was last reset.
- **LAMP ON TIME** provides two counters:
  - The **TOTAL** counter is not user-resettable and displays total hours the lamp has been powered on since manufacture.
  - The **RESETTABLE** counter is user-resettable and displays the number of hours the lamp has been powered on since the counter was last reset. This counter is intended to allow you to monitor lamp life.
- **LAMP STRIKES** provides two counters:
  - The **TOTAL** counter is not user-resettable and displays the total number of lamp strikes since manufacture.
  - The **RESETTABLE** counter is user-resettable and displays the number of lamp strikes since the counter was last reset.
- **SW VERSION** displays the currently installed firmware (fixture software) version.
- **SERIAL NUMBER** displays the fixture’s manufacturer serial number.
- **RDM UID** displays the fixture’s factory-set unique ID for identification in RDM systems.
- **FAN SPEEDS** provides separate status readouts from the fixture’s cooling fans.

- **TEMPERATURES** provides separate PCB temperature readouts.

DMX signal monitoring

The MAC Viper Performance provides data on the DMX signal it is receiving in the **DMX LIVE** menu. This information can be useful for troubleshooting control problems.

RATE displays the DMX refresh rate in packets per second. Values lower than 10 or higher than 44 may result in erratic performance, especially when using tracking control.

QUALITY displays the quality of the received DMX data as a percentage of packets received. Values much below 100 indicate interference, poor connections, or other problems with the serial data link that are the most common cause of control problems.

START CODE displays the DMX start code. Packets with a start code other than 0 may cause irregular performance.

The remaining options under **DMX LIVE** display the DMX values in a range from 0 - 255 that are being received on each channel. The DMX channels displayed depend on whether the fixture is in 16-bit or 16-bit extended mode.

Test sequences

TEST activates effects in sequence, allowing you to test all effects, pan and tilt movement only, or effects only (i.e. without pan and tilt movement) without a DMX controller:

- Select a test type and click on the jog wheel to start the test.
- Click on the Escape button to stop the test.

Manual control

The **MANUAL CONTROL** menu lets you reset the MAC Viper Performance, strike or douse the lamp, and operate the fixture without a DMX controller. To execute commands in the **MANUAL CONTROL** menu, select a menu item for the effect that you want to control, then enter a value from 0 to 255 to apply a command. The menu items and values correspond to the commands listed in the DMX protocol on page 21.

Adjusting settings via DMX

Certain fixture settings and parameters can be adjusted from the DMX controller on the Fixture control/settings channel.

Commands sent on the fixture control channel override any settings entered in the fixture's onboard control menus.

To help you avoid accidentally applying a setting that may disrupt a light show, for example, most of the commands must be held for a certain time before they are applied. For example, the command that turns off the display illumination must be held for one second to activate it. The command that resets the fixture must be held for five seconds to activate it. The times required to apply DMX commands on the Fixture control/settings channel are listed for each command on page 24 in the DMX protocol.

Resetting

Either the entire fixture or individual effects can be reset to their initial positions. Resetting individual effects can allow on-the-fly recovery if an effect loses its correct position, for example, without having to reset the entire fixture.

Lamp on / off

The lamp can be struck and doused from the DMX controller.

A peak of electric current that is many times the operating current is drawn for a fraction of a second when striking a discharge lamp. Striking many lamps at once may cause a voltage drop large enough to prevent lamps from striking or draw enough current to trip electronic circuit breakers. If sending lamp-on commands to multiple fixtures, program a sequence that strikes lamps one at a time.

Illuminating the display

The fixture's display panel can be brought out of sleep mode with a DMX command. This makes it possible to read the fixture's DMX address while the fixture is installed in the rig.

After being illuminated in this way, the display will return to sleep mode according to the setting entered in the onboard control menus.

Control menu setting overrides

The following fixture settings can be adjusted via DMX, overriding the settings entered in the onboard control menus. See under "Control panel menus" on page 26 for details of these settings.

- Dimming curve
- Pan and tilt speed
- Effect shortcuts
- Zoom/focus linking
- Ballast output
- Beam smoothing
- Auto blackout
- Calibration offsets

Changing calibration offsets using DMX

The Fixture control/settings DMX channel allows effects to be calibrated by changing their factory default offsets from the DMX controller.

To set an effect offset:

1. Set the effect to a DMX value from 0 to 255 on its own DMX channel (for example, set Cyan to 192 on channel 4).
2. Send a 'Store' command for the effect on the Fixture control/settings channel.

The MAC Viper Performance now reads the value on the effect channel (192 for Cyan in the example above), translates it to an offset value of between -5% and +5% as shown in Figure 7 (+2.5% Cyan offset in the example above) and stores that offset in memory.

See the Fixture control/settings channel on page 24 in the DMX protocol for details of the effect offsets that can be set using this method.

Effect offsets stored in memory are not affected by powering the fixture off and on or by updating the fixture software. To return all offsets to their factory defaults, send a DMX value from 245 to 249 for 5 seconds on the Fixture control/settings channel or apply **LOAD FACTORY SETTINGS** in the **FACTORY SETTINGS** menu in the fixture's control panel.

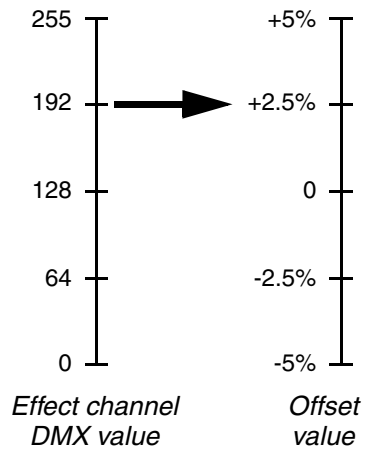


Figure 7: Offset values

RDM

The MAC Viper Performance can communicate using RDM (Remote Device Management) in accordance with ESTA's *American National Standard E1.20-2006: Entertainment Technology RDM Remote Device Management Over DMX512 Networks*.

RDM is a bi-directional communications protocol for use in DMX512 control systems, it is the open standard for DMX512 device configuration and status monitoring.

The RDM protocol allows data packets to be inserted into a DMX512 data stream without affecting existing non-RDM equipment. It allows a console or dedicated RDM controller to send commands to and receive messages from specific fixtures.

RDM ID

Each MAC Viper Performance has a factory-set RDM UID (unique identification number) that makes it addressable and identifiable in RDM systems. The number can be found in the control panel **INFORMATION** menu under **RDM UID**.

RDM communication

The MAC Viper Performance supports a range of RDM PIDs (Parameter IDs). Sending SUPPORTED_PARAMETERS and PARAMETER_DESCRIPTION commands from an RDM controller will call up a list of the PIDs supported in the firmware version installed in the fixture.

Software service functions

Service utilities

The control panel **SERVICE** menu provides utilities for technicians rigging or servicing the fixture:

- **ERROR LIST** displays any error messages that are stored in internal memory.
- **PT FEEDBACK** lets you disable feedback to the fixture software from the pan, tilt and effects positioning systems. If feedback is set to **ON** and a pan, tilt or effect position error is detected, the shutter closes and the effect resets. This feature can be disabled by setting feedback to **OFF**.
  The **OFF** setting is not saved when the fixture is powered off, and the system will be re-enabled the next time the fixture starts. If a pan/tilt position error occurs and the system cannot correct pan/tilt position within 10 seconds, feedback is automatically disabled.
- **ADJUST** is for use at the factory and by authorized Martin Service technicians only and is intended for use after replacement of components, etc. If you want to adjust the default positions of the MAC Viper Performance effects, use the **CALIBRATION** menu.

Important! ***Do not enter the ADJUST menu without service documentation from Martin™.***

- **CALIBRATION** lets you set new default positions for calibration purposes, set effects to their factory default positions or overwrite the factory default positions with new values. See ”Calibration” below.
- **USB** lets you updates the firmware (fixture software) using a USB memory device. For a detailed guide to updating the firmware, see ”Installing using a USB memory device” later in this chapter.

Calibration

The **CALIBRATION** menu lets you define offsets in software that are relative to the mechanical reset or home positions. This allows you to fine-tune optical alignment and achieve uniform performance between fixtures. Fixtures are adjusted and calibrated at the factory, and further calibration will normally only be necessary if fixtures have been subjected to abnormal shocks during transport or if normal wear and tear has affected alignment after an extended period of use.

Calibrating pan and tilt sensors

Warning! ***Be ready for the head to move during pan and tilt calibration.***

To calibrate pan and tilt:

1. Place the fixture on a stable surface.
2. In the **CALIBRATION** menu, select **PT AT END STOP**.
3. Move pan to its end stop position by rotating the yoke *clockwise* (as seen from above the head looking towards the base) to maximum pan.
4. Move tilt to its end stop by tilting the head to its maximum angle with the front glass pointing towards the base and away from the display/control panel.
5. Be ready for the head to move. Click the jog wheel to register the positions. The fixture will display **Saving...** and the head will move.
6. Press the Escape button to exit pan/tilt sensor calibration. Be ready for the head to move again.

Calibrating effects

Calibration can be carried out via DMX (see ”Changing calibration offsets using DMX” on page 16) but the most thorough approach is probably to set multiple fixtures to the same position (e.g. dimmer open 1%) and then calibrate each fixture using its onboard control panel while comparing its light output with a reference fixture.The calibration range available for each effect varies but is approximately 5%. After selecting a calibration value, click on the jog wheel to set the effect to that value.

Loading and storing default calibration offsets

In the **CALIBRATION** menu, **LOAD DEFAULTS** lets you load the factory default calibration offsets stored in memory**.**

SAVE DEFAULTS lets you overwrite the factory default calibration offsets stored in memory with any new offsets that you have defined. Overwriting is permanent, so once you have saved new default offsets, **LOAD DEFAULTS** will reload the new offsets.

Firmware installation

The currently installed firmware (fixture software) version can be viewed in the control panel **INFORMATION** menu. Firmware updates are available from the Martin™ website and can be installed using a USB memory stick or a Windows PC running the Martin Uploader application and either a Martin Universal USB Duo™ USB-DMX interface device or a Martin DABS1™ USB-DMX interface device.

Calibration data is stored in the relevant modules wherever possible so that a module will stay calibrated if is removed from the fixture or installed in another fixture.

Do not switch the fixture off during a firmware update, or firmware will be corrupted.

Installing using a USB memory device

The following are required in order to install firmware using a USB memory device:

- The MAC Viper Performance '.BANK' firmware update file, available for download from the Martin website at http://www.martin.com.
- A USB memory stick with the update file copied from a PC into the USB stick's root directory.

To install the MAC Viper Performance firmware:

1. Download the '.BANK' firmware file from the MAC Viper Performance Product Support page at www.martin.com, read the firmware release notes carefully to check for any instructions or warnings, and copy the firmware file to the root directory of a USB stick.
2. Disconnect the data link from the MAC Viper Performance.
3. Insert the USB stick in the MAC Viper Performance's USB host socket. The fixture should recognize the USB stick, illuminate the display and show **UPDATING FILES** in the display while it checks and if necessary updates its internal memory with new firmware versions stored on the USB stick. If the fixture does not recognize the USB stick, scroll to the **USB** menu under **SERVICE** in the control panel.

Important! ***Do not remove a USB memory device while the fixture is updating files.***

4. When the fixture has updated its internal memory, **AVAILABLE FIRMWARE** will appear in the display. You can now scroll through the firmware versions available in memory.
5. To install a firmware version, select it by scrolling and then clicking with the jog wheel. The MAC Viper Performance asks you to confirm installation of the new firmware. If you do not want to install that version, press the Escape button.
6. Allow the fixture to install the firmware and reboot.
7. Remove the USB stick. The newly-installed firmware version will now be displayed in the **INFORMATION** menu.
8. Reconnect the data link.
9. If you have installed a new firmware version, check the Martin™ website to see whether an updated User Guide is available for this firmware.

Fixture information and settings, including zoom-focus linking, are not affected when new software is uploaded.

Installing using a PC and hardware interface

The following are required in order to install firmware using a PC:

- The MAC Viper Performance firmware '.MU3' update file, available for download from the Product Support area of the Martin website at http://www.martin.com.
- A Windows PC running the latest version of the Martin Uploader™ application (also available for download free of charge from www.martin.com) and loaded with the firmware update file.
- A USB-DMX hardware interface device such as the Martin USB Duo™ or Martin DABS1™.

To install the MAC Viper Performance firmware:

1. Download the firmware '.MU3' file from the MAC Viper Performance support page on the Martin website to the PC.
2. Read the firmware release notes carefully to check for any instructions or warnings.
3. Follow the instructions for an auto upload/upload via DMX in the Martin Uploader application help files and supplied with the hardware interface.

DMX protocol

Applicable when running MAC Viper Performance firmware version: 1.0.0

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function	Fade type	Default value
1	1			**Strobe/shutter**		
		0 - 19	0 - 7	Shutter closed (Lamp switches to 800 watt mode after shutter is closed for 10 seconds)		
		20 - 49	8 - 19	Shutter open	Snap	30
		50 - 200	20 - 78	Strobe, slow → fast		
		201 - 210	79 - 82	Shutter open		
		211 - 255	82 - 100	Random strobe, slow → fast		
2	2	0 - 65535	0 - 100	**Dimmer fade (MSB)** Closed → open	Fade	0
	3			**Dimmer fade, fine (LSB)**	Fade	0
3	4	0 - 255	0 - 100	**Cyan** White → full cyan	Fade	0
4	5	0 - 255	0 - 100	**Magenta** White → full magenta	Fade	0
5	6	0 - 255	0 - 100	**Yellow** White → full yellow	Fade	0
6	7	0 - 255	0 - 100	**CTO** Open (6000 K) → warm (3200 K)	Fade	0
7	8			**Color Wheel**		
				Continuous Scroll		
		0	0	Open		
		1 - 14	1 - 5	Open → Slot 1		
		15	6	Slot 1		
		16 - 29	6 - 11	Slot 1 → Slot 2		
		30	12	Slot 2		
		31 - 44	12 - 17	Slot 2 → Slot 3		
		45	18	Slot 3		
		46 - 59	18 - 23	Slot 3 → Slot 4		
		60	23	Slot 4		
		61 - 74	24 - 29	Slot 4 → Slot 5		
		75	29	Slot 5		
		76 - 89	30 - 35	Slot 5 → Slot 6		
		90	35	Slot 6		
		91 - 104	36 - 41	Slot 6 → Slot 7		
		105	41	Slot 7		
		106 - 119	41 - 46	Slot 7 → Open		
		120 - 160	47 - 63	Open	Snap	0
				Stepped Scroll (snap to full color positions)		
		161 - 163	63 - 64	Slot 1		
		164 - 166	64 - 65	Slot 2		
		167 - 169	65 - 66	Slot 3		
		170 - 172	66 - 67	Slot 4		
		173 - 175	68	Slot 5		
		176 - 178	69 - 70	Slot 6		
		179 - 181	70 - 71	Slot 7		
		182 - 192	71 - 75	Open		
				Continuous Rotation		
		193 - 214	75 - 84	CW, Fast → Slow		
		215 - 221	84 - 86	Stop (This will stop the color wheel wherever it is at the time)		
		222 - 243	87 - 95	CCW, Slow → Fast		
				Random color		
		244 - 247	95 - 96	Fast		
		248 - 251	97 - 98	Medium		
		252 - 255	98 - 100	Slow		

Table 1: DMX Protocol

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function	Fade type	Default value
8	**9**			**Gobo selection, indexing, shake, rotation**	Snap	0
				Indexed gobo: set indexed angle on channels 9/10 (16-bit) or 10/11 (16-bit ext.)		
		0 - 9	0 - 4	Open		
		10 - 14	4 - 5	Gobo 1		
		15 - 19	5 - 8	Gobo 2		
		20 - 24	8 - 10	Gobo 3		
		25 - 29	10 - 12	Gobo 4		
		30 - 34	12 - 13	Gobo 5		
				Continuous gobo rotation: set gobo rotation speed on channels 9/10 (16-bit) or 10/11 (16-bit ext.)		
		35 - 39	14 - 16	Gobo 1		
		40 - 44	16 - 17	Gobo 2		
		45 - 49	18 - 19	Gobo 3		
		50 - 54	20 - 21	Gobo 4		
		55 - 59	21 - 23	Gobo 5		
				Gobo shake centered on indexed position: set indexed angle on channels 9/10 (16-bit) or 10/11 (16-bit ext.). Shake angle increments in following steps: 10°, 15°, 30°, 45°, 60°, 90°, 135°, 180°, 270° and 360°		
		60 - 89	23 - 35	Gobo 1, 360° slow → 10° fast		
		90 - 119	35 - 46	Gobo 2, 360° slow → 10° fast		
		120 - 149	47 - 58	Gobo 3, 360° slow → 10° fast		
		150 - 179	59 - 70	Gobo 4, 360° slow → 10° fast		
		180 - 209	70 - 82	Gobo 5, 360° slow → 10° fast		
				Continuous gobo wheel scroll with continuous gobo rotation: set gobo rotation speed on channels 9/10 (16-bit) or 10/11 (16-bit extended)		
		210 - 232	82 - 91	CW gobo wheel scroll, fast → slow		
		233 - 255	91 - 100	CCW gobo wheel scroll, slow* → fast		
9	**10**			**Gobo indexing angle, rotation speed (16-bit fine, MSB and LSB)**	Fade	32768
		0 - 65535	0 - 100	*If indexed gobo is selected on channel 8 (16-bit) or 9 (16-bit ext.)* Gobo indexing, -197.5° → +197.5° *(default DMX value 32768 sets gobo to 0°)*		
				If continuous gobo rotation is selected on channel 8 (16-bit) or 9 (16-bit ext.)		
10	**11**	0 - 600	0	No gobo rotation, gobo indexed at 0°		
		601 - 32130	1 - 49	CW, fast → slow		
		32131 - 32895	49 - 50	No gobo rotation, gobo stops at current position		
		32896 - 64515	50 - 99	CCW, slow → fast		
		64516 - 65535	100	No gobo rotation, gobo indexed at 90°		
11	**12**			**Animation wheel rotation**	Snap	0
		0 - 10	0 - 4	Open		
		11 - 20	4 - 8	Indexed *(set indexing angle on channel 12/13)*		
		21 - 30	8 - 12	Open		
		31 - 40	12 - 16	Continuous rotation *(set rotation speed and directions on channel 12/13)*		
		41 - 50	16 - 20	Position 1		
		51 - 60	20 - 23	Position 2		
		61 - 70	24 - 27	Position 3		
		71 - 80	28 - 31	Position 4		
		81 - 90	32 - 35	Position 5		
		91 - 100	36 - 39	Position 6		
		101 - 110	39 - 43	Position 7		
		111 - 255	43 - 100	Open		
12	**13**			**Animation wheel indexed angle, rotation speed and direction**	Snap	127
				If indexing is selected on channel 11/12		
		0 - 255	0 - 100	Indexed angle		
				If continuous rotation is selected on channel 11/12		
		0 - 2	0 - 1	Stop, indexed at 0°		
		3 - 126	1 - 49	CW rotation, fast → slow		
		127 - 129	50	Stop, wheel stops at its current position		
		130 - 253	51 - 99	CCW rotation, fast → slow		
		254 - 255	99 - 100	Stop, indexed at 90°		

Table 1: DMX Protocol

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function	Fade type	Default value
13	**14**	0 - 255	0 - 100	**Framing blade 1, position** Out → in	Fade	0
14	**15**	0 -126 127 - 128 129 - 255	0 - 49 50 51 - 100	**Framing blade 1, angle** Angle – Parallel Angle +	Fade	127
15	**16**	0 - 255	0 - 100	**Framing blade 2, position** Out → in	Snap	0
16	**17**	0 -126 127 - 128 129 - 255	0 - 49 50 51 - 100	**Framing blade 2, angle** Angle – Parallel Angle +	Fade	127
17	**18**	0 - 255	0 - 100	**Framing blade 3, position** Out → in	Fade	0
18	**19**	0 -126 127 - 128 129 - 255	0 - 49 50 51 - 100	**Framing blade 3, angle** Angle – Parallel Angle +	Fade	127
19	**20**	0 - 255	0 - 100	**Framing blade 4, position** Out → in	Fade	0
20	**21**	0 -126 127 - 128 129 - 255	0 - 49 50 51 - 100	**Framing blade 4, angle** Angle – Parallel Angle +	Fade	127
21	**22**	0 -126 127 - 128 129 - 255	0 - 49 50 51 - 100	**Frame indexing angle** Minimum (-55°) 0° Maximum (+55°)	Fade	127
22	**23**	0 - 255	0 - 100	**Frost** No frost → Full frost	Fade	0
23	**24**	0 -10 11 - 138 139 - 255	0 - 4 4 - 54 54 - 100	**Prism** Prism off Prism indexing: set angle on ch. 24 (16-bit) or 25 (16-bit ext.) Prism rotation: set direction and speed on ch. 24 (16-bit) or 25 (16-bit ext.)	Snap	0
24	**25**	0 -126 128 129 - 255 0 - 2 3 - 126 127 - 129 130 - 253 254 - 255	0 - 49 50 51 - 100 0 1 - 50 51 52 - 99 100	**Prism indexing angle, rotation speed and direction** *If prism indexing is selected on channel 23 (16-bit) or 24 (16-bit ext.):* Angle – 0° Angle + *If prism rotation is selected on channel 23 (16-bit) or 24 (16-bit ext.):* Prism stop, indexed at 0° CW rotation, fast → slow Prism stop at its current position CCW rotation, slow → fast Prism stop, indexed at 45°	Fade	128
25	**26**	0 - 255	0 - 100	**Iris** Open → closed	Fade	0
26	**27** **28**	0 - 65535	0 - 100	**Zoom, 16-bit (MSB and LSB)** Flood → spot	Fade	32768
27	**29** **30**	0 - 65535	0 - 100	**Focus, 16-bit (MSB and LSB)** Infinity → near	Fade	32768
28	**31**	0 - 65535	0 - 100	**Pan, 16-bit (MSB and LSB)** Left → right (32768 = neutral)	Fade	32768
29	**32**					
30	**33**	0 - 65535	0 - 100	**Tilt, 16-bit (MSB and LSB)** Up → down (32768 = neutral)	Fade	32768
31	**34**					

Table 1: DMX Protocol

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function	Fade type	Default value
				Fixture control/settings		
				(hold for number of seconds indicated to activate)		
		0 - 9	0 - 4	*No function (disables calibration)* – 5 sec.		
		10 - 14	4 - 5	Reset entire fixture – 5 sec.		
		15 - 19	6 - 7	Reset dimmer and shutter only – 5 sec.		
		20 - 24	8 - 9	Reset CMY, CTO and color wheel only – 5 sec.		
		25 - 29	10 - 11	Reset effects (gobo and animation wheels, iris, prism, frost, zoom, focus) only – 5 sec.		
		30 - 34	12 - 13	Reset pan and tilt only – 5 sec.		
		35 - 39	14 - 15	Reset framing		
		40 - 44	16 - 17	Lamp on		
		45 - 49	18 - 19	Lamp off – 5 sec.		
		50 - 54	20 - 21	*No function*		
		55 - 59	21 - 23	Enable calibration – 5 sec.		
		60 - 64	23 - 25	Linear dimming curve – 1 sec. (menu override, setting unaffected by power off/on)		
		65 - 69	25 - 27	Square law dimming curve – 1 sec. (menu override, factory default setting, setting unaffected by power off/on)		
		70 - 74	28 - 29	Inverse square law dimming curve – 1 sec. (menu override, setting unaffected by power off/on)		
		75 - 79	29 - 31	S-curve dimming curve– 1 sec. (menu override, setting unaffected by power off/on)		
		80 - 84	32 - 33	Normal pan and tilt speed – 1 sec. (menu override - setting returns to MENU setting after power on/off)		
		85 - 89	34 - 35	Fast pan and tilt speed – 1 sec. (default setting, menu override - setting returns to MENU setting after power on/off)		
		90 - 94	35 - 37	Slow pan and tilt speed – 1 sec. (menu override - setting returns to MENU setting after power on/off)		
		95 - 99	37 - 39	Effect shortcuts = ON – 1 sec. (default setting, menu override, setting stays at factory default ON at power off/on)		
32	**35**	100 - 104	39 - 41	Effect shortcuts = OFF – 1 sec. (menu override, setting returns to factory default ON at power off/on)	Snap	0
		105 - 109	41 - 43	Disable zoom/focus linking– 1 sec.		
		110 - 114	43 - 45	Enable zoom/focus linking, near distance – 1 sec.		
		115 - 119	45 - 46	Enable zoom/focus linking, medium distance (default setting) – 1 sec.		
		120 - 124	47 - 48	Enable zoom/focus linking, far distance – 1 sec.		
		125 - 126	49	Ballast output full, set to 100% (default setting)		
		127 - 128	50	Ballast output reduced to 90%		
		129 - 130	50 - 51	Ballast output reduced to 80%		
		131 - 132	51 - 52	Ballast output reduced to 70%		
		133 - 134	52	Ballast output reduced to 60%		
		135 - 144	53 - 56	*No function*		
		145 - 149	57 - 58	Auto blackout = ON – 1 sec.		
		150 - 154	59 - 60	Auto blackout = OFF – 1 sec. (default setting)		
		155 - 159	61 - 62	Turn on display – 1 sec.		
		160 - 164	62 - 63	Turn off display – 1 sec.		
		165 - 169	64 - 66	Store pan and tilt calibration – 5 sec.		
		170 - 174	66 - 68	Store dimmer calibration – 5 sec.		
		175 - 179	68 - 70	Store cyan calibration – 5 sec.		
		180 - 184	70 - 72	Store magenta calibration – 5 sec.		
		185 - 189	72 - 74	Store yellow calibration – 5 sec.		
		190 - 194	74 - 76	Store CTC calibration – 5 sec.		
		195 - 199	76 - 78	Store all CMY and CTC calibration – 5 sec.		
		200 - 204	78 - 80	Store gobo wheel current slot index calibration – 5 sec.		
		205 - 214	80 - 84	*No function*		
		215 - 219	84 - 86	Store prism calibration – 5 sec.		
		220 - 224	86 - 88	Store iris calibration – 5 sec.		
		225 - 229	88 - 89	Store focus calibration – 5 sec.		
		230 - 234	90 - 91	Store zoom calibration – 5 sec.		
		235 - 239	92 - 93	Store pan calibration – 5 sec.		
		240 - 244	94 - 95	Store tilt calibration – 5 sec.		
		245 - 249	96 - 97	Reset all calibration values to factory defaults – 5 sec.		
		250 - 255	98 - 100	*No function*		
-	**36**			Reserved for future use		
-	**37**			Reserved for future use		

Table 1: DMX Protocol

Basic 16-bit Mode	16-bit Extended Mode	DMX Value	Percent	Function	Fade type	Default value
-	38			Reserved for future use		
-	39			Reserved for future use		
-	40			Reserved for future use		

Table 1: DMX Protocol

MSB = Most significant byte
LSB = Least significant byte

Control panel menus

Applicable when running MAC Viper Performance firmware version 1.0.0.

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
DMX ADDRESS	**1** – XXX			DMX address (default address = **1**). The DMX address range is limited so that the fixture will always have enough DMX channels within the 512 available.
CONTROL MODE	BASIC			16-bit basic DMX mode with 2-channel (coarse and fine) control of gobo indexing and speed, pan and tilt
	EXTENDED			**16-bit extended DMX mode** with basic mode features plus fine control of dimmer, zoom and focus. Five channels are also reserved for future effects.
FIXTURE ID	0 – 9999	User-settable fixture ID number		**0**
PERSONALITY	PAN/TILT	PAN INVERT	ON/**OFF**	Reverse DMX pan control: right → left
		TILT INVERT	ON/**OFF**	Reverse DMX tilt control: down → up
	SPEED	PAN/TILT	**NORMAL**	**Normal speed pan and tilt**
			FAST	Optimize pan/tilt movement for speed
			SLOW	Optimize pan/tilt movement for smoothness
		EFFECT	**FOLLOW P/T**	**Effects speed follows the speed setting applied to pan and tilt via DMX or in control menu**
			NORMAL	Normal effects speed
			FAST	Optimize effects movement for speed
			SLOW	Optimize effects movement for smoothness
	DIMMER CURVE	LINEAR		Optically linear dimming curve
		SQUARE LAW		**Square law dimming curve**
		INV SQ LAW		Inverse square law dimming curve
		S-CURVE		S-curve (fixture emulates incandescent lamp voltage linear RMS dimming curve)
	FOCUS TRACKING	DISABLED		Disables zoom focus linking
		NEAR		Enables zoom focus linking, optimized for short-throw projection (5 - 10 m)
		MEDIUM		**Enables zoom focus linking, optimized for medium-throw projection (10 - 20 m)**
		FAR		Enables zoom focus linking, optimized for long-throw projection (20+ m)
	AUTO LAMP ON	**OFF**		**Automatic lamp striking disabled**
		ON		Lamp strikes automatically within 90 seconds of fixture being powered on
		DMX		Lamp strikes automatically when the fixture receives a DMX signal
	DMX LAMP OFF	**ON**		**Lamp can be powered off via DMX**
		OFF		Lamp cannot be powered off via DMX (can be overridden: see DMX protocol)

Table 2: Control menus

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
PERSONALITY (continued)	DMX RESET	**ON**		**Fixture can be reset via DMX**
		OFF		Fixture cannot be reset via DMX (can be overridden: see DMX protocol)
	EFFECT SHORTCUT	**ON**		**Effects take shortest route during changes, crossing open positions if necessary**
		OFF		Effects avoid open positions during effects changes
	AUTO BLACKOUT	**OFF**		**Shutter/dimmer blackout does not call up other effects.**
		ON		Iris and gobo wheel are deployed 5 seconds after shutter/dimmer blackout to eliminate stray light.
	DISPLAY	DISPLAY SLEEP	ON	Display permanently on
			2 MINUTES	**Display goes into sleep mode 2 minutes after last key press**
			5 MINUTES	Display goes into sleep mode 5 minutes after last key press
			10 MINUTES	Display goes into sleep mode 10 minutes after last key press
		DISPLAY INTENSITY	10 ... **100**	Set display intensity in % (default = **100**)
		DISPLAY ROTATION	**NORMAL** / ROTATE 180	Display orientation **normal** or rotated 180°
		DISPLAY CONTRAST	1 ...100	Adjust contrast of display (default = **41**)
	ERROR MODE	**NORMAL**		**Enable error messages and warnings in display**
		SILENT		Disable error messages and warnings in display (the status LED will still light to indicate fixture status if an error has been detected or the fixture has a warning)
FACTORY DEFAULT	LOAD FACTORY SETTINGS	ARE YOU SURE?	YES/NO	Return all settings (except calibrations) to factory defaults
INFORMATION	POWER ON TIME	TOTAL	0 ... XXX HR	Display hours fixture has been powered on since manufacture (not user-resettable)
		RESETTABLE	CLEAR COUNTER? YES/NO	Display hours fixture has been powered on since last counter reset (user-resettable)
	LAMP ON TIME	TOTAL	0 ... XXX HR	Display hours of lamp use since manufacture (not user-resettable)
		RESETTABLE	CLEAR COUNTER? YES/NO	Display hours of lamp use since last counter reset (user-resettable)
	LAMP STRIKES	TOTAL	0 ... XXX HR	Display number of times lamp has been struck since manufacture (not user-resettable)
		RESETTABLE	CLEAR COUNTER? YES/NO	Display number of times lamp has been struck since last counter reset (user-resettable)
	SW VERSION*	XX.XX.XX		Displays currently active software version
	SERIAL NUMBER*	(XX)XXXXXXXXXXX		Displays fixture's serial number
	RDM UID*	4D50.XXXXXXXX		Displays fixture's unique RDM ID
	FAN SPEEDS*	LAMPFAN L ... BASEFAN 4	0 - XXX RPM	Displays current speed of all cooling fans (lamp, head and base)
	TEMPERA-TURES*	ZOOM/FOCUS ... BALLAST	X C	Displays temperature in °C of all PCBs and of ballast capacitor

Table 2: Control menus

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
DMX LIVE*	RATE	0 - 44 HZ		DMX transmission speed in packets per second
	QUALITY	0 - 100%		Percent of packets received
	START CODE	0 - 255		Value of the DMX start code
	STROBE/SHUTTER ...			Value received on each DMX channel (values for fine control channels can only be viewed if available in the DMX mode the fixture is set to)
TEST*	TEST ALL			Run test sequence of all functions. Press Escape button to stop test
	TEST PAN/TILT			Run test sequence of pan and tilt functions. Press Escape button to stop test
	TEST EFFECTS			Run test sequence of all effects. Press Escape button to stop test
MANUAL CONTROL*	RESET	RESET		Click jog wheel to reset fixture
	LAMP ON/OFF			Manually strike/douse lamp
	STROBE/ SHUTTER	0 - 255		Set shutter/strobe effect (default = **30**)
	DIMMER	0 - **255**		Set dimmer opening
	DIMMER FINE	0 - **255**		Set dimmer opening, fine (LSB)
	CYAN	**0** - 255		Add cyan
	MAGENTA	**0** - 255		Add magenta
	YELLOW	**0** - 255		Add yellow
	CTC	**0** - 255		Adjust color temperature control (add warmth)
	COLOR WHEEL	**0** - 255		Select color filter
	GOBO W 1 SEL	**0** - 255		Select gobo
	GOBO W 1 I/R	**0** - 255		Adjust gobo indexing/rotation
	GOBO W 1 I/R FINE	**0** - 255		Adjust gobo indexing/rotation, fine (LSB)
	ANIMATION FUNC	**0** - 255		Select animation wheel function (indexing or rotation)
	ANIMATION WHEEL	**0** - 255		Set animation wheel indexed angle or rotation speed
	FRAMING 1 POS	**0** - 255		Framing blade 1 insertion
	FRAMING 1 ANGLE	**0** - 255		Framing blade 1 angle
	FRAMING 2 POS	**0** - 255		Framing blade 2 insertion
	FRAMING 2 ANGLE	**0** - 255		Framing blade 2 angle
	FRAMING 3 POS	**0** - 255		Framing blade 3 insertion
	FRAMING 3 ANGLE	**0** - 255		Framing blade 3 angle
	FRAMING 4 POS	**0** - 255		Framing blade 4 insertion
	FRAMING 4 ANGLE	**0** - 255		Framing blade 4 angle
	FRAMING ROTATION	0 - 255		Framing system indexing - rotation to +/- 55° (default = **128**)
	FROST	**0** - 255		Frost insertion
	PRISM I/R	**0** - 255		Set prism indexing/rotation
	PRISM INX	**0** - 255		Set prism indexed position
	IRIS	**0** - 255		Set iris aperture
	ZOOM	0 - 255		Set zoom (default = **128**)
	ZOOM FINE	0 - 255		Set zoom, fine (LSB, default = **128**)

Table 2: Control menus

Menu level 1	Menu level 2	Menu level 3	Menu level 4	Notes (Default settings in bold print)
MANUAL CONTROL* (continued)	FOCUS	0 - 255		Set focus
	FOCUS FINE	0 - 255		Set focus, fine (LSB, default = **128**)
	PAN	0 - 255		Set pan angle (default = **128**)
	PAN FINE	0 - 255		Set pan angle, fine (LSB, default = **128**)
	TILT	0 - 255		Set tilt angle (default = **128**)
	TILT FINE	0 - 255		Set tilt angle, fine (LSB, default = **128**)
SERVICE	ERROR LIST	Empty or up to 20 errors		Display any errors in memory
	FAN CLEAN	ON/OFF		Activate fan cleaning
	PT FEEDBACK	**ON**		**Enable pan/tilt position feedback systems**
		OFF		Disable pan/tilt position feedback
	ADJUST	DIMMER	ADJUSTED/ NOT ADJUSTED	**Important! For use by authorized service technicians during mechanical adjustment only. Do not enter the ADJUST menu without Martin™ service documentation, or you may make the fixture impossible to use correctly.** Jog wheel must be held in for 5 seconds to enter.
		FROST	NOT ADJUSTED/ 1 - 255	
		FRAMING	ADJUST RESET/FRAMING BLADE 1 LEFT...FRAMING BLADE 4 RIGHT	
	CALIBRATION	PT AT END STOP	ACTION	Calibrate pan/tilt sensor by turning pan clockwise against end stop, and tilt against end stop pointing away from display, then push ACTION
		DIMMER ... TILT		Set individual effects to calibration positions (approx. +/- 5% offset available)
		LOAD DEFAULTS		Load factory default calibration settings
		SAVE DEFAULTS		Replace factory default calibration settings with current calibration settings
	FIRMWARE UPDATE	NO DEVICE		No USB device present or no firmware on USB device
		UPDATING FILES		Fixture updating internal memory from USB device
		AVAILABLE FIRMWARE	PERFORMANCE 1.0.0 ... PERFORMANCE X.X.X	Select firmware from versions stored in internal memory. Select version, then click on jog wheel and confirm your choice to update

Table 2: Control menus

** Menus marked * are available only when the fixture is connected to mains power. All other menus are available in mains- and battery-powered operation.*

Service and display messages

The MAC Viper Performance gives service and maintenance information by displaying a large 3- or 4-character short code and a smaller full-text message in the fixture's display. The short code is visible at a distance, allowing easier reading with the fixture still in the rig, for example, while the full-text message gives more detailed information.

Warning messages

Warning messages indicate that either:

- problems might appear in the future if no action is taken, or
- the user needs to pay special attention to a function or procedure when working with the fixture.

The MAC Viper Performance communicates warnings as follows:

- Warning codes are shown continuously in the display and disappear when the user reacts to the warning.
- If more than one warning is detected, all warnings are displayed in sequence.
- If the display is inactive, the fixture's status LED (see Figure 5 on page 10) flashes orange to indicate that there is a warning. Activating the display will show the warning.

The possible warning messages are listed in Table 3 below:

Short code	Long message and explanation
BANK	BANK NO ACCESS Error unpacking firmware bank during/after software upload. Fixture will continue to operate on existing firmware. Warning message is cleared by a successful software upload or at the next power off/on cycle.
BATW	BAL TEMP HIGH Ballast PCB sensor detects that normal operating temperature is exceeded.**
CMTW	CMY TEMP HIGH CMY PCB sensor detects that normal operating temperature is exceeded.**
DINA	DIMMER ADJUST No dimmer adjustment data in EEPROM. Dimmer may be incorrectly adjusted*.
EFTW	EFF TEMP HIGH Effects PCB sensor detects that normal operating temperature is exceeded.**
FRNA	FRAMING ADJUST No framing adjustment data in EEPROM. Framing effect may be incorrectly adjusted*.
FTNA	FROST ADJUST No frost adjustment data in EEPROM. Frost effect may be incorrectly adjusted*.
G1*x*M	GOBO 1-*x* MISSING Gobo *x* not detected at last reset. If no gobos are detected, an **R*x*ER** message is also displayed.
HOT	LAMP HOT Lamp is too hot to restrike. Pan and tilt are disabled for 8 minutes to reduce the risk of falling fragments if the lamp has exploded. Fixture will attempt to restrike at one-minute intervals. If lamp still refuses to strike after eight attempts, an **LAER** (Lamp Error) message is displayed.
INLK	INVALID LICENSE KEY Invalid license key entered. Warning is displayed and it is impossible to enter a license key for 10 seconds.
LTIM	LAMP LIFETIME Lamp lifetime counter has timed out.
PTTW	PT TEMP HIGH Pan/tilt PCB sensor detects that normal operating temperature is exceeded.**
PUTW	PSU TEMP HIGH Power supply unit PCB sensor detects that normal operating temperature is exceeded.**

Table 3: Warning messages

Short code	Long message and explanation
SL W	SAFETY LOOP A safety loop error occurred but is no longer active. Warning message is cleared at the next power off/on cycle.
UITW	UI TEMP HIGH Control panel PCB sensor detects that normal operating temperature is exceeded.**
ZFTW	ZF TEMP HIGH Zoom/focus PCB sensor detects that normal operating temperature is exceeded.**

Table 3: Warning messages

** Adjustment should only be carried out by a qualified service technician with Martin™ service documentation.*

*** High temperature warnings are canceled as soon as temperature returns to normal. If temperature reaches cutoff level, the warning is replaced by a cutoff error message.*

Error messages

Error messages indicate that there is a serious problem. The MAC Viper Performance communicates errors as follows:

- Error messages flash in the display.
- If more than one error is detected, the fixture flashes all errors three times each.
- Errors are shown in the display regardless of display status: they override an inactive display and any other information that the display might be showing.
- If an error is present, the status LED flashes red.

The possible error messages are listed in Table 4 below:

Short code	Long message and explanation
APER	AW POS ERROR FX wheel position electrical indexing system timeout.
ARER	AW ROT ERROR FX wheel rotation magnetic indexing system timeout.
BATC	BAL TEMP CUTOFF Ballast temperature too high. Lamp is shut down, fans set to max. Error message cleared when fixture is reset.
BEER	BEAM SHAPER POS Prism motor overcurrent or prism position magnetic indexing system timeout.
BRER	BEAM SHAPER ROT Prism rotation magnetic indexing system timeout.
C1ER	COLORWHEEL 1 ERR Color wheel position magnetic indexing system timeout.
CDCM	CAL DATA CMY Valid color mixing calibration data not detected in EEPROM. Fixture may be unable to read/write color mixing calibration data to EEPROM.
CDEF	CAL DATA EFFECT Valid effects calibration data not detected in EEPROM. Fixture may be unable to read/write effects calibration data to EEPROM.
CDPT	CAL DATA P/T Valid pan/tilt calibration data not detected in EEPROM. Fixture may be unable to read/write pan/tilt calibration data to EEPROM.
CDZF	CAL DATA Z/F Valid zoom/focus calibration data not detected in EEPROM. Fixture may be unable to read/write zoom/focus calibration data to EEPROM.
CECM	COM ERR CMY Communication error between main processor and color mixing circuit. Lamp shut down.
CEEF	COM ERR EFFECT Communication error between main processor and effects circuit. Lamp shut down.

Table 4: Error messages

Short code	Long message and explanation
CEPT	COM ERR P/T Communication error between main processor and pan/tilt circuit (an error here will also probably block communication to several other areas).
CEUI	COM ERR UI Communication error between main processor and user interface circuit. Power off/on cycle or firmware upload required to clear error. Check connections and wiring. Control panel/display module may need to be replaced.
CEZF	COM ERR Z/F Communication error between main processor and zoom/focus circuit. Check connections and wiring. Lamp shut down.
CMTC	CMY TEMP CUT OFF Color mixing temperature too high. Lamp is shut down, fans set to max. Error message cleared when fixture is reset.
CTER	CTC ERROR CTC position electrical indexing system timeout.
CYER	CYAN ERROR Cyan position electrical indexing system timeout.
DIER	DIMMER ERROR Dimmer position electrical indexing system timeout.
EEDF	EEPROM UI Valid EEPROM not detected in user interface module. Fixture writes default values into the EEPROM based on the CAN address.
EEDF	EEPROM Z/F Valid EEPROM not detected in zoom/focus module. Fixture writes default values into the EEPROM based on the CAN address.
EEDF	EEPROM PAN/TILT Valid pan/tilt EEPROM not detected. Fixture writes default values to EEPROM based on CAN address.
EEDF	EEPROM EFFECT Valid effects EEPROM not detected in projection module. Fixture writes default values to EEPROM based on CAN address.
EEDF	EEPROM CMY Valid color mixing EEPROM not detected in projection module. Fixture writes default values to EEPROM based on CAN address.
EFSM	FAILSAFE MODE Fixture has detected problem that can cause damage. Lamp is shut down, motors are locked, fixture ignores DMX commands.
EFTC	EFF TEMP CUT OFF Effect PCB temperature too high. Lamp is shut down, fans set to max. Error cleared when fixture is reset.
FAN	BS 1 FAN ERR Base cooling fan 1 (furthest fan to the left) has stopped running. Error cleared when fixture is reset.
FAN	BS 2 FAN ERR Base cooling fan 2 has stopped running. Error cleared when fixture is reset.
FAN	BS 3 FAN ERR Base cooling fan 3 has stopped running. Error cleared when fixture is reset.
FAN	BS 4 FAN ERR Base cooling fan 4 (furthest fan to the right) has stopped running. Error cleared when fixture is reset.
FAN	HD L FAN ERR Left-hand side head cooling fan has stopped running. Lamp is shut down. Error cleared when fixture is reset.
FAN	HD R FAN ERR Right-hand side head cooling fan has stopped running. Lamp is shut down. Error cleared when fixture is reset.
FAN	HD M FAN ERR Middle head cooling fan has stopped running. Lamp is shut down. Error cleared when fixture is reset.

Table 4: Error messages

Short code	Long message and explanation
FAN	LAMP L FAN ERR Left-hand side lamp cooling fan has stopped running. Lamp is shut down. Error cleared when fixture is reset.
FAN	LAMP R FAN ERR Right-hand side lamp cooling fan has stopped running. Lamp is shut down. Error cleared when fixture is reset.
FBEP	PAN FBACK ERR Pan position magnetic indexing system timeout. Fixture is unable to correct pan position (but pan movement will often still be possible).
FBET	TILT FBACK ERR Tilt position magnetic indexing system timeout. Fixture is unable to correct tilt position (but tilt movement will often still be possible).
FOER	FOCUS ERROR Focus position electrical indexing system timeout.
FRER	FRAM ROT ERR Framing motor overcurrent or indexing system timeout
FSER	FRAMING1 INS ERR Framing blade 1 left motor overcurrent.
FSER	FRAMING1 ANG ERR Framing blade 1 right motor overcurrent.
FSER	FRAMING2 INS ERR Framing blade 2 left motor overcurrent.
FSER	FRAMING2 ANG ERR Framing blade 2 right motor overcurrent.
FSER	FRAMING3 INS ERR Framing blade 3 left motor overcurrent.
FSER	FRAMING3 ANG ERR Framing blade 3 right motor overcurrent.
FSER	FRAMING4 INS ERR Framing blade 4 left motor overcurrent.
FSER	FRAMING4 ANG ERR Framing blade 4 right motor overcurrent.
FTER	FROST ERROR Frost position electrical indexing system timeout.
G1ER	GOBO W 1 ERR Gobo wheel magnetic position indexing circuit timeout. Lamp strike disabled to protect gobo bearings.
IRER	IRIS ERROR Iris position electrical indexing system timeout.
LAER	LAMP ERROR The lamp is defective, has exploded, is missing, or the lamp cannot restrike after eight attempts. Pan and tilt are locked. DMX control is disabled. Fixture reset command in control menus is disabled.
MAER	MAGENTA ERROR Magenta position electrical indexing system timeout.
PAER	PAN ERROR Pan position electrical indexing system timeout.
PSER	PAN SENSOR ERROR Fixture unable to retrieve reliable data from pan position sensor.
PTCM	P/T SENSOR CAL Pan/tilt sensors are not calibrated.
PTTC	PT TEMP CUT OFF Pan/tilt PCB temperature too high. Thermal cutoff activated. Lamp is shut down, fans set to max. Error cleared when fixture is reset.
PUTC	PSU TEMP CUT OFF PSU temperature too high. Thermal cutoff activated. Lamp is shut down, fans set to max. Error cleared when fixture is reset.
R1ER	GOBO W 1 ROT ERR Gobo wheel gobo rotation magnetic indexing circuit timeout.

Table 4: Error messages

Short code	Long message and explanation
SLER	SAFETY LOOP Lamp safety loop circuit activated. Lamp temperature circuit breaker has cut lamp power. Circuit breaker resets automatically after lamp temperature has returned to normal operating range.
SSTO	SYSSTATE TIMEOUT Some part of the system did not startup as expected. This error message is usually followed by other more descriptive messages. Service intervention required. Fixture control possibly disabled, depending on nature of error.
TIER	TILT ERROR Tilt position electrical indexing circuit timeout.
TSER	TILT SENSOR ERR Fixture unable to retrieve reliable data from tilt position sensor.
UECM	UPL ERR CMY Could not upload new firmware to the color mixing system. Error cleared when new firmware is uploaded successfully or power is cycled off and on.
UEEF	UPL ERR EFFECT Could not upload new firmware to the projection system. Error cleared when new firmware is uploaded successfully or power is cycled off and on.
UEPT	UPL ERR PAN/TILT Could not upload new firmware to the pan/tilt system. Error cleared when new firmware is uploaded successfully or power is cycled off and on.
UEUI	UPL ERR UI Could not upload new firmware to the user interface system.
UEZF	UPL ERR Z/F Could not upload new firmware to the zoom/focus system.
UITC	UI TEMP CUT OFF User interface PCB temperature too high. Thermal cutoff activated. Lamp is shut down, fans set to max. Error cleared when fixture is reset.
UPLD	DMX UPLOAD ERROR An error occurred during upload via DMX. Check cabling and connections, and then restart.
YEER	YELLOW ERROR Yellow position electrical indexing system timeout.
ZFTC	ZF TEMP CUT OFF Zoom/focus PCB temperature too high. Thermal cutoff activated. Lamp is shut down, fans set to max. Error cleared when fixture is reset.
ZOER	ZOOM ERROR Zoom position electrical indexing system timeout.

Table 4: Error messages

www.martin.com • Olof Palmes Allé 18 • 8200 Aarhus N • Denmark
Tel: +45 8740 0000 • Fax +45 8740 0010