VRX

Instruction Manual

Welcome

Congratulations on your purchase of this VRX product. Your new unit offers many exciting features and can work in harmony with all other products in the range, and with other DMX512 products, to produce an amazing light show.

Features include:

- Smooth and quiet microstepping of all functions

- State of the art drive electronics

- High efficiency optics

- Separate strobe shutter and fade in/out effect (this is not a dimmer)

- Interchangeable gobos

- Push button menu system and digital display to set options

- System can link to PC for setup and reprogramming

- Upgradable internal software

The VRX range includes a Scan, a Colour Changer, a Gladiator and a Star unit, each available with rotating or non-rotating gobos.

If you are in a hurry...

If you don't want all the details, and you just want to get it working in a hurry...

- If you are running the lights in sound-to-light mode, go to page 6

- If you are using a controller with the lights, go to page 9

Features of the unit

All the units have the same plugs and indicator lights. The main ones are:

DMX connectors (pins 2/3 signal, pin 1 grounded). Located next to the hanging bracket. Other DMX devices can be linked in to the system through these connectors. The unit will auto-sense the polarity of the DMX signal, either pin 2 hot or pin 3 hot. (You can manually override the auto sensing using the DP option).

Power light (red). This light should be on whenever the unit is powered up. If it doesn't come on there is either no power to the unit, or some internal problem with the unit.

DMX present light (orange). This light is on constantly when DMX is being received.

Master light (green). This is lit when the unit is Master in stand alone mode. The light will blink off in time to the music.

Slave light (yellow). This light is on when the unit is Slave in stand alone mode.

Digital display. The display shows the DMX channel of the unit, or if in light show mode, the Light Show Group of the unit. The display is also used for setting options.

Enter button. Hold down the Enter button to get into the option menu. If the display shows "LOC" then the control panel has been locked to prevent tampering. See page 15 for lock/unlock instructions.

Option buttons (arrows). The three buttons below the display are used to set the DMX channel and other options on the unit.

Mains power (not shown in picture). Power is supplied to the unit through an IEC connector on the back face of the unit. There is a power supply fuse built into this connector. If this fuse fails you should take the unit to an Abstract dealer for service.

Lamp alignment (not shown in picture). Below the digital display there are 3 screws which allow you to adjust the position of the lamp within the reflector to optimise the brightness and evenness of the light beam. The alignment is set at the factory and you should not need to change it until you renew the lamp.

Focus (not shown in picture). You can focus the light beam for sharp gobo projection by turning the lens. If you turn the lens anticlockwise several turns, the lens will come out of the unit allowing it to be cleaned.

Installing the unit

- Make sure that fixings or lighting stands are sufficient to carry the weight of the unit.
- The unit is fan cooled, make sure that you don't block any vents.
- Ensure there is at least 1 metre between the lens of the unit and any surface which the light beam can shine on.

When you turn the unit on, it will go through an initialisation routine where it moves all the motors to their zero positions. You may hear some bumping noises as the unit checks the limits of movement on the motors. The initialisation routine takes about 20 seconds.

Light Show mode

If you don't connect a controller, the unit will automatically switch to stand alone mode and listen to the music to produce an impressive light show (if the LSE option is set to ON). This mode is good when you want a quick and dramatic show, or if you don't have time to program or operate the light show. If you want to control the unit yourself, see page 9.

If you have more than one VRX unit, link the units together using 3-pin DMX cables as shown below. Connect the DMX out (the socket) on the first unit to the DMX in (plug) on the second unit. Then continue linking as many other units as you want.

One unit will automatically take control and become the Master unit (green light on), the other units will become Slave units (yellow light on) to give a synchronised light show. The displays will show "SA" (sound animated) or "SS" (supersound) depending on the light show mode which is selected, and the Light Show Group number of the head.

Master   Slave 1   Slave 2
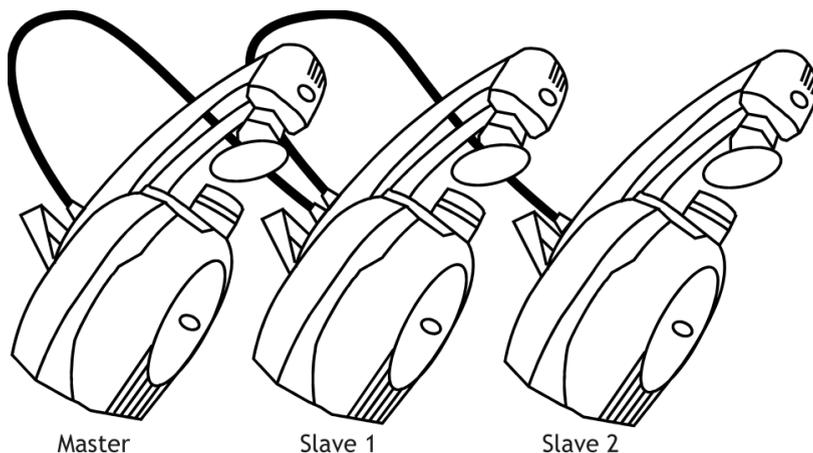
Note: If you connect other manufacturers' products to the DMX line while using stand alone mode, they will probably not respond.

Making Light show more interesting

The VRX units produce an impressive 4-head lightshow which includes chasing, colour sequencing and wave movements. You can select which heads work together by setting the "Light Show Group" (LSG) option to 1, 2, 3 or 4. All heads set to the same group number will copy each other. For extra fun you can use the pan and tilt invert options to invert mirror movements for some units. Experiment with different settings to find the best effect. (The LSG setting is independent of the DMX channel setting)

SA and SS modes in light show

The VRX units have two light show modes, "Sound Animation" (SA) or "SuperSound" (SS). The SA mode (the default) is simpler and looks good on 1, 2 or 3 units. If you have 4 or more units, SS mode is much more dramatic, using strobe and blackout chases, but if you have less than 4 units, using SS mode may result in all the lights going dark at certain times. You select SS mode by turning the "SS" option ON on the Master unit. All units will display SA or SS, but you only need to set the option on the Master unit.

Group control in light show

You can have an even better lightshow if you have more than one type of VRX unit, for example if you have some VRX scans and some VRX gladiators. By setting the "GC" (Group Control) options on the Master head, the lightshow will automatically turn different types of VRX on and off, so all units might run for a time, then just the scans, then just the gladiators, and so on. To allow the lightshow to blackout a range of units, you set the GC option for that unit to ON.

GC options	
SCA	Enable group blackout of VRX Scans
CC	Enable group blackout of VRX Colour Changers
GLA	Enable group blackout of VRX Gladiators
STA	Enable group blackout of VRX Stars

So if you want the lightshow to swap between your Scans and Gladiators, set the GC-SCA option and the GC-GLA options to ON. The lightshow will make sure that there is always at least one type of unit on – so you should not turn "on" an option for a type of unit you don't have in the light show, or everything might sometimes go dark.

Special options in light show mode

Choosing which unit is Master: Normally the units decide between themselves which one is going to be the Master. If you want a particular unit to become master (for example, the one next to the loudspeakers), ensure Light Show Enable (LSE) is OFF on all other units.

Disabling Light Show mode: If LSE is OFF on all units, the units will freeze in the last received DMX position and will not do light show.

Disabling Strobing: Set the STR option to OFF.

Forcing slow movement and colour fading: Set the SLO option to ON. Strobing is also disabled.

Setting continuous movement: Set the Sound (SOU) option to OFF. Set the SLO option on as well for slow continuous movement.

Inverting the mirror movement: Set Invert Pan (I-P), Invert Tilt (I-T) or Pan-Tilt swap (P-T) options to ON.

Auto DMX polarity: The DP (DMX polarity) option should be set to AUT or P2 on all units when using light show mode.

Linking to Abstract CE or VR units

If using VRX units with Abstract CE or VR units, ensure that a VRX unit is "Master" by turning off LSE on all other units and putting a VRX unit first in the DMX chain.

Setup for DMX controlled mode

DMX controlled mode gives you full control over every function of the unit. Using a suitable DMX controller such as the VRX controller, you can program a light show just the way you want it. However, it does take a bit more setting up, and a lot more programming time, than the stand alone lightshow.

Address=001   Address=007
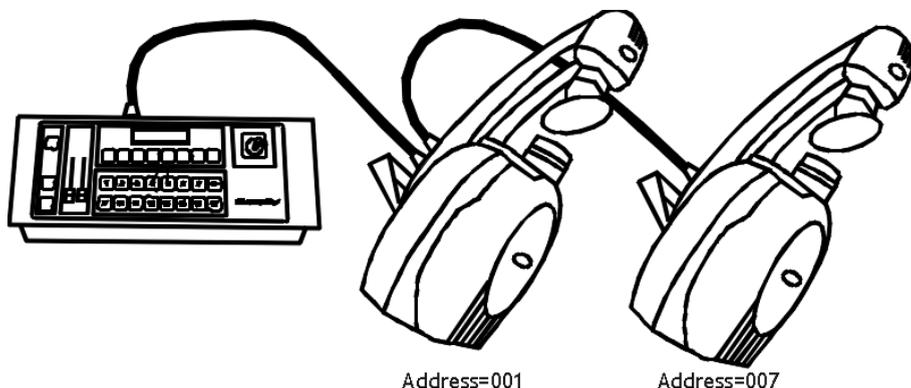
Connect your controller to the "DMX in" socket on the first unit, using a 3-pin XLR cable. If you are using a controller with a 5-pin DMX output, you will need to use a 5 to 3 pin adaptor. The VRX will normally sense the polarity of the DMX (pin 2 or pin 3 hot); you can also set the polarity manually using the "DP" option.

Connect the next unit, if you have one, to the DMX output plug.

Setting the addresses on the units

Your DMX controller sends out commands for all the units it is controlling down one cable. You need to tell each unit which commands to respond to by setting the DMX address using the digital display.

Hold down the Enter button until the display shows CHA. Then use the left hand button to set the 100's, the middle button to set the 10's and the right hand button to set the 1's. When the display shows the channel you want, press Enter. The display will show SET. Until you press Enter, the channel setting will not be used or remembered.

If you are using the VRX compact controller, make sure that the CE option is set to "OFF" on all units, then use the following DMX settings.

Head no.	1	2	3	4	5	6	7	8
Scan, Gladiator, Star	001	007	013	019	025	031	037	043
Colour Changer	003	009	015	021	027	033	039	045

Operation in DMX controlled mode

To control the unit we recommend the VRX controllers, which are designed specifically for this lighting units. However, you can use any DMX controller to operate the unit.

DMX channel usage

All units use 6 DMX control channels except the colour changer units, which have no pan and tilt controls and use only 4 channels. The control values for each channel are on page 12.

Unit type	VRX Scan	VRX Gladiator	VRX Colour	VRX Star
Channels	6	6	4	6
1	Pan	Swivel	Colour	Swivel
2	Tilt	Rotation	Gobo	Rotation
3	Colour	Colour	Gobo rotate	Colour
4	Gobo	Gobo	Fade/shutter	Gobo
5	Gobo rotate	Gobo rotate		Gobo rotate
6	Fade/shutter	Fade/shutter		Fade/shutter

On units with no gobo rotation, the gobo rotation control channel is still present but has no effect.

The VRX units have a condensed mode for compatibility with units such as the Abstract VR8 and Abstract CE controller. To activate this mode, set the CE option to "ON". In CE compatibility mode, channels 4, 5 and 6 are combined into one channel to control Gobo, Gobo Rotation and Shutter.

Pan/tilt

The mirror pan and tilt functions are proportional with automatic speed sensing - if you move the control fast, the mirror will move fast; if you move the control slowly, the unit will follow slowly and smoothly.

Rotation and Swivel

Units with rotation functions have a "stop" position at the centre of the DMX control (value 128), with rotation speed increasing anticlockwise as you go down the control or clockwise as you go up the control. There is also a "stop" position at the maximum and minimum values.
The "**Swivel**" function allows you to twist the mirror drum through 220 degrees, providing some amazing beam movements.

Colour

The colour function is also proportional; this allows you to perform smooth crossfades between colours. You can make the unit "snap" to full colours by setting the Colour Snap (CSN) option to "ON"

Gobo

The units also crossfade between gobos. You can make the unit "snap" to full gobos by setting the Gobo Snap (GSN) option to "ON"

Gobo Rotation (where fitted)

All gobos can be rotated in either direction at varying speeds. There is a "stop" position at the centre of the DMX control (value 128), with rotation speed increasing anticlockwise as you go down the control or clockwise as you go up the control. There is also a "stop" position at the maximum and minimum values.

Shutter

The units have a separate shutter which provides fade out and strobing functions. Between 0 and 50% you will get varying levels of intensity. If you move the control to the top end of its range (about 80%) you will enter the 'strobe zone'. The unit will strobe slowly (about one flash per second) at 80%, up to full speed strobe (about 8 flashes per second) at 100%.

DMX values

Pan & Swivel

DMX	Result
0	Left
128	Central
255	Right

Tilt

DMX	Result
0	Top
128	Central
255	Bottom

Drum Rotation (for Gladiator drum and Star dish)

DMX	Result
0	Stop
8	Fastest speed clockwise
112	Slowest speed clockwise
128	Stop
141	Slowest speed a.clockwise
247	Fastest speed a.clockwise
255	Stop

Colour

DMX	Colour
0	White
26	Red
43	Blue
59	Green
75	Yellow
91	Cyan
108	Orange
124	Pink
140	Magenta
156	UV blue
208	Slowest colour scroll
		(variable speed scroll)
254	Fastest colour scroll

Intermediate values will give mixed colours if CSN option is OFF.

Gobo (CE mode OFF)

DMX	Gobo
0	Gobo 1
40	Gobo 2
56	Gobo 3
72	Gobo 4
88	Gobo 5
104	Gobo 6
120	Gobo 7
136	Gobo 8

Intermediate values will give part gobos, if GSN is OFF.

Gobo (CE mode ON)

DMX	Gobo / rotate	Shutter
0	(see note 2)	Blackout
|		| (fade effect)
16		Full brightness
20	Gobo 1 rotate fwd	
24	Gobo 1 static	"
28	Gobo 1 rotate back	
36	Gobo 2 rotate fwd	
40	Gobo 2 static	"
44	Gobo 2 rotate back	
52	Gobo 3 rotate fwd	
56	Gobo 3 static	"
60	Gobo 3 rotate back	
68	Gobo 4 rotate fwd	
72	Gobo 4 static	"
76	Gobo 4 rotate back	
84	Gobo 5 rotate fwd	
88	Gobo 5 static	"
92	Gobo 5 rotate back	
100	Gobo 6 rotate fwd	
104	Gobo 6 static	"
108	Gobo 6 rotate back	
116	Gobo 7 rotate fwd	
120	Gobo 7 static	"
124	Gobo 7 rotate back	
132	Gobo 8 rotate fwd	
136	Gobo 8 static	"
140	Gobo 8 rotate back	"
226	(see note 2)	Slowest strobe
|		| (variable speed strb)
254		Fastest strobe

Notes: 1-Rotation speed can be varied by adjusting the DMX values slightly from the values in the table. 2-Gobo will not change if DMX value jumps into strobing range or fading range.

Gobo Rotation (for units with rotating gobos)

DMX	Result
0	Stop
32	Fastest speed clockwise
112	Slowest speed clockwise
128	Stop
141	Slowest speed a.clockwise
223	Fastest speed a.clockwise
255	Stop

Shutter

DMX	Result
0	Blackout
|	| (variable fade effect)
128	Full brightness
226	Slowest strobe effect
|	| (variable speed strobe)
255	Fastest strobe effect

Option list

These are the options on the VRX, in order of appearance. The default setting (how the unit is set when new, or after OPC) is shown.

display	default	option name/function
CHA	001	Set DMX channel
i-P	OFF	Invert Pan movement
i-t	OFF	Invert Tilt movement
P-t	OFF	Pan-tilt swap
CSn	OFF	Colour snap to half positions
GSn	On	Gobo snap to full positions
CE	OFF	Abstract CE compatibility mode
dbL	OFF	Display blanking mode (turn off after 20 sec)
LSG	1	Light show group number
LSE	On	Light show enable
SLO	OFF	Light show slow mode
Str	On	Light show strobe enable
SOU	On	Light show sound enable
SS	OFF	Supersound light show
GC	-	Group control options (Submenu)
dP	AUt	DMX input polarity, Auto, pin2 hot or pin3 hot
PC	-	Start PC link mode
rSt	-	Soft-reset (reinitialise motors)
OPC	-	Option Clear (reset options to defaults)
tSt	-	Self test mode
S-n		Displays unit serial number (00-00-00-00)
Lt		Displays lamp timer (hours)
Ut		Displays unit on timer (hours)
UC		Displays unit operation counter
tr1	-	Starts motor trim mode
run	-	Run mode options (Submenu)

Setting VRX options

Hold the "Enter" button for 3 seconds to enter the option menu. Press Enter briefly to step through the options. Use the 3 arrow buttons to change an option. Hold down the Enter button to go back to normal.

All options can also be set from a PC when the unit is linked up in PC mode using the optional programming interface.

Locking the keypad

If the VRX unit is located in a position where people could tamper with the settings, you can lock the keypad. Hold down the Enter button while turning the power on. The display will show LOC. If you press any of the buttons the display will show LOC and the button will not have any effect.

The keypad will remain locked until you unlock it by holding down the Enter button while turning the power on. The display will then show UNL (unlock).

Control options

CHA - set DMX address: See page 9 for details

I-P & **I-T** - invert pan or tilt: inverts the left-right or up-down movement of the mirror. Can be useful in light show mode to vary the show.

P-T - pan-tilt swap: makes the pan channel control the tilt movement and the tilt channel control the pan movement. Useful if a unit is mounted on its side.

CSN & **GSN** - colour or gobo snap: makes the colour or gobo wheel "snap" to full positions.

CE - Abstract CE compatibility mode: puts the unit into a 4-channel mode which is compatible with Abstract CE products and controllers.

DBL - display blanking: turns off the digital display after 20 seconds of inactivity. Any keypress turns the display back on.

LSG, **LSE**, **SLO**, **STR**, **SOU**, **SS**, **GC** - light show master options: see page 8 for details.

DP - DMX input polarity: The unit can accept DMX wired with either pin 2 hot or pin 3 hot (AUT=auto detect mode). Sometimes the unit can't tell which way the DMX is wired, in this case you can set the DMX polarity

manually, either P2=pin 2 hot or P3=pin 3 hot. The DP option does not affect the DMX loop-through.

PC - set PC link mode: Allows you to set up the unit from a PC (used with optional programming interface). Press any button to exit PC mode, or feed DMX to the unit.

RST - soft reset: Reinitialises the motor positions. Hold down the middle button to activate the reset. Useful if a motor is knocked out of position.

OPC - option clear: Sets all control options back to factory settings (see page 14). Hold down the middle button to activate the clear.

TST - self test: Runs a test routine so you can observe that all functions are operating correctly. The unit does not check for problems itself. The test routine continues to run until you press a button (the unit will complete the current sequence before ending test mode).

Information

S-N - serial number: Displays the unique serial number held inside the unit. Shown as 4 groups of numbers, so S-N 00 08 11 A1 is unit number 00-08-11-A1.

LT - Lamp timer: Shows how many hours the lamp has been running for (since timer last reset). The time is shown as 2 groups of numbers, so 001 20L is 00120 Lamp hours. To reset the timer, hold down one of the arrow buttons while turning on the unit - the display should show RST.

UT - Unit timer: Shows how many hours the unit has been running for since manufacture. The time is shown as 2 groups of numbers as for the Lamp timer. The unit timer cannot be reset.

UC - Unit Counter: Shows how many times the unit has been turned on since manufacture. The count is shown as 2 groups of numbers as for the lamp timer.

Using Run mode

The VRX can be programmed internally with a 16 position sequence which can then be run without the need for a controller. This can be useful for demonstration or display applications.

When the VRX is in Run mode, it outputs its position over the DMX link to any other units connected to it. Other units will show SA or SS when they are controlled by a unit in Run mode.

Run mode menu

Press the middle arrow button when the RUN option is displayed to enter Run mode.

The following sub-menu is then available. Press the Enter button to scroll through the options, press any other button to select the option.

Playback mode (PLA)

Press the middle button to start playback mode. The VRX will play back the programmed positions at the speed you have set. If no positions have been set the VRX will ignore the command.

While the VRX is in playback mode the display will show "RUN". If the unit is turned off, it will come back on in Run mode the next time it is turned on. Press any key to end the playback.

Options on the VRX (invert, snap, CE mode) will affect the playback positions, so you should make sure the options are set the same as they were set when you saved the positions.

Record mode (REC)

Press the middle button to enter record mode. You can then program the 16 positions:

$$\boxed{P - 1}$$
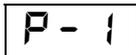
The VRX is ready for position 1.

To program the position for a step, you can either set a position by DMX, or set the position using the buttons.

To grab the current DMX position, hold down the middle button. The VRX will move to the current DMX position and display SET.

You can now use a DMX controller to set the positions. Press any button to save the position.

To set the position using the buttons, press the middle button briefly to select Pan, Tilt, Colour or Gobo/shutter.

⸆P⸄	⸆t⸄	⸆C⸄	⸆G⸄

Press or hold down the left or right button to set the pan, tilt, colour and gobo. Run mode operates in "CE compatible" mode, so the shutter and gobo rotation (if fitted) is controlled by the gobo channel.

If you press the button briefly, the setting will move up in large steps. If you hold the button down, the setting will move in fine steps.

You can amend steps you have already programmed using this method.

To move on to the next step, press Enter briefly.

If you don't want to use all the steps, leave the other steps unprogrammed by holding down Enter when you have finished. The unit won't save the step unless you change one of the functions. If the steps are already programmed, you have to use the CLR option to erase all the steps, then just program the ones you want.

Speed (SPD)

Use the right hand arrow button to set the step time in seconds that each program step will be shown for. Times range from 1 second to 180 seconds.

Fade mode (FAD)

Allows you to set "fade" mode where the VRX moves more slowly between steps. The option swaps between On and Off when you press any of the buttons.

Program clear (CLR)

Press the middle button to clear all programmed positions.

If you have problems

Most problems are usually related to difficulties with the power supply, or confusion with the DMX control signal.

No light from the unit

Check the Power LED is lit and the fan is running. If not, there is no mains supply. Check your mains wiring and the fuse in the back panel. The lamp is powered directly from the mains input, so should come on if the power is OK.

Check if the lamp is alight. You should be able to see some light escaping through the fan. If power is present but the lamp is not alight it may need replacing. The lamp may take 1-2 minutes to come on and reach full brightness.

If the lamp is alight, check that the unit is not in "blackout". If you are using a controller, change the setting. If in stand alone mode, tap the case.

Unit turns itself off after working for a while

VRX units are fitted with a thermal trip which may operate if the fan vents are blocked or excessively dirty, or if the fan fails. The trip will automatically reset when the unit cools down. Ensure all vents are clean and have free airflow. If the fan does not run when the unit starts up, take the unit to an Abstract dealer for repair.

Unit not responding to DMX

Check if the DMX LED is lit. If not, check that your DMX cables are connected properly and are working. If the LED is lit, check the "DP" option in case the DMX polarity is incorrect. Try all settings of the DP option (AUT, P2 or P3).

Try using a different DMX source (controller or another scan) to check if that is the problem.

If you've tried all these and the DMX still doesn't work, it's possible that the DMX protection circuit is detecting a dangerous level of interference on the DMX line and is disconnecting the unit to protect it. Try running DMX cabling by a different route, avoiding high voltage cables, power lines, or neon.

Check that the unit is not receiving DMX (the DMX LED should be off). Check that the LSE (Light Show Enable) option is ON. If the unit is in Master mode, tapping the case should cause the green LED to flash. Quiet or high pitched sounds will not activate the unit.

If still you cannot resolve the problem, it may be that the unit has a fault. You should contact your VRX dealer for assistance.

Trim mode

The TRI option allows you to finely adjust the trimming of all functions in the VRX. You can select P (pan), T (tilt), C (colour), G (gobo), R (rotate), S (shutter).

> *Note: The trim values are set at the factory for best effect. You should not need to change the trim values unless the unit has been dismantled. Incorrect trim values can cause the unit to malfunction.*

Changing gobos

The VRX units have interchangeable gobos. To change the gobos, first turn off the unit, remove the power, and if the unit has been operating, wait 15 minutes for it to cool down.

Remove the top casing of the unit by removing the 4 screws.
The gobo wheel is located at the front right hand side of the unit. Access to the gobos is easiest on the side of the unit. Spin the wheel by hand until you can see the gobo you want to change. Carefully remove the spring clip which retains the gobo. Exchange the gobo and replace the spring clip, making sure it is pushed fully into the gobo holder. Replace the top casing of the unit.

Gobo diameter: 22mm. Image diameter: 14.5mm

Maintenance of the unit

In typical use, the unit will get dirty due to smoke fluid, dust and cigarette smoke.

Every few weeks you should clean the mirror and lens of the unit using a soft damp cloth to ensure maximum light output. Do not use abrasive cleaners or solvents to clean the optics or case of the unit. Using a vacuum cleaner, remove fluff from the fan outlet and the air intakes on the unit. If the airflow becomes restricted or blocked, the unit will overheat. This will shorten the working life of the unit and may result in the thermal trip activating.

If you are operating the unit regularly for prolonged periods (e.g. nightclub installations) you should take the unit to a VRX dealer for full servicing and internal cleaning a few times a year. Do not attempt to open the case yourself as electrical hazards are present inside, and you risk damaging delicate internal parts.

Use the unit timer functions (see page 16) to determine how much use the unit has had.

Lamp replacement

The lamp has a rated life of 6000 hours. When the lamp nears its rated life, it may take a long time to come on, not come on at all, or go off during operation.

To replace the lamp, first turn off the unit, remove the power, and if the unit has been operating, wait 15 minutes for it to cool down.

Remove the top casing of the unit by removing the 4 screws. Remove the back panel of the unit (where the display is) by removing the 4 screws.

Remove the old lamp by taking out the thumbscrews in the end plate and withdrawing the lampholder through the rear end of the case. Remove the old lamp from the lampholder and fit the new lamp.

> *You must not touch the quartz glass of the lamp! Handle by the ceramic base only.*

Replace the lamp into the unit and refit the thumbscrews. Refit the back panel ensuring you do not trap any wires. Replace the top casing of the unit. Power up the unit and set to open white. Adjust the lamp for best

brightness and evenness of light using the 3 screws accessed through the holes in the back panel.

Specifications

Beam movement: 160˚ (pan) x 100˚ (tilt)

Beam rotation: 0 - 80rpm variable speed bidirectional rotation (Gladiator units)

Mirror drum swivel: 220˚ swivel (Gladiator units)

Microstepping: 0.1125° resolution (all channels)

Colours: White + 9 dichroic

Gobos: 8 interchangeable (variable speed bidirectional rotation on rotating gobo units)

Lamp: 150W Arcstream 4000K

DMX: Receive on 1-506
            Transmit on 1-16 (stand alone mode - non-standard DMX)

Audio: Internal Electret mic with AGC

Power consumption: 300W approx. Internal fuse: T3.15A