
Fibre optic light source

Professional Display Lighting

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AVR FLS Instruction Manual - Issue 1.0: Mar 2003
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AVR FLS-150 Manual

Welcome

Congratulations on your purchase of this AVR 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.

Features include:

- Smooth and quiet microstepping of all functions
- State of the art drive electronics
- High efficiency optics
- Push button menu system and digital display to set options
- System can link to PC for setup and reprogramming
- Upgradable internal software

If you're 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 using a controller with the lights, go to page 6
- If you are running the lights in stand alone mode, go to page 5

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.



WARNING

You must not touch the quartz glass of the lamp, as oils from your skin will cause premature lamp failure. 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

Microstepping: 0.1125° resolution (all channels)

Colours: White + 7 interchangeable dichroic filters

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: 250W approx. Internal fuse: T3.15A

Maintenance of the unit

The unit is fan cooled and the fan intake must periodically be cleaned using a vacuum cleaner to remove dust and fluff. The lens may also require cleaning with a soft damp cloth to maintain the light output. We recommend that this should be done every 6 months, or every 3 months if in a dusty environment. If the unit is not kept clean it may overheat and eventually cause internal parts to be damaged.

Do not attempt to open the case to clean inside the unit as electrical hazards are present inside, and you risk damaging delicate internal parts. Do not use abrasive cleaners or solvents to clean the unit.

Use the unit timer functions (see page 13) to determine how much use the unit has had.

Lamp replacement

The lamp has a rated life of 6000 hours. This is about 8 months of 24-hour-a-day operation. 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 30 minutes for it to cool down.



WARNING

The unit contains dangerous voltages and becomes hot while operating. Unplug from power supply and allow to cool before servicing or opening the case.

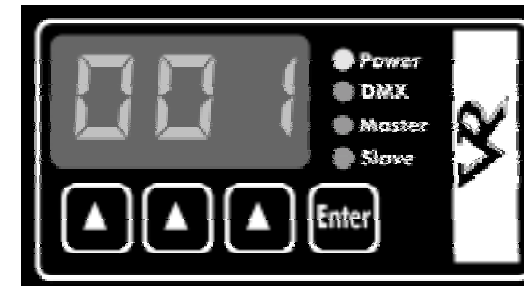
Remove the top casing of the unit by removing the 4 screws. Remove the back panel of the unit (where the display is) by removing the 4 screws.

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). 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).

Control panel: Some units may not have the legend or the button outlines on the control panel, but everything is in the same positions.



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). On the rear of the unit there are 3 screws which allow you to adjust the position of the lamp within the reflector to optimise the 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.

Fibre optic connection port (not shown in picture). The fibre optic harness is inserted into this port and secured using the clamping screw.

Installing the unit

- Make sure that fixings 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.

To program the step, you can either set colour/dimmer by DMX, or set the position using the buttons.

To grab the current DMX position, hold down the middle button. The FLS 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 Colour (C) or Dimmer (S). The G and R functions do nothing on this unit.



Press or hold down the left or right button to set the colour and dimmer.

If you have Colour Snap turned on, the colour will snap as you pass through the values, otherwise they will scroll slowly. Press Enter to go back when all positions are set.

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 16 steps, leave the other steps unprogrammed by pressing Enter briefly for each step until you get back to the menu, or holding down Enter. 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 FLS moves more slowly between steps. The option swaps between On and Off when you press any of the buttons.

Program clear (CLR)

Hold down the middle button to clear all programmed positions.

Using Run mode

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

When the unit is in Run mode, it does not respond to DMX, except when you are programming the positions. It will output the positions to any other units connected to it, so if you have several units you only need to program one if you connect them all together.

Run mode menu

Hold down the Menu button to get into menu mode, then repeatedly press Menu until the RUN option is displayed. Press the middle arrow button 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.

Use the REC option first to record your sequence.

Playback mode (PLA)

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

While the FLS 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 FLS (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)

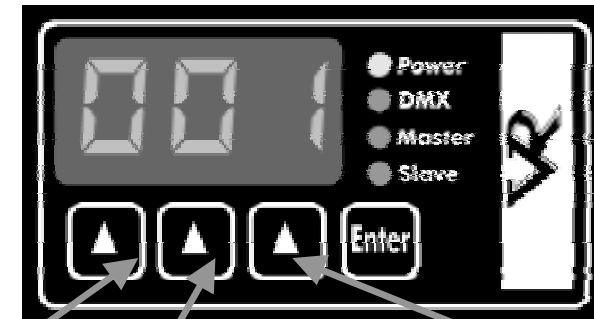
Press the middle button to enter record mode. You can then program the 16 steps:

POO

The FLS is ready for step 00.

Setup for Stand Alone mode

If you don't connect a controller, the unit will automatically switch to stand alone mode. This mode allows you to set a colour and dimmer level. If you have more than one unit, you can link the units together using 3-pin DMX cables. 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. The settings you make on the first unit will control the other units.



Colour/dimmer
down

Colour/dimmer
up

Swap between colour
(C) and dimmer (D)

To set colour: Press the middle button until the display shows "C" with a number 1-8. Then press the left and right arrow buttons to select a colour.

To set dimmer level & shimmer effects: Press the middle button until the display shows "d" with a number 1-8. Then press the left and right buttons to select a setting.

The unit will remember the colour and dimmer levels you set next time you turn it on.

You can also use "RUN" mode to program a 16-step sequence of colours, see the Run mode section at the back of the manual for details.

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 the light output 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 mode.

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 unit 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.

The correct settings depend on what controller you are using, and how it is set up, but usually the first unit is set to "001", the second to "005", the third to "009" and so on - keep adding 4 to the address. The highest channel is 506.

Note: if you want two units to behave exactly the same, you can set the DMX address for both units to the same channel.

Functions

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.

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.

Setting options from the panel

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 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

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, ELS - options have no effect on this unit.

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.

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

The following table shows you which function of the unit is controlled by each DMX channel, and how many channels are used. The values for each function are on the next page.

Unit type	AVR-FLS
No of chans	4
1	Colour
2	-
3	-
4	Dim/fx

Colour

The colour function has proportional speed sensing; 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"

Shutter

The units have a separate shutter which provides fade out and effects functions. Between 0 and 10% you will get varying levels of intensity. 10% to 50% gives varying speeds of ripple/flicker effect. 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

Colour

DMX	Colour	User colours fitted
0	White	
40	Colour 1	
56	Colour 2	
72	Colour 3	
88	Colour 4	
104	Colour 5	
120	Colour 6	
136	Colour 7	
208	Slowest colour scroll	
	(variable speed scroll)	
254	Fastest colour scroll	

Colours may vary as they are selected to user's requirements.

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

Shutter

DMX	Result
0	Blackout
	(variable brightness)
31	Full brightness
32	Slow ripple/flicker
	(variable speed)
128	Fastest ripple/flicker
224	Slowest strobe effect
	(variable speed strobe)
255	Fastest strobe effect

Option list

These are the options on the Retail Colour Changer, 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
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*
ELS	OFF	Enhanced light show*
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
TRI		Starts motor trim mode
RUN		Run mode options

*options have no effect on this unit