



ROADIE

Instruction Manual

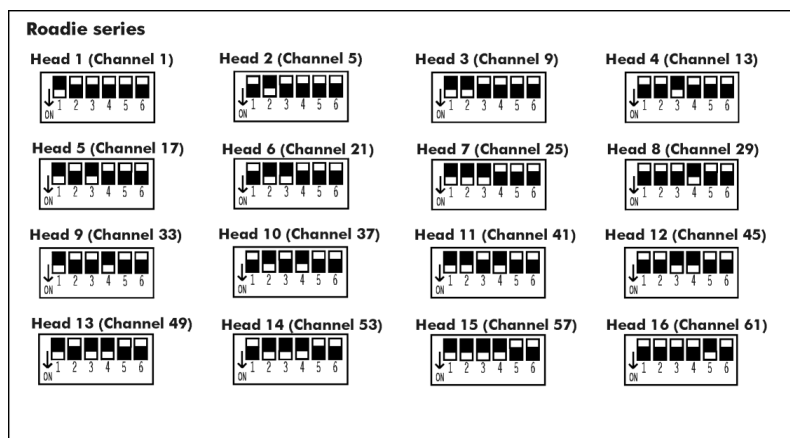
©Abstract Design to Light 1999 Tel: +44 (0)116 278 8078
<http://www.abstract-lighting.co.uk>

Roadie Instruction Manual - Issue 1.0: May 2000
Written for Abstract Design to Light by Sabre Technology Ltd: 01482 831031



Dipswitch settings

On the Roadie units you set a head number rather than a DMX channel. You can't set intermediate DMX channels - the possible channels are 1, 5, 9, 13, 17 etc. The maximum channel is 125.



Some units may have a 10-position dip switch fitted, in this case ignore switches 7-10.

If you're good at binary code you can work out the dip switches:

- Add 3 to the DMX address
- Divide by 4
- Convert the result to binary. (Switch 1 is the right-hand bit)

example: DMX address 69

$$69 + 3 = 72$$

$$72 / 4 = 18$$

Convert to binary = 10010

Switch settings (right hand bit first): 1=off, 2=on, 3=off, 4=off, 5=on

Introduction

The Abstract Roadie range of lighting products offers an incredible number of features in a variety of different effects, designed for the touring show.

This booklet contains instructions for the following products:

- Roadie LS1
- Roadie LS2
- Roadie LS3

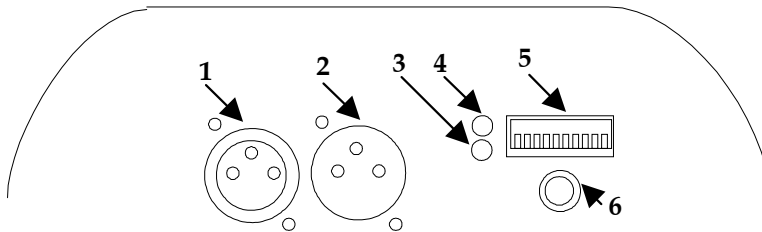
The Abstract Roadie lighting effects are all complex intelligent lighting effects with the following features:

- Unit constructed in tough metal flight case
- Integral footswitch for control
- Stand top adaptor built in
- Units automatically slave together
- Automatic light show built in
- Smoothly microstepped movements with automatic speed sensing
- Vivid dichroic colours
- Microstepped colour wheel with both smooth colour crossfading and fast colour snapping
- Variable speed strobe effect
- May be controlled by standard DMX512
- Automatic switch to light show when DMX disconnected
- Synchronising stand alone 2-channel light show (compatible across whole Abstract range)
- DMX channel can be changed while unit is running
- DMX switch-through relay in case of unit failure
- DMX/Audio beat indication LED

Connections and controls

All the units have the same connections and indications, though they are in different positions on the different units. The main connections and controls are as follows.

- 1. **DMX output socket** (pin 3 cold, pin 2 hot, pin 1 grounded). Other DMX devices can be linked in to the system through this socket. In stand alone mode the unit outputs its own DMX through this socket. If you're not sure which is the input and the output, the input is the one where you can touch the pins, the output is the one where you can't.
- 2. **DMX input plug** (pin 3 cold, pin 2 hot, pin 1 screen). A dedicated controller such as the Abstract CE controller, or other DMX lighting desk can be connected to this plug. The unit buffers the DMX signal, so you must make sure you get the connectors the right way round. If you are using a controller with a 5-pin DMX output, you will need to use a 5 to 3 pin adaptor with pins 2



and 3 swapped.

- 3. **Power on LED** (red). This LED is lit whenever the unit is powered up. If this light does not come on there is either no power to the unit, or some internal problem with the unit.
- 4. **DMX present / Audio beat LED** (green). This LED is on constantly when DMX is being received (it may flicker in time with the DMX frames), and goes out when DMX is not received. When the LED is not lit the unit is in stand alone mode and the LED will flash when an audio beat is detected.

Shutter (Ch 4 and 8)

DMX	Shutter
0	Blackout
24	Open
226	Slow strobe
230	Strobe 2
234	Strobe 3
238	Strobe 4
242	Strobe 5
246	Strobe 6
250	Strobe 7
254	Fast strobe

Special functions

The unit will turn off the lamp if all control channels are at zero for more than about 10 seconds. The lamp will turn back on when any channel changes from zero. This helps to extend lamp life if the unit is left powered but in black out for some time.

DMX values

Pan -Ch1 and 5

DMX	Result
0	Left
128	Central
255	Right

Rotation (Ch 2 on LS3)

DMX	Result
0	Stop
12	Fastest speed clockwise
112	Slowest speed clockwise
128	Stop
141	Slowest speed a.clockwise
244	Fastest speed a.clockwise
255	Stop

Colour (Ch 3 and 7)

DMX	Colour
10	White
26	Red
43	Blue
59	Green
75	Yellow
91	Cyan
108	Orange
124	Magenta
140	Magenta
156	Orange
173	Cyan
189	Yellow
221	Green
238	Blue
254	Red

NB: Intermediate values will give mixed colours

- Dip switches.** Dip switches 1-5 set the DMX channel that the unit will respond to (head number, in groups of 4). Head 1 is the first valid DMX setting. Switch 6 sets the stand alone 'group' of the unit, either 1 (off) or 2 (on). A 10-position dip switch may be fitted, if so switches 7-10 have no function.

See the last page of this booklet for help on setting the switches.

- Microphone.** The unit can sense the beat of the music through this built-in microphone.
- Mains power** (not shown in picture). Power is supplied to the unit through an IEC connector on the side 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.
- Focus** (not shown in picture). On the LS1 and LS2 units you can focus the light beam for sharp 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.

On the LS3 unit, there is a slider knob on the front of the case. Turn the knob anticlockwise to loosen it, focus by sliding backwards and forwards, then turn the knob clockwise to lock the focus position.

- Footswitch socket** (master units only). The footswitch can be connected to this socket using a stereo jack cable. You should connect the footswitch before turning on the unit. Do not connect any other equipment to this socket or damage may result. If the unit is receiving DMX from a controller or another Roadie unit, the footswitch is ignored.

Note: when power is not connected to the unit, the DMX input and output connectors are bridged through by a relay to maintain the DMX circuit.

Setting the unit up

The unit is fan cooled and you must make sure that free airflow is maintained around it. Ensure there is at least 1 metre between the lens of the unit and any surface which the light beam can shine on.

There are two ways of using the unit:

- “Stand alone” mode, where the unit listens to the music and generates its own complex lightshow. This mode is good when you want a quick and impressive show, or if you don’t have time to program or operate the light show. You can use the footswitch controller in this mode.
- DMX controlled mode, where you connect a controller such as the CE controller, the Clubshow or a standard lighting desk to the unit and control its movements yourself. This mode is best for live performance, or if you want to have full control over the light show.

Setup for Stand Alone mode (footswitch)

All Abstract products have a sophisticated built-in lightshow, which is compatible across the whole range of products - you can connect any mix of units together and a fascinating synchronised lightshow will be produced.

If you have more than one Abstract unit, you can link the units using DMX cables (balanced microphone cables should work). 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 first unit will then control the other units to give an automatic synchronised light show.

You can tell which unit is controlling the light show because its green light will be flashing. The green light will be permanently lit on all the other units.

Connect the footswitch to the jack socket on the first unit in the DMX line using a stereo jack cable. The footswitch will then control all the other lights in the DMX line. The Roadie units are also available as “slave” units, this just means that they don’t have a footswitch socket, otherwise they are identical.

Specifications

Beam movement: 170° (pan) -(LS2)

Beam rotation: 0 - 80rpm variable speed bidirectional rotation (LS3)

Microstepping: 0.1 125° resolution (all channels)

Colours: White + 7 dichroic

Lamps: two 100W 12V A1-231 (LS1, LS2)
150W 15V A1-232 (LS3)

DMX: Receive on 1-128
Transmit on 1-8 (stand alone mode - non-standard DMX)
DMX active regeneration when not stand alone

Audio: Electret mic with AGC

Power consumption: 300W approx.

Electronics fuse: T3.15A

If you have intermittent DMX problems, one 'leg' of the DMX may be disconnected, either in this unit or the previous one, or in your wiring (sometimes the connectors become loose on the electronics board). The DMX may work intermittently using the mains earth as a 'common'.

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, the DMX interface circuit may have been damaged by a line transient or induced interference (this happens occasionally). The unit will require repair. Check where your DMX cables run - if they are near or run alongside high voltage cables, power lines, or neon, you may have problems.

Some units respond to the controller, others do something different

You have a break in the DMX cabling - one unit is not receiving the DMX and is generating its own light show. Check the green LED's - one of the units which is misbehaving will be flashing its green LED in time to the music. The DMX link between this unit and the previous one is faulty.

Unit does not respond to sound

Check that the unit is not receiving DMX (the green LED should be off). Also check that the unit is not set to 'display' mode (see page 6) as it does not respond to sound in this mode. Otherwise, tapping the microphone should cause the green LED to flash. Quiet or high pitched sounds will not activate the unit.

Unit keeps resetting itself intermittently

Sometimes the fuse holder on the electronics board becomes loose. This results in an intermittent power supply, which may cause the unit to reset itself. You can rectify this by removing the fuse and squeezing the terminals on the fuse holder gently together. This fault can sometimes cause the fuseholder to get hot and desolder itself from the board, so check that as well.

If still you cannot resolve the problem, it may be that the unit has a fault. You should contact your Abstract dealer for assistance. If you have Internet access you can go to:

<http://www.abstract-lighting.co.uk>

which has a technical help page.

2-channel stand alone light show

To add further interest to the light show you can set each unit to either follow the first unit or to do something in contrast to the first unit. For example, if you have four units, two on the right and two on the left, you might want to set the outside two units to do one thing, and the middle two to do a variation on the same theme.

Set dip switch 6 'off' to make the scan work the same and 'on' to select the variation. Even if you only have two units you will probably find that you get a better light show if you set dip switch 6 'on' on the second unit.

Dip switch 6 has no effect on the first unit in the line. It is always assumed to be "off" for the first unit.

Special options in stand alone mode

In stand alone mode, you can also set three options which affect the way the unit produces its light show, by setting the other 5 dip switches (1-5):

- All dip switches on: Display mode - unit ignores audio and scans slowly through various patterns (including strobes)
- 1 off, 2-5 on: Slow mode - unit responds to audio but always moves slowly and gently. No strobing is used.
- 1 on, 2 off, 3-5 on: Strobe disable mode - unit behaves as for normal stand-alone mode but will not use strobing.

These options only need to be set on the first unit in the DMX line if several units are connected together. You can set the switches before or after the unit is turned on.

If you connect a DMX source while these special options are set, the unit will have a start channel of 1.

Setup for DMX controlled mode

When using DMX, all the units receive all the channels. You need to tell each unit which channel to respond to (its 'base channel'). You do this by setting dip switches 1-5 to the code for the channel you want. The Roadie units only allow you to set DMX channel in groups of 4 (1, 5, 9, 13 etc, up to 125) See the back page of this manual if you need help with this.

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

You can change the dipswitches while the units are running, and the new settings will take effect immediately. You don't need to turn the unit off and on.

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 with pins 2 and 3 swapped (pin 2 is 'hot'). Connect the next unit, if you have one, to the DMX output plug.

This unit buffers the DMX signal as it passes through the unit, which means that you can connect as many units together as you want. You don't need to connect a line terminator in the last unit.

If you are using the Abstract CE controller, you should set up the controller to match the heads you have connected. Refer to the controller manual for help on this.

If the controller does not have a setting for the Roadie, use the Futurescan 3CED setting.

If you have problems

The world of intelligent lighting can sometimes be confusing. You may at times wonder if the lighting is more intelligent than you are. The next section lists a few common problems you may encounter, with solutions.

No light from the unit

Check the 'Power on' (red) 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.

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.

Note: if the unit is in standby mode because all its control channels are at 'zero' position, it may have turned the lamp off. Set some controls to non-zero positions.

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 microphone.

Unit not responding to DMX

Check if the green DMX LED is lit. If not, check that your DMX cables are connected properly and are wired correctly (the unit is wired with pin 2 'hot'; some controllers may have pin 3 'hot'). Also check you have connected the cables to the right connectors; it does matter which way round they are.

If the DMX LED (green) on the rear of the unit is lit, the unit is definitely receiving DMX but is probably not responding to the channel you think it is. Check the dipswitch settings. Also check the DMX polarity, as the green LED can sometimes light when the DMX is inverted.

Footswitch not operating correctly

Check you are using a correctly wired stereo jack lead. Check that there is no DMX feed into the unit from a controller or another Roadie unit, the footswitch is ignored if there is. Plugging the footswitch into the unit after it has been turned on will not damage the unit but may result in incorrect operation. Very long or poor quality stereo jack leads may cause the footswitch to not work correctly.

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 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.

If you are operating the unit regularly for prolonged periods (e.g. nightclub installations) you should take the unit to an Abstract 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.

Lamp replacement

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

LS1 and LS2: Remove the lid of the case by removing the 2 screws in the base and loosening the 4 screws round the sides. Slide out the old lamp. Pull the connector off the lamp and plug it onto the new lamp. Refit the lamp. Refit the lid.

LS3: Open the hatch on the front of the unit by removing the two thumbscrews. Slide out the old lamp. Pull the connector off the lamp and plug it onto the new lamp. Refit the lamp. Close the hatch.

Operating the unit

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, after which the unit will begin to respond to DMX input, or to sound if no DMX is connected.

Note: The unit will not turn the lamps on until initialisation is complete.

Operation in stand alone / footswitch mode

If the unit is in stand alone mode (no DMX connected), it will automatically produce a light show in response to the music, and will control any other units connected to it.

If the **footswitch** is connected, you can:

- black out the unit using the right hand button,
- select the colour using the middle button,
- turn Manual mode on or off using the left hand button. (The light above the button is on when in manual mode).
- select strobing mode by holding down the left hand button
- select Slowfade mode by holding down the middle button (the light above the middle button is on when in Slowfade mode).

If you have several units, you can tell which one is generating the light show by looking at the green LEDs. The first unit in line will automatically generate the light show and will flash its LED in time with the music. The other units will have their LED's on continuously.

You can set several special options on the dip switches which affect how the unit behaves in stand alone mode; see page 6.

Note: If you connect other manufacturers' products to the DMX output while the unit is in stand alone mode, they will probably not respond.

Operation in DMX controlled mode

To control the unit we recommend Abstract's CE controller, Compact controller or ClubShow system, which are designed specifically for Abstract 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. Some channels have no function, this is to make the units compatible with other Abstract products. The values for each function are on page 15.

Unit type	Roadie LS1	Roadie LS2	Roadie LS3
Channel 1	-	Pan 1	-
Channel 2	-	-	Rotation
Channel 3	Colour 1	Colour 1	Colour 1
Channel 4	Shutter 1	Shutter 1	Shutter 1
Channel 5	-	Pan 2	
Channel 6	-	-	
Channel 7	Colour 2	Colour 2	
Channel 8	Shutter 2	Shutter 2	

(channels 5-8 not used on Roadie LS3)

Pan

The mirror pan 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

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.

Colour

The colour function is also proportional; this allows you to perform smooth crossfades between colours. To obtain correctly positioned colours you need to send the correct DMX values (the unit does not 'snap' to the colours). Many controllers can 'learn' these values. The Abstract controllers are pre-programmed with them. The DMX values for each colour are listed at the end of the manual.

Shutter

A separate control channel is provided to control blackout and strobe functions.

These functions are actually operated by the colour/gobo wheel, so you may see colours momentarily flash by when you select blackout.

The strobe function operates on adjacent colours. If you want a black/white strobe, select "White" on the colour channel.

Compatibility with other Abstract units

All units in the Abstract CE, VR, Club and Roadie ranges are compatible with each other, even those which have different functions, or more colours and gobos. You will find that some colours are repeated on the simpler units; these match the extra colours or gobos on the more complex units.