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# CE Range Instructions

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## Introduction

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The Abstract CE Range of products offers an incredible number of features in a variety of different effects, which can all work together in harmony to produce an amazing light show.

This booklet contains instructions for the following products:

- Futurescan 1CE system
- Gladiator Revolution CE
- Galactic Moon CE
- Duo Colour CE
- Futurescan 2CE
- Futurescan 3CE and 3CED
- Colour Changer CED
- Gladiator CED

All the information in this booklet applies to all CE-range products, unless it has a grey background.

Information like this only applies to certain products. The text will tell you to which products it is relevant.

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

- Smoothly microstepped movements with automatic speed sensing
- Vivid dichroic colours
- Microstepped colour wheel with smooth colour crossfading
- Fast gobo changing with variable speed strobe
- Controlled by standard DMX512, any channel 1-508
- Automatic switch to 'stand-alone' mode when DMX disconnected
- Sophisticated 'stand alone' 2-channel light show (compatible across whole CE range)
- DMX channel can be changed while unit is running
- DMX switch-through relay in case of unit failure
- DMX/Audio beat indication LED
- Units can be remotely reset (using CE controller)

## Connections and controls

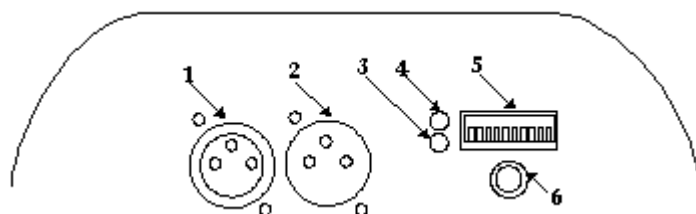
All the units have the same connections, though the positioning of them may vary. The main connections and controls are as follows:

**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.

**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.

**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. If the LED is not lit, then the unit is in stand alone mode and the LED will flash when an audio beat is detected.



**5.Dip switches.** Dip switches 1-9 set the DMX channel that the unit will respond to (in binary code). Channel 1 is the first valid DMX channel. If all switches 1-9 are off, the unit will automatically set its own DMX channel. Switch 10 sets the stand alone 'group' of the unit, either 1 (off) or 2 (on). See the last page of this booklet for help on setting the switches.

**6. Microphone.** The unit can sense the beat of the music through this built-in microphone.

**7.Mains power** (not shown in picture). Power is supplied to the unit through an IEC connector on the same panel as the DMX connectors (except Futurescan 1CE, which has a captive lead). This connector has a built-in fuse. On units with halogen lamps you can turn the fuseholder round for 220V or 240V operation. 240V operation will give longer lamp life.

**Futurescan 1CE, Gladiator Revolution CE, and DuoColour CE:** The DuoColour, Gladiator Revolution, and one of each set of 4 Futurescan 1CE units, can be connected to the supplied remote control. Near the other connectors, a jack socket is fitted for connection of the remote control. Use a **stereo** jack cable to connect the remote control. A mono jack cable will not work.

On the Futurescan 1CE system, only one unit in each set of 4 has the socket fitted. However the remote control will control all units through the first one.

You should connect the units up so that the one with the remote control is first in the DMX line (its DMX output socket -1- is connected to the next unit, and its DMX input plug is not used). You will find that the remote control on the first unit will control all the other CE-range units you have connected.

**Do not connect any other equipment to the remote control socket as this may cause damage to both the equipment and the scan.**

*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

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You can use the unit in two ways:

- “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.
- DMX controlled mode, where you connect a controller such as the CE controller, the Minicontroller 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

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The CE range of 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.

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. 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.

**Futurescan 1CE, Gladiator Revolution and DuoColour CE:** The remote control only operates in stand-alone mode. It is ignored in DMX-controlled mode. See page 4 for details of how to connect the remote control.

### ***2-channel 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 10 ‘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 10 ‘on’ on the second unit.

*Note: Dip switch 10 has no effect on the first unit in the DMX line (the one generating the light show).*

### ***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 9 dip switches (1-9):

- All dip switches on: Display mode - unit ignores audio and scans slowly through various patterns (including strobes)
- 1 off, 2-9 on: Slow mode - unit responds to audio but always moves slowly and gently. No strobing is used.
- 1 on, 2 off, 3-9 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

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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 1-9 to the binary code of the channel you want. See the back page of this manual if you need help with this, or there is a sticker on the unit showing the most common settings.

*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.

**Futurescan 1CE:** The CE controller does not have a setting for the Futurescan 1CE, but you can use the Futurescan 2CE setting. There is an extra 'multicolour' position on the Futurescan 1CE and gobos are not individually selectable, but otherwise the units operate in the same way.

**DuoColour CE:** You can control a DuoColour by configuring it as two separate ColourChanger CE heads on the CE controller; one at the "base" channel and the other at the "base" channel +2. (e.g. if you have set the unit to channel 1, one head will work on channels 1 & 2 and the other on 3 & 4.)

## Operating the unit

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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: Units with halogen lamps will not turn the lamp on until after initialising, and then only if the control channels are not all at zero.*

## Operation in stand alone mode

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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 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.

**Futurescan 1CE, Gladiator Revolution and DuoColour CE:** Remote control

You can black out the unit (and any others connected to it), make it strobe or scan slowly using the remote control, if it is connected. On the DuoColour you can also manually select colours using the remote control.

*Note: If you connect other manufacturers' products to the DMX output while the unit is in stand*

alone mode, you may find that they do not respond.

## Operation in DMX controlled mode

To control the unit we recommend Abstract's CE controller or Compact controller, which are designed specifically for the CE range of lighting units. However, you can use any DMX controller to operate the unit. The DMX values you need to send are listed on page 15.

### 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. "Base" is the channel number you have set on the dip switches.

Unit type	No. of chans	1 Base	2 Base+1	3 Base+2	4 Base+3
Futurescan 1CE	4	Pan	Tilt	Colour	Shutter
Gladiator Rev.	4	Swivel	Rotation	Colour	Shutter
Futurescan 2CE, 3CE, 3CED	4	Pan	Tilt	Colour	Gobo
Gladiator CED	4	Rotation	Tilt	Colour	Gobo
Galactic Moon CE	2	Rotation	Colour	-	-
Colour Changer CED	2	Colour	Gobo	-	-
DuoColour CE	4	Colour 1	Shutter 1	Colour 2	Shutter 2

### 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 (Gladiator Revolution/CED and Galactic Moon only)

Units with rotation functions have a "stop" position at the centre of the DMX control (value 128), with 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 adjacent colours. However, you need to send the correct DMX values to position the colours accurately (the unit does not 'snap' to the colours). Many controllers can 'learn' these values. The Abstract controllers are pre-programmed with them.

On the **Futurescan 1CE**, **Gladiator Revolution** and **Galactic Moon CE**, gobos are fixed to the colours.

### Gobo

The unit 'snaps' to the nearest gobo. If you move the control slowly, nothing will happen until the unit senses you are near the next gobo position, when it will jump to the next gobo.

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 10 flashes per second) at 100%.

If you move the control to zero, the unit will black out.

### ***Shutter (Futurescan 1CE, Gladiator Revolution and DuoColour CE)***

The shutter has three functions:

closed (blackout) - control at zero

open (white) - at 5% to 80%

strobe (variable speed) - 80% to 100%. See "Gobo" above.

The strobe effect will depend on the colour you have selected on channel 3 (and 1 on the DuoColour); if you select white you will get a white/black strobe, otherwise you will get a "bicolour" strobe between two adjacent colours.

Although you can control the "shutter" separately, it is actually part of the colour wheel. If you have selected one of the higher colours (the multicolour effect is the highest) the unit will take a short time to reach blackout because it has to move the colour wheel past all the other colours to reach the blackout position.

### ***Standby function***

If all control channels of the unit are left at 'zero' position for more than about 10 seconds, the unit will go into a power-saving 'standby' mode. It will turn off its motors, and units with halogen lamps will turn off the lamp. The unit will leave Standby mode and go back to normal as soon as any control channel is moved off the 'zero' position.

## **Compatibility with other units in the range**

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All units in the Abstract CE range 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.

In stand-alone mode, you should use the most complex unit as the controller as more features may have been provided on it.

In DMX controlled mode you will probably want to use the different types of unit on different DMX channels to each other to allow you to control all the features independently.

### **Futurescan 1CE, Gladiator Rev., DuoColour CE: Using the Remote Control**

The remote control allows you to control the unit (and any other CE-range units connected to it) while it is in stand alone mode. You can set the unit to blackout, to strobe, and to slow-scan mode.

If you have more than one unit, make sure the remote control is plugged into the first unit in the DMX line using a stereo jack lead. The remote control will not have any effect if the unit is receiving DMX (either from a controller or from another unit in stand alone mode).

When the unit is in blackout mode, the light will come on next to the blackout button. When the unit is in slow-scan mode, the light will come on next to the Slow button. Strobe mode is only effective while the button is held down.

Note: If you hold the button down for a prolonged period the unit may stop strobing automatically.

### **DuoColour only: Colour Lock mode**

Hold down the Slow button to enter Colour Lock mode. The Slow light will flash. You can select the colour by pressing the Slow button briefly. Hold the button down again to go back to normal. The unit is still able to strobe while the colour is locked and may change to white while strobing.

## **If you have problems**

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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.

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.

## Specifications

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Beam movement: 160° (pan) x 100° (tilt) (FS1, FS2, FS3)  
 Beam rotation: 0 - 85rpm variable speed bidirectional (Glad, GM, GR)  
 Microstepping: 0.1125 degree resolution (all units)  
 Colours: White + 7 dichroic + 1 multicolour (FS1, DC, GR)  
     White + 7 dichroic (FS2, GM)  
     White + 11 dichroic (FS3, Glad, CC)  
 Gobos: 7 + open (fixed to colours) (FS1, GM, GR)  
     7 + open (FS2)  
     11 + open (FS3, Glad, CC)  
 Shutter: Variable speed strobe (all units)  
     bicolour strobe (FS1, DC, GR; GM in stand alone mode)  
 Lamp: A1/231 100W 12V (FS1, DC, GR)  
     A1/232 150W 15V (FS2, GM)  
     M33 250W 24V (FS3)  
     150W Arcstream 5000K (FS3D, CC, Glad)

DMX:Receive on 1-508

Transmit on 1-8 (stand alone mode - non-standard DMX)

DMX active regeneration when not stand alone

Remote:Remote Control allowing blackout, strobe and slow scan (when in stand alone mode) - (FS1, DC, GR)

Audio:Electret mic with AGC (all units)

Power consumption: 300W approx. (all units)

Electronics fuse: T3.15A (all units)

FS1=Futurescan 1CE, FS2=Futurescan 2CE, FS3=Futurescan 3CE,

FS3D=Futurescan 3CED, Glad=Gladiator CE, GR= Gladiator Revolution, GM=Galactic Moon CE, CC=Colour Changer, DC=DuoColour

## DMX implementation

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### Mirror Pan (Swivel on Glad.Rev)-Ch1 Tilt (Ch 2)

DMX	Result		DMX	Result
0	Left		0	Top
128	Central		128	Central
255	Right		255	Bottom

### Rotation (Ch 1 on Gladiator CED and Galactic Moon, Ch 2 on Gladiator Rev.)

DMX	Result
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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 on FS1, FS2, FS3, Glad; Ch 2 on GM; Ch 1 on CC; Ch 1 and 3 on DC)**

DMX	FS1/DuoColour	FS2, GM	FS3, Glad, CC
10	White	White	White
26	Red	Red	Red
43	Blue	Blue	Blue
59	Green	Green	Green
75	Yellow	Yellow	Yellow
91	Cyan	Cyan	Cyan
108	Orange	Orange	Orange
124	Magenta	Magenta	Magenta
140	Multicolour	Magenta	Neon Green
156	Orange	Orange	Pink
173	Cyan	Cyan	UV Blue
189	Yellow	Yellow	Aqua

205	Green	Green	Aqua
221	Blue	Blue	UV blue
238	Red	Red	Pink
254	-	White	Neon Green

NB: Intermediate values will give mixed colours

**Gobo / Shutter (Ch 4 on FS1, FS2, FS3, Glad; Ch 2 on CC; Ch2 and 4 on DC)**

DMX	FS1/DuoColour	FS2	FS3, Glad, CC
0	Blackout	Blackout	Blackout
24	Open	Open	Open
40	Open	Dot tunnel	Laser
56	Open	Slash	Star
72	Open	Segment	Slice
88	Open	Triangle	Tunnel
104	Open	Tunnel	Heart
120	Open	Bubbles	Eurostars
136	Open	Stars	Sunburst
152	Open	Bubbles	Triangle
168	Open	Tunnel	Slash
184	Open	Triangle	Bubbles
200	Open	Segment	Segment
216	Open	Slash	Bubbles

226	Slow strobe	Slow strobe	Slow strobe
230	Strobe 2	Strobe 2	Strobe 2
234	Strobe 3	Strobe 3	Strobe 3
238	Strobe 4	Strobe 4	Strobe 4
242	Strobe 5	Strobe 5	Strobe 5
246	Strobe 6	Strobe 6	Strobe 6
250	Strobe 7	Strobe 7	Strobe 7
254	Fast strobe	Fast strobe	Fast strobe

Note: the unit 'snaps' to the nearest gobo

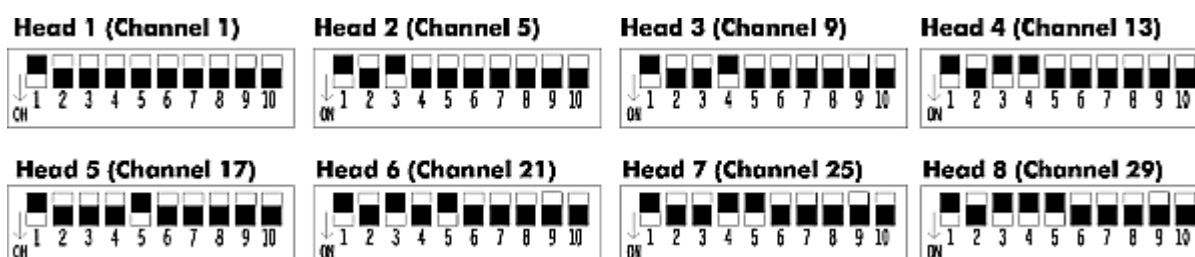
On **Galactic Moon**, **Futurescan1** and **Gladiator Revolution**, gobos are fixed to colours and are selected using the colour channel.

### Special functions

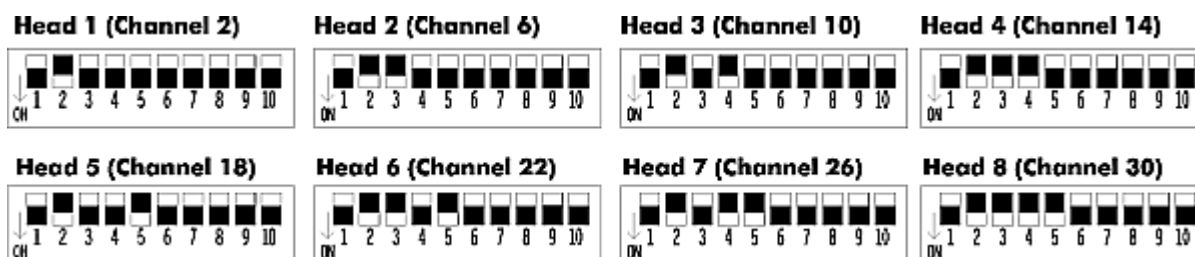
If all control channels are zero for longer than 10 seconds, the unit will go into 'standby' mode. If it has a halogen lamp, it will turn off the lamp. Normal operation is restored by moving any control channel to a non-zero position. If you don't want the unit to go into standby mode, black out the gobo control but keep the mirror at a nonzero position.

## Dipswitch settings

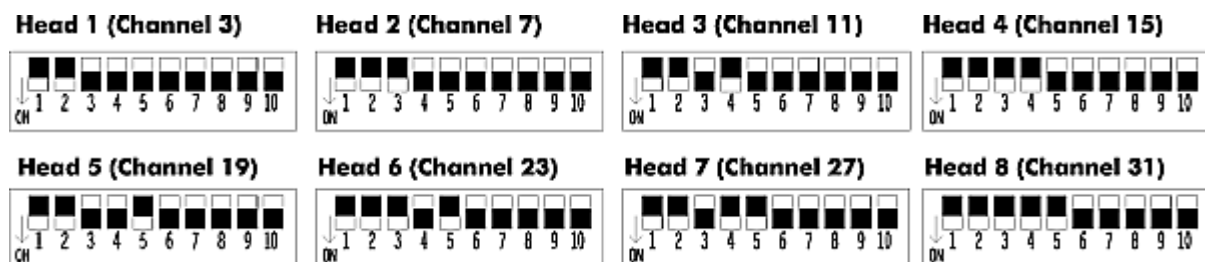
Settings for Futurescan 1CE, 2CE, 3CE/D, Gladiator Rev/CED, DuoColour.



Settings for Galactic Moon



Settings for Colour Changer



The dipswitches are set in binary code (1=switch 1 on). To work out how you need to set the dipswitches to get a certain channel number, use the following step-by-step procedure:

- Step 1: Is number more than 256? If so turn switch 9 on and subtract 256.
- Step 2: Is number more than 128? If so turn switch 8 on and subtract 128.
- Step 3: Is number more than 64? If so turn switch 7 on and subtract 64.
- Step 4: Is number more than 32? If so turn switch 6 on and subtract 32.
- Step 5: Is number more than 16? If so turn switch 5 on and subtract 16.
- Step 6: Is number more than 8? If so turn switch 4 on and subtract 8.
- Step 7: Is number more than 4? If so turn switch 3 on and subtract 4.
- Step 8: Is number more than 2? If so turn switch 2 on and subtract 2.
- Step 9: Is result 1? If so turn switch 1 on.

If you are using the Abstract CE controller, it can show you a picture of how to set the dip switches for the channel you want. If you have a calculator which can display binary, just convert the channel number to binary and turn on the '1' bits (switch 1 is the right hand bit).

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

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