



Compact Controller - **Club32**

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1. The Abstract CE Compact controller

The Abstract CE Compact controller gives you total control over your lighting effects. It is a sophisticated and flexible unit designed to control all of the CE range. Its main features are:

Controls

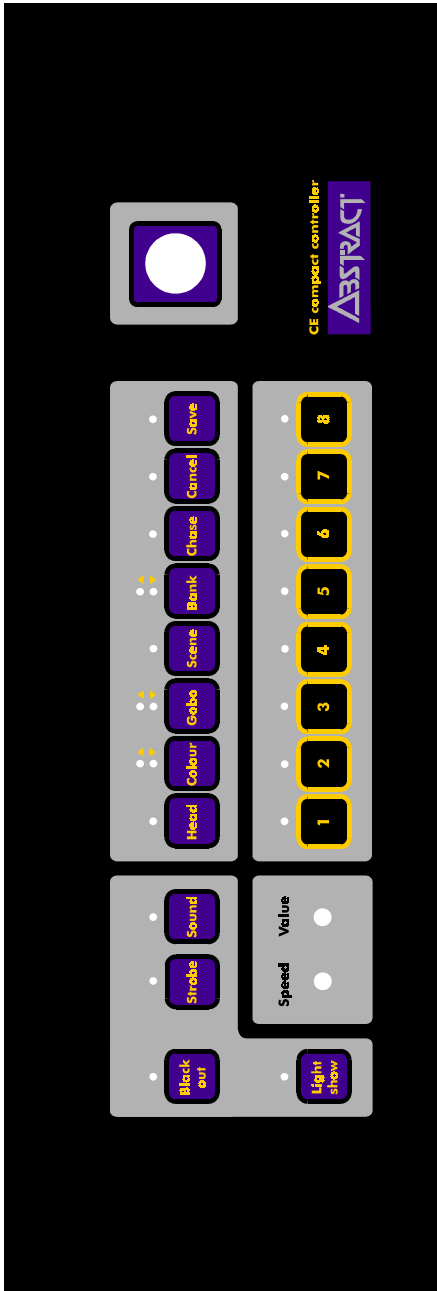
- Tactile membrane control panel with indicator lights
- Joystick for beam positioning
- Two control knobs for other functions
- All scenes, chases and options retained by backup battery when power off
- 4U 19" rackmount case
- Reversible connections panel permits rackmount or table top use
- MIDI input and thru/out

Functions

- Individual or multiple control of up to 8 heads
- 128 user-programmable scenes
- 64 chases of 32 steps; 32 user programmable, 32 pre-programmed
- Fast programming and recall of scenes and chases
- Manual override of heads in chase
- Variable crossfade between chase steps and between scenes
- Chase step triggered by sound, timer or MIDI.
- Direct access to colours and gobos
- Comprehensive 'automatic' light show function
- Automatic random selection of chases for unattended operation
- "Playback only" lock mode

External control

- Comprehensive MIDI control functions
- Memory save/reload via MIDI System Exclusive dump



2. A quick guide to the controller

This section explains quickly how to access the main features of the controller. If you don't know much about intelligent lighting, this section is for you.

Each function is described in more detail later in the manual. If you are familiar with intelligent lighting or you want to know something specific, you can probably skip this section.

2.1 What is a head, and how does the controller talk to them?

The controller can operate up to 8 individual *heads* (intelligent lighting effects). The controller continuously sends out commands for all 8 heads, whether they are connected or not, one after the other. These commands are sent out in a standard control format called *DMX* (Digital Multiplex).

Each head has its own unique numerical *address* telling it which commands to respond to from the controller; this is usually set by miniature switches on the heads (called *dip switches*). In standard operation, the controller sends 4 commands for each head; one moves the mirror left-right, the second moves it up-down, the third controls the colour and the final one controls the gobo (pattern). So Head 1 has addresses 1-4, Head 2 has addresses 5-8, Head 3 has addresses 9-12, and so on. On each head, you set the lowest address it is to use, so Head 1 will be set to 1, Head 2 will be set to 5, and so on.

The dip switches are set in binary code. If you are not sure how to set the dip switches, there is a table at the end of this section, or the head will have a label on the back of it.

2.2 How do I make the heads work?

There are 4 ways to make the heads work:

- **Manual operation** - use the joystick and controls to manually work the heads
- **Scenes** - When you have positioned the heads to give a nice effect, you can save the position of all the heads as a Scene. Then you can recall the effect whenever you want with one button press.
- **Chases** - You can string together up to 64 scenes to form a dynamic moving chase
- **Light show** - The controller will automatically work the heads for you.

You'll probably want to use all of these ways of operating the controller. Each one is useful for different applications. Read on...

2.3 Manual operation

You can manually control any or all of the 8 heads by *selecting* the heads you want to use. Press the Head button, then the number corresponding to the head you want to control. You can do this for as many heads as you want. The green light above the head number will come on to indicate that the head is selected. If you press the button again it will go off and the head will be deselected.

If you get confused at any point or want to start with a 'clean sheet', hold down Cancel to turn everything off. This useful "all off" can be done at any time.

OK, so you've got some heads selected. If you move any of the front panel controls, the heads which are selected will respond. If you move the joystick, the mirror will move (if the head has a mirror). If you change the colour or gobo (pattern), then the head will change its colour or gobo. If you have got more than one head selected, they will all do the same thing.

When you deselect the heads, they will lock in the position you left them. You can now select some other heads and set different positions.

2.4 Using *scenes* - static positions

Manual control is OK, but it's a bit fiddly. You don't want to have to position all the heads by hand every time. This is where a scene comes in handy.

A scene stores the current position of all 8 heads. When you have got a nice effect with your heads, you can save the effect as a scene by pressing Save, then Scene, then pressing the number of the scene you want to save. When you are saving or recalling a scene, the green lights light up to show you which scenes have already been programmed. You can save up to 128 scenes, and the controller has a further 128 scenes which are pre-programmed. The scenes are organised in 16 banks of 8.

Once you've saved a scene, you'll want to get it back. To recall a scene, simply press Scene, then the number of the scene you want to recall. All 8 heads will be repositioned according to the settings you saved in the scene. To recall the next scene, press another number.

When you get a bit more advanced, you can tell the controller to move slowly (crossfade) between scenes if you want.

You can turn the current scene off by pressing Scene then Cancel.

2.5 Using *Chases* - sequences of scenes

So you've stored some nice effects, but now you want to get a bit of movement. You want the lights to dance in time to the music, without having to keep selecting different scenes. What you need is a Chase.

A Chase is simply a sequence of scenes which are displayed one after the other. You can run through a chase automatically at a preset speed or in time with music. You can also jump between scenes in a chase or move slowly (*crossfade*) between them. You can save up to 32 chases and each chase can have up to 32 scenes in it. The controller has a further 32 pre-programmed chases.

You save a chase by pressing Save, then Chase, then pressing the number of the chase you want to program. To choose the scene you want at each step of the chase, just select the scene you want. When you've finished, press Chase again to end. (You can set the chase speed and crossfade now if you want).

To play back the chase, you simply press Chase, then the number of the chase you want to play back. The chase will start to run.

If you've got any heads manually selected, the manual positions will override the chase, so the heads might not move. Press Head then Cancel to deselect the heads from manual control.

2.6 Light show

There will be occasions when you don't have time to program a light show, or you're bored with the one you have programmed. This is where the Light Show function comes in.

Simply press the Light Show button, and the controller will produce a very impressive automatic light show. You can alter the speed, crossfade and sound activation of the light show using the controls.

You can manually override any head by selecting it as described above. But any controls you don't change will still be controlled by the light show - if you move the joystick but don't set the colour to white, the colour will still come from the light show. You can also run scenes or chases to override the light show.

3. Setting up

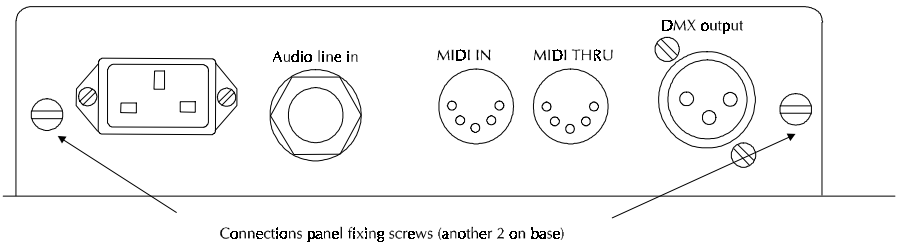
This section explains how to get started with your new controller.

3.1 Connecting up the controller

The controller has a reversible connector panel which allows you to have the connections on the rear (for table-top use) or on the base (for rack-mount use).

WARNING! If you are going to turn the panel round, ensure that the controller is switched off and disconnected from the mains supply before removing any screws.

Remove the four screws from the connector panel, lift the panel out of the case, rotate it so the connectors are on the opposite side, then refit it into the case. Make sure you do not trap any cables between the panel and the case. Replace the four screws.



Connect the DMX output socket to the first lighting effect that you want to control using a standard XLR lead. Pin 2 is 'hot' (any cable with the pins connected straight through will be OK for Abstract CE range effects). Connect any other lighting effects up in a chain to the first one.

If you are using MIDI, connect the keyboard or sequencer to the MIDI IN connector. If you have other MIDI equipment, connect it to the MIDI THRU connector.

Note: The MIDI signal is buffered inside the controller, and will not pass through if the unit is turned off.

If you are using an audio line feed, connect it to the audio line in socket using a 1/4" mono or stereo jack. **Do not connect speaker level signals to the controller as this will damage it.**

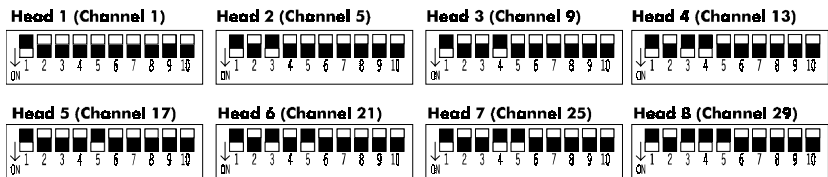
Finally connect the mains lead to a mains outlet and turn on.

3.2 Connecting up your lighting effects

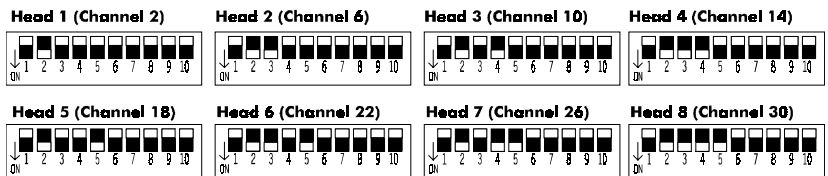
Connect all your lighting effects up using DMX cables. Connect the first one to the DMX output on the rear of the controller.

Next you need to set the dip switches on the effects so that the controller can control each one individually. Listed below are the dip switch settings for each head - note that they are different if you are connecting a Twister4 / Galactic Moon or a ClubColour.

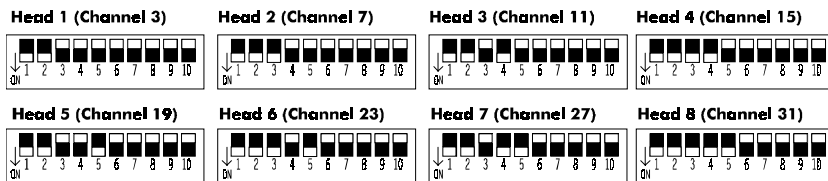
Dip switch settings for all units except Twister4 and ClubColour



Dip switch settings for Twister 4 / Galactic Moon



Dip switch settings for ClubColour





4. Head

The Head button allows you to select which of the 8 heads you want to work with.

When you are in Head Select mode, the light will come on above the button.

Press the number key corresponding to the head you want to control. The green light above the key will come on (and stay on) to tell you which heads are currently being controlled.

If you want to stop controlling a head, press the key again. The light above the key will go out.

You can select a range of heads by pressing the first and last buttons in the range together. All the heads in between will be 'toggled' (they will be selected if they were not selected before, or deselected if they were selected before).

To deselect all heads, press Cancel briefly.

Note: If you recall a scene or chase when some heads are selected, the scene or chase will only take effect on the heads that aren't selected. If there are any functions on the selected heads that you haven't changed (for example, you've moved the mirror but not set a colour or gobo) those functions will also be set by the scene or chase.

To exit head select mode, simply press the key for the new function you want to use.

You can 'cancel' changes to a head (which will set all its controls to zero) by holding down its number key for more than 2 seconds. You can 'cancel' a range of heads by holding down the first and last buttons in the range for more than 2 seconds.

Controlling selected heads

Once you have selected the heads, you control them using the front panel controls such as the joystick, value knob and the colour and gobo buttons.

The function of each control may vary depending on the type of head you are controlling, but in general:

- if the head has a moving mirror, the **joystick** controls the mirror
- the **value** knob controls the colours (free positioning)
- pressing Colour followed by a number key gives a fixed colour

- if the head has a gobo function, pressing Gobo followed by a number gives gobo positions

On a *Galactic Moon*, if you set the switches as shown in the previous section, the joystick tilt (up-down) controls the beam rotation and the colour controls set the colours and gobos. The Strobe button does not work on Galactic Moons; use the Value knob turned fully to the right to obtain strobing.

On a *Gladiator CED*, the joystick pan (left-right) controls the beam rotation and the tilt controls the drum tilt; the other controls work as normal. On a *Gladiator Revolution*, the joystick tilt (up-down) controls the beam rotation and the pan controls the drum swivel.

On a *Colour Changer*, the joystick is not used.

See the end of the “Colour” section on page 15 for details of controlling *DuoColours*.

Manual control of heads while running a chase

You can manually take over control of any or all of the heads while a chase is running (or while a scene is displayed). You do this simply by pressing Head, then selecting the heads you want to control. However, the heads will continue to move with the chase until you ‘take over’ by moving the controls. Any functions of the head that you do not set will continue to be controlled by the chase.

If, for example, you only set the colour, then the pan, tilt and gobo will continue to be set by the chase. If you want full control of the head, you need to manually set the pan, tilt, colour and gobo.

This allows you to modify the chase using the manual controls while still retaining the original ‘look’ of the chase.

Note: To give up control of a head and continue running the chase on it, just deselect the head. The head will rejoin the chase at the next step.

MIDI receive channel

You can set the controller’s MIDI receive channel by holding down the Head button. See the MIDI chapter (on page 40) for more details.



5. Colour

You enter Colour Set mode by pressing the Colour button. One of the lights above the button will come on. You have got to select one or more heads before you can set the colour, otherwise the button will be ignored.



When the top light is lit, you can select colours 1-8.

If you press the Colour button again, the light will swap over.



When the bottom light is lit, you can select colours 9-16.

You can directly select any of 8 colours by pressing the number buttons. If you press two adjacent buttons together, you will get a **split colour** (half of two adjacent colours).

Note: If the head you are controlling has less than 16 colours, some of the colours will be repeated.

You can also use the Value knob to give free positioning of the colours (in other words it doesn't jump to full colour positions). This allows you to set 'split' colours.

Note: The Value knob can be used to change colours even when you are not in Colour Set mode (except in Chase Select mode). This allows you to change colours while in other modes.

If you press Cancel, the colours on all the selected heads will be set to open white (zero). If you were changing a scene, the colours will go back to how they were set in the scene.

On a *Galactic Moon*, the Colour button will change both the Colour and Gobo. Turn the Value knob fully to the right to obtain strobing.

Controlling DuoColours

The Compact Controller has a special setting allowing control of Abstract DuoColours. The controller can either set both sides of the DuoColour unit to the same colour, using up one “head” position on the controller, or it can independently control the two sides of the DuoColour by using two head positions on the controller.

To set up a head position to be a DuoColour, hold down the Colour button. The light above the button will flash. To set a head as a DuoColour, press the head number button. The light above the button is lit when the head is set as a DuoColour, and not lit when the head is in normal mode. Press Cancel to go back to normal operation.

When a head is set as a DuoColour, the controller outputs the same colour values to Channels 1 and 3, and the same gobo values to Channels 2 and 4. The joystick has no effect. This sets both sides of the DuoColour to the same settings.

If you want to control the sides of the DuoColour independently, you should set two adjacent head positions to be DuoColours. Using the dip-switch table on page 11, set the dip switches on the DuoColour as if it was a Colour Changer. So if you are using heads 1 and 2, set the switches on the DuoColour to the Colour Changer “Head 1” setting. The controller will then control one side of the DuoColour using the Head 1 button, and the other side using the Head 2 button.



6. Gobo

You enter Gobo Set mode by pressing the Gobo button. One of the lights above the button will come on. You have got to select some heads before you can enter Gobo Set mode, otherwise the button will be ignored.



When the top light is lit, you can select the first 8 gobos (1-8).

If you press the Gobo button again, the light will swap over.



When the bottom light is lit, you can select the last 8 gobos (9-16).

Note: If the head you are controlling has less than 16 gobos, some of the gobos will be repeated.

The gobo values work like this:

- Select 1 for 'open'
- Select 8 with the bottom light lit (Gobo 16) for blackout
- Press Strobe or Gobo 15 for strobing (you can vary the strobe speed using the speed knob while you are in gobo select mode)
- Other selections give patterns

If you press Cancel, the gobos on all the selected heads will be set to blackout (zero). If you were changing a scene, the gobos will go back to how they were set in the scene.

You can use the Strobe button to set strobing on selected heads at any time; the strobe speed can be set using the speed knob (except in Chase select mode). See Section 14 on page 13 for more details.

On a *Galactic Moon*, the Gobo and Strobe buttons will not have any effect.



7. Scene

When you have positioned all the heads to give an effect you want to keep, you can save it as a **Scene**. You can then recall the scene at any time, or make it part of a sequence (a **Chase**).

The controller can store up to 128 scenes, as 16 banks of 8 scenes. The memory has a backup battery so that it will remember the scene indefinitely, even while turned off.

7.1 Saving scenes

Press Save, then Scene. The 'Save' and 'Scene' lights will both be lit, and the 'Scene' light will flash to tell you that the controller is waiting for you to select a scene to save.

Some of the lights above the number buttons may come on to show you which scenes in this bank have already been programmed. If the light is lit, that scene is programmed.

Note: You can't save scenes if the controller is set to playback only mode.

Choose the scene number to save by pressing one of the number buttons. If you choose a scene that is already programmed, the new scene will overwrite it.

Note: If you change a scene that is used in a chase, the new scene will be automatically used in the chase in place of the old one.

If you want to start programming with a completely blank scene, hold down Cancel. This will set all the outputs to zero.

You can edit an existing scene by recalling the scene, then using the controls to change it. When you go into Save Scene mode, the light will 'blink' on the scene you are changing (unless you've changed the bank); you can then save the altered scene back to its original position..

Selecting the Scene Bank

There are 16 banks of user-programmable scenes. You can select another of the banks using the Bank button. One of the lights above the button will come on.



When the top light is lit, you can select the top 8 banks (1-8).

If you press the Bank button again, the light will swap over.



When the bottom light is lit, you can select the bottom 8 banks (9-16).

One of the lights above the number keys will come on to tell you which bank you are currently in. If you decide you don't want to change the bank, or you just wanted to see which bank you were in, you can press Cancel.

Press one of the number keys to change the bank number. The controller will light up the new bank for a second or so, and will then go back to Scene Save mode. The scenes which are already programmed in the new bank will light up.

7.2 Recalling Scenes

Press Scene to go into Scene recall mode. The light above the button will come on.

The lights above the number keys will light up to tell you which scenes in the current bank have been programmed.

Press the number key of the scene you want to recall. The output will change to the new scene. The light above the button will 'blink' to tell you which scene you are using.

You can continue to select scenes by pressing number buttons. The controller will stay in Scene Recall mode until you select another function.

Pre-programmed scenes

The controller has 128 pre-programmed scenes, which you can access by holding down the Scene button. The Scene light will flash to show that you are recalling pre-programmed scenes. Press Scene again to go back to normal. There are 16 banks of pre-programmed scenes, which are recalled in the same way as your scenes.

You can also recall scenes by MIDI. See section 16 on page 40 for details.

Crossfading between scenes

The controller can crossfade between scenes, allowing you to smoothly change between one scene and the next. The Value knob sets the crossfade time (turn fully to the left for no crossfade).

Turning off a scene

You can turn off a scene by pressing Cancel when in Scene mode.

Selecting the Scene Bank

You can change the Scene Bank using the same procedure as when you are saving a scene. See the previous page.



8. Bank

The Bank button allows you to change the Scene bank when you are in Scene mode, or the Chase bank when you are in Chase mode. If you are not in Scene or Chase mode it doesn't do anything.

8.1 Chase bank select

If you press Bank while you are recalling a chase, or while you are selecting a chase number to save, then you can select a chase bank. If you are recalling a chase, you can choose from banks 1 to 8; banks 1-4 are user programmable and banks 5-8 are pre-programmed. If you are saving a chase, you can only choose banks 1-4.

8.2 Scene bank select

If you press Bank while you are recalling or saving a Scene, you will set the Scene Bank. There are 16 possible banks.

When you press the Bank button, one of the lights above the button will come on.



When the top light is lit, you can select the top 8 banks (1-8).

If you press the Bank button again, the light will swap over.



When the bottom light is lit, you can select the bottom 8 banks (9-16).

The light will come on above the bank you are currently in. If you decide you don't want to change the bank, or you just wanted to see which bank you were in, you can press Cancel.

Press one of the number keys to change the bank number. The controller will light up the new bank for a moment, and will then go back to its previous mode.



9. Chase

A chase is a sequence of scenes played back automatically, one after the other. The timing can be controlled by the Speed knob, by the beat of the music, or by MIDI. You can store up to 32 chases, each with up to 32 steps. The controller has a further 32 pre-programmed chases which you can select. The chases are stored as 8 banks of 8 chases; banks 1-4 are user programmable and banks 5-8 are pre-programmed.

9.1 Programming chases

Note: Before you start programming a chase, make sure you have programmed all the scenes that you want to use in the chase.

Press Save, then Chase. The lights above both buttons will come on, and the Chase light will flash to tell you that the controller is waiting for you to select a chase to save.

The lights above the number buttons will light up to show which chases in the chase bank are already programmed. If the light is not on, that chase is blank.

You can select another chase bank by pressing Bank, then number 1 to 4 (this doesn't affect the scene bank).

Press the number button of the chase you want to save. If the chase is already used, you will overwrite the original chase. The 'Chase' light will stop flashing.

Storing a new chase

The 'Scene' light will flash to tell you that the controller is waiting for you to select a scene. You can use the normal Scene recall procedure. Press Bank to change the scene bank. When you choose a scene, the controller will output the scene and store it as a step in the chase.

The 'Chase' light will flash a few times to tell you that the step has been stored

You can continue to enter steps by selecting scenes. If you change your mind about the scene you've just stored, you can press Cancel to go back a step (the Cancel light will flash a few times).

To mark the end of the chase, just press Chase.

You can store up to 32 steps in the chase. If you try to enter more, the chase will end automatically.

Storing speed, crossfade and sound mode

The controller will remember the speed, crossfade and sound settings which were used for each chase last time it was run. If you want to change the speed, crossfade or sound mode, run the chase and set the values you want. (The Value knob sets the crossfade time).

If the controller is in Playback Only mode, you can change the speed and crossfade but the controller won't save it.

9.2 Recalling a Chase

You play back a chase by pressing Chase. The light above the button will come on.

The lights above the number buttons will light up to show you which chases in the current bank are programmed; if the light is lit then the chase is programmed.

Recall the chase you want by pressing one of the number buttons. The chase will start to run with the speed and crossfade settings it was last used at. The light above the current chase will 'blink' to show you which chase is running.

You can continue to recall different chases by pressing number buttons.

To stop the chase press Cancel. To do something else while the chase is running, press an Action button (for example, to manually take over a head, just press Head - see page 13).

You can select a different bank of chases by pressing Bank, then a number between 1 and 8. The lights will change to show which chases are programmed in the new bank. Chases in banks 5 to 8 are pre-programmed.

Note: If you want to manually control a head, select it in the usual way, then take over the functions you want to control by moving the controls. The other functions of the head will continue to be controlled by the chase.

Changing speed and crossfade

You can always change the speed of the chase using the Speed knob and the Crossfade time of the chase (time to crossfade between steps) using the Value knob. Turn the knob fully to the left to give instant switching between steps, fully to the right to give constant movement. The controller will remember the speed and crossfade last used with each chase (unless it is in Playback Only mode).

If you are running a chase, but then change to a different mode (such as Head Select) and change the Speed or Value knobs, when you come back to Chase mode you will need to 'match' them to their current settings before they will have any effect. This is to avoid the speed or crossfade 'jumping' to the current positions.

In Sound mode, the Speed knob sets the 'pace' of the chase, but the actual speed is also set by the music. The controller will run the chase for a few moments after each beat in the music; at fast speed settings you will get a 'burst' of steps, and at slow speed settings you will get only one step. The light above the Sound button will blink when a beat is detected. The Value knob still sets the time to crossfade between steps. You can go back to automatic (No Sound) mode by pressing Sound again to turn the Sound light off.

Note: You will only see the 'burst' effect at fast chase speeds; fast chases are most effective on shutter open/close (strobe) effects, as the head may not be able to respond fast enough to other movements.

Pre-programmed chases

You can run the controller's pre-programmed chases by selecting Chase Bank 5 - 8. The pre-programmed chases include many commonly used patterns.

Automatic chase selection

You can tell the controller to automatically select the chases you have programmed by holding down the Chase button (the light will flash). You might want to do this if you don't have anyone to operate the controller, and you don't want it to sit there running the same chase all night. The controller will select chases at random (including the pre-programmed chases). You turn off automatic mode by pressing Chase again.

If you turn the controller off while it is auto-selecting chases, it will automatically start selecting chases again when you next turn it on. This can be useful if you want the controller to run automatically on start-up.

If you always want the controller to do this on start-up, set auto-select mode, then Playback Only mode, then turn it off. The controller will always start up in auto-select mode, until Playback Only mode is disabled.



10. Cancel

The Cancel button has a range of functions which vary depending on what the controller is doing when you press it. Most of the time it will abort the last command that you have started, or go back a step in the procedure you are carrying out.

This will happen provided you press the button for a short time. Special functions of the Cancel button are as follows.

Output clear

If you hold down Cancel for more than 2 seconds, the controller will clear all the outputs to zero, deselect all heads and turn off any selected scenes and chases. This is an 'all-off' function which works at any time, no matter what the controller is doing.

Deselect all heads

If you press Cancel briefly while in Head Select mode, then all the heads will be deselected.

Clear colour or gobo

If you press Cancel briefly while in Colour or Gobo select mode, then the colours or gobos for the selected heads will be set to zero.

Turn off scene or chase

If you press Cancel while in Scene select or Chase select mode, the current scene or chase will be turned off.

Reset unit to factory defaults

Hold down Cancel while turning on the power to the controller, then release the button after 1 second. The light above the button will flash - press Save to confirm that you really want to wipe the memory back to how it was when the controller left the factory, then press Save again.

Cancel

Do not use this option unless you absolutely have to, because it will erase all the scenes, all the chases and all the configuration information.

Note: This is the only way of unlocking the controller if you lock it into playback only mode and forget the code - so choose a code you will be able to remember easily.



11. Save

The Save button has three main functions; it allows you to save scenes, save chases and lock the controller.

Note: Save Scene and Save Chase functions are not accessible when the controller is locked in playback only mode.

11.1 Saving Scenes

Press Save, then Scene to save a scene. Section 7.1 on page 18 gives you all the information on saving scenes.

11.2 Saving Chases

Press Save, then Chase to record a chase. Section 9.1 on page 24 gives you instructions on saving chases. Any chases which are running will be turned off when you select this option.

11.3 Playback Only mode

You can lock the controller into “Playback Only” mode by holding down Save for longer than 2 seconds.

This allows you to prevent unauthorised changes to your programming. All the playback functions remain accessible but none of the programming functions will work. MIDI System Exclusive data is also ignored in playback only mode.

You might want to use this mode if you think operators will accidentally (or intentionally) erase, change or generally vandalise your programming.

The controller will flash the lights above the first 4 buttons. Using any of the 8 numeric buttons, enter 4 numbers that you will be able to remember easily. The controller will turn off a light for each number, then flash the ‘Save’ light and go back to its normal operating mode. If you now try to use any programming functions, the “Save” light will flash to tell you that the controller is locked.

To unlock the controller, hold down Save. The controller will flash the 4 lights again; press the 4 numbers that you used to lock the controller. One light will turn off as you press each number. If you type it in correctly the controller will be unlocked. If you enter the wrong code, the controller will flash all 8 lights above the number keys.

Save

Note: If you forget the code, the only other way to unlock the controller is to reset the memory, which will also erase all your programming - so choose a code which you will be able to remember easily.

If the controller is in Playback Only mode when you turn it on, it will flash the light above the Save button as it starts up.

12. Blackout

The Blackout button is a 'system' button, which means that you can press it at any time, whatever the controller is doing, and it will always work.

When you press Blackout, the controller changes all its outputs to zero. The light comes on above the button to show that Blackout mode is active. When you press Blackout again, the controller restores all its outputs to how they were before.

Note: This is different to All Clear mode (which you get when you hold Cancel down) - that permanently clears all the outputs, whereas Blackout temporarily sets them to zero.

You can continue to operate the controller in 'Blind' mode while it is in blackout - it continues to work as normal, except zeros are output on the DMX line.

Standby mode

If you leave CE-range effects in blackout for longer than 10 seconds, they will switch to standby mode. If they use halogen lamps, they will turn the lamps off to conserve lamp life. If you want an 'instant' start from blackout, define a scene which has only the gobo channels at blackout, but all other channels in a non-zero position. Recall that scene, then release Blackout mode. This will take the heads out of standby mode and turn the lamps back on. Otherwise you may notice a delay as the lamps turn on.

13. Sound

The Sound button allows you to turn on and off the controller's sound activation.

Normally the Sound mode is inactive, and the light above the button is off. However, if you want to sound-trigger chases or the automatic light show (so that they step on the beat of the music), press the Sound button. The light above the button will come on.

When a beat is detected in the music (either through the controller's internal microphone, or in the audio signal connected to the audio line in socket), the light will blink off momentarily.

If you want to cancel sound mode, press the button again. The light will go off.

If you recall a chase which was last used in sound mode, then Sound mode will be automatically enabled.

Sound sources

The controller has a sensitive internal microphone with automatic gain control which will detect the beat of the music in most situations. It is bass-filtered, so will not respond to high pitched sounds; tapping on the case should trigger it (so will pressing buttons!).

However, if the controller is positioned a long way from the speakers, or in a control room, or the music is not particularly loud, then you may find you get a better result by connecting an audio line level signal (pre-amp level) to the audio in socket. Use a full range output from your mixer. The audio in socket is high impedance, so you can split it off another signal if you don't have a spare output.

Do not connect a speaker level signal to the controller - only use signals from the input side of the amplifiers. A speaker level signal may permanently damage the controller.

14. Strobe

The Strobe button allows you quick access to the strobe facility on the heads. You can use this button at any time; however, you need to have some heads selected before anything will happen (except in light show mode).

The light above the button will come on when strobing is active. Press the button again to turn the strobing off. (You can also select a gobo in Gobo Select mode to turn the strobing off). The heads will go back to the gobos which were selected before you pressed Strobe.

Manual strobe (not Light Show)

If you press the button in any mode except Light Show, the controller will strobe all selected heads. If no heads are selected, nothing will happen.

In all modes except Chase Select, the Speed knob will control the strobing speed. In Chase Select mode, the controller will use the last selected strobe speed (because the Speed knob is used for Chase Speed).

The Strobe button will not have any effect on Galactic Moons, as it operates the Gobo channel which Galactic Moons do not respond to. Turn the Value knob fully to the right to obtain strobing on Galactic Moons.

Strobing in Light Show mode

If you press the button in Light Show mode, and you haven't selected any heads for manual control, the controller will automatically select a strobing light show pattern. The strobing will continue until you let go of the button, or until the controller automatically chooses the next pattern.

If you have some heads selected, the controller will select strobing on those heads only and won't change the light show pattern..

If you don't want the controller to use any strobing at all in Light Show mode, you can set "Strobe Disable" mode (see next section).

Warning: Use the strobe effect sparingly. Excessive or prolonged use of strobing can seriously affect some people.

15. Light Show

The controller has a complex automatic light show system. When you press the Light show button, the controller will begin to generate its light show. The light above the button will come on to indicate that this is happening.

If you want an 'instant' light show, or you don't have a lighting operator available, Light Show mode will give you the best results - a fascinating ever-changing display. In fact, once you've watched the automatic light show, you may decide not to bother doing any programming yourself!

You can change the speed, crossfade or sound activation of the Light Show using the knobs and Sound button, as you would for a chase. You can also force a 'strobing' mode by pressing the Strobe button.

You can stop the light show by pressing the Light show button again or by pressing Cancel. If you select a scene or a chase then the Light Show will also be turned off.

You can take manual control of any function of any head (overriding the light show for that head) by selecting the head then changing the controls.

If you press one of the numeric keys while you are in Light Show mode, the controller will run one of the first bank of pre-programmed chases. It will change to Chase mode to do this.

If you turn the controller off while it is running Light Show mode, it will automatically restart in light show mode the next time you turn it on. You can lock this mode by setting Light Show, then Playback Only mode before you turn it off.

Light show setup

The light show divides the heads up into two groups. Heads 1, 3, 5 and 7 are allocated to group 1 and heads 2, 4, 6 and 8 are allocated to group 2. You will find that this works best when you split the heads left for one group and right for the other. The two groups will perform synchronised actions, perhaps using contrasting colours or blacking out alternately.

Strobe Disable mode

If you don't want the controller to use strobing in its automatic lightshow, you can tell it not to. Select Light Show (the light above the Light Show button will be on). Put the controller into Blackout, then hold down the Strobe button for about 2 seconds. The light above the button will flash a few times to indicate that the controller is in Strobe Disable mode.

You can still force strobing manually by pressing the button, but the controller will not choose strobing patterns itself. This function only affects Light Show mode.

To turn off Strobe Disable mode, repeat the above procedure. The light will flash once, briefly, to indicate that the mode is cancelled.

The controller will remember this setting when it is turned off. Strobing is enabled by default. When Strobe Disable mode is set, the controller will flash the Strobe light a few times on power up to warn you that strobing is disabled.

Galactic Moons in Light Show mode

You will find that Galactic Moons do not strobe in light show mode, because the strobe function is controlled by the Gobo channel which the Galactic Moon does not respond to.

16. Using MIDI

The controller is designed to be fully controllable by MIDI, either from a keyboard or a sequencer. You would typically use a keyboard to allow dynamic 'real-time' playback of scenes, and a sequencer if you need to match the lightshow to pre-recorded MIDI or sound.

16.1 Setting the MIDI receive channel

The controller is set to receive on a specific MIDI channel; it will ignore MIDI on any other channel. This can be useful if you want to control several controllers independently from one sequencer. You can set the MIDI receive channel from 1 to 16: hold down Head for 2 seconds, until the Head light flashes.

The controller shows the current MIDI channel using the lights above the number buttons. For channels 1 - 8, one light will be lit constantly. For channels 9 - 16, one light will flash (add 8 to give the channel number).

To set channels 1 - 8, press the number button. To set channels 9 - 16, hold down the number button. See the table below.

Setting MIDI receive channel:

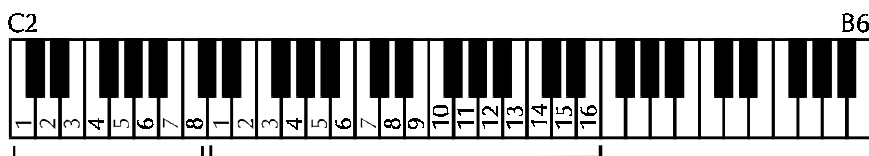
Button	1	2	3	4	5	6	7	8
Press	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
Hold	Ch9	Ch10	Ch11	Ch12	Ch13	Ch14	Ch15	Ch16

The unit shows channels 1-8 with a steady light. If the light above the number key is flashing, add 8 to the number to give the MIDI channel number.

Light	1	2	3	4	5	6	7	8
Steady	Ch1	Ch2	Ch3	Ch4	Ch5	Ch6	Ch7	Ch8
Flashing	Ch9	Ch10	Ch11	Ch12	Ch13	Ch14	Ch15	Ch16

The MIDI channel is remembered when the controller is turned off - the default setting is Channel 1.

16.1 Recalling Scenes by MIDI



White notes: Bank 1-16
Scene 1-8 in
current bank

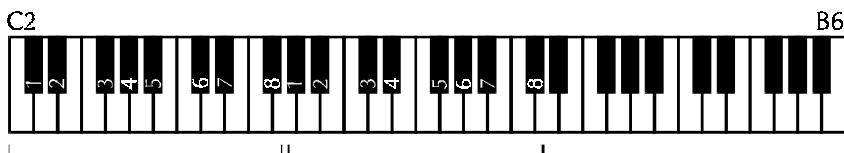
You can recall any scene using the white keys on a standard 5-octave keyboard. The bottom 8 keys (starting at C2, MIDI note 36) recall the 8 scenes in the current bank. The key velocity (how hard you press the key) sets the crossfade time between the current scene and the new scene.

You can select any of the 16 scene banks using the next 16 white keys.

You can recall pre-programmed scenes by changing to pre-program mode (see section 16.3).

If you are recording a light show on a sequencer, you should always start off by setting the bank, as you don't know which bank will be selected.

16.2 Recalling Chases by MIDI

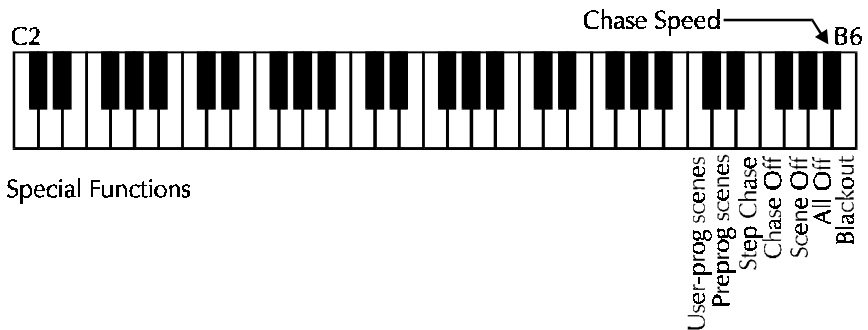


Black notes: Chase 1-8 Chase bank 1-8
in current bank

You can recall any chase using the black keys on a standard keyboard. The bottom 8 black keys recall the 8 chases in the current bank. If the chase does not have a speed or crossfade time programmed with it, the key velocity (how hard you press the key) sets the crossfade time and the speed can be set by the velocity of the top black note (Bb6).

You can select any of the 8 chase banks using the next 8 black keys. If you are recording a light show on a sequencer, you should always start off by setting the Chase bank, as you don't know which bank will be selected.

16.3 Special functions by MIDI



You can select certain functions from a standard keyboard to assist you in a 'live' situation. These are: Blackout, All Off, Chase Off, Scene Off, Pre-program scene mode and Chase step. (turn the speed to minimum to use MIDI Chase Step).

16.4 MIDI Thru

Normally the controller receives MIDI and also passes it through to any other MIDI devices connected to the Thru socket. If you want to program a light show, you connect a keyboard or some other MIDI-generating device to the input of your sequencer, then connect the output of the sequencer to the controller.

However, the controller can send out its own MIDI information (see system exclusive mode below). The MIDI is output on the THRU connector in this mode.

The MIDI data is buffered inside the controller and will not pass through unless it is turned on.

16.5 System Exclusive

You can save and reload the controller's memory from MIDI using a 'System Exclusive' dump. This is done by sending MIDI key codes listed below. Your sequencer should be able to send these codes then receive the returned data.

MIDI Key	Note	Function	Velocity
102	F#7	SysEx dump scenes	ignored
103	G7	SysEx dump chases	ignored
105	A#7	SysEx dump all memory	ignored

This function allows you unlimited storage of scenes and chases. It also allows you to backup the controller's memory in case someone overwrites it! The MIDI data is output on the MIDI Thru connector; DMX output may be intermittent while System

Using MIDI

Exclusive data is being transferred. It takes about 20 seconds to download the complete memory.

The controller does not have a 'Receive System Exclusive' command; this function is performed simply by sending System Exclusive data to the controller. If the controller is in Playback Only mode it will ignore the data.

Note: Do not send a System Exclusive dump from the Compact Controller to the CE Controller, or vice versa, because the memory is arranged differently.

If the controller is locked but you don't have the code, you can save the memory by MIDI-triggering a SysEx dump, then reset the controller, then reload the memory.

A. DMX implementation chart

This section lists the DMX values that the controller generates; these are the standard CE-range values.

Colour / Gobo number	Colour	Gobo
1	10	24
2	26	40
3	42	56
4	58	72
5	75	88
6	91	104
7	107	120
8	123	136
9	140	152
10	156	88
11	172	184
12	188	200
13	205	28
14	221	24
15	237	(strobe)
16	253	0

B. Error Displays

If the controller develops a fault, it will display an error code by flashing a combination of lights above the number keys. The code will be displayed for about 30 seconds if it is just a warning code, or indefinitely if it is a fatal fault.

Fault messages

Message	Explanation	Solution
Light 1 flashing	Memory backup battery is getting low - memory may be lost in a few weeks	Contact dealer for replacement (battery life is approx. 10 years)
Light 2 flashing	Memory backup battery is flat - memory will be lost when unit is turned off	Contact dealer for replacement
Light 3 flashing	Backup battery is not fitted - memory will be lost when unit is turned off	Contact dealer - this should never occur when unit is in use
Light 4 flashing	Error detected in RAM - fault in system (only tested when RAM is initialised)	Contact dealer - unit requires repair. This should never occur in normal use

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