

# e:cue

L I G H T I N G   C O N T R O L

## Butler Setup Manual



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An OSRAM Company  
Rev. 20101203

# Butler

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For a most recent version of this manual please visit:

<http://www.ecue.com/download>

# Device overview

The Butler is a DMX engine that can be used either in standalone mode to replay and loop previously uploaded lighting shows programmed using a PC, running the e:cue software suite, or as a DMX output device controlled by another e:cue Engine. One compact Butler controls up to 1024 DMX channels. The DMX channel control can be increased to 65,536 channels by clustering several Butlers.

## Key features

- Two DMX universes (up to 1024 DMX channels) in standalone or live mode
- Scalable up to 65,536 channels
- Can play up to 99 cue lists in standalone mode
- Secure digital (SD) drive for flexible storage up to 2 GB
- Control of up to 128 clustered DMX universes using a central controller
- RJ45 e:net connectivity for show upload
- Simple installation and wiring
- IR receiver for remote show control
- Feature port for IR-extension
- External power supply or Power over Ethernet or Power over DMX
- 7-segment LED display
- Streamlined design
- Push button for show change

# Safety instructions



Only use the device in compliance with the environmental conditions specified in the data sheet. Note the technical characteristics! Otherwise the unit may be damaged.



Only use original e:cue accessories to power the device. If in doubt contact your e:cue distributor.



Any usage other than described is not permitted, can damage the device and lead to associated risks such as short-circuit, fire or electric shock. No part of the product may be modified.



Actions described in this manual may only be performed with special care by skilled personnel. Repairs may only be carried out by authorized, specially trained personnel.



Do not open the device. There are no user-servicable parts inside. Opening the device violates warranty and the device may be damaged.



Do not dispose with garbage. Care for proper disposal and recycling of this device after use.

# Delivery scope

## Butler red e:cue edition

- e:cue Butler (red housing)
- Power Adaptor
- RJ45 to 5 Pin XLR Adaptor
- e:cue System Manual
- e:cue Lighting Application Suite

## Butler silver e:cue edition

- e:cue Butler (silver housing)

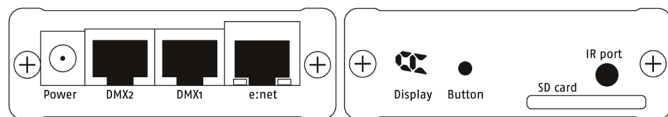
## Additional accessories

The e:cue Lighting Application Suite and the Setup Manual are available at

[www.ecue.com/download](http://www.ecue.com/download)

# Mounting and installation

## Connectors and interfaces



Power supply polarity (12 ... 24 V DC/AC)

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## Power supply

Connect the power supply to the power input. The Butler can handle voltages between 12 volts as minimum and max. 24 Volts AC or DC over the power supply connector. The Butler can also be powered via standard PoE (Power over Ethernet). Third choice is PoD (Power over DMX). In this case 24 V DC is provided over one of the two DMX outputs (see DMX pinout for details). Only 24 V DC may be used for PoD.

## Boot phase

When the Butler is powered up, the display shows a small turning circle or the message "boot" (displayed "b"- "o"- "o"- "t") for a second. Afterwards, the display will show "A01" (displayed "A"- "o"- "1") if a show is already loaded. Otherwise it will display "CRD" (displayed as "C"- "r"- "d") if the internal SD memory card does not contain any data yet.

If the Butler does not display "BOOT" but only shows a static entry such as "A", or if the display flickers, the power supply used may be inadequate. Please make sure your power supply meets to the specifications above. If the problem persists, please contact technical support.

## Display messages

A01, A02, A03 ...	Device is configured as master. The number shows the current cuelist.
b01, b02, b03 ...	Device is configured as slave and is receiving timecode by a master. The number shows the current cuelist.
-01, -02, -03, ...	Device is configured as slave and waits for timecode from a master. The number shows the cuelist which had been playing before timecode synchronization was lost.
o (fast revolving)	Device is receiving data/online
Blinking point	Device is receiving IR signals

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rSt	If the button is pressed and held for five seconds during power up, the device is reset to factory defaults and the display shows rSt.
Po.o	The co-processor for processing IR signals is out of service. Please contact technical support.
Crd	This message appears if the SD card slot is empty or if the SD card itself is empty. Please insert the SD card or upload a show.
SEr	The device does not have a MAC address and is not operational. Please contact technical support.
Po.o	The co-processor for processing IR signals is out of service. Please contact technical support.
P1.5	If a mismatch of the firmware versions of co-processor and main processor has been detected, the firmware version of the co-processor is shown in the display. Please contact technical support.

## SD card

The Butler comes with an SD card and supports SD and MMC cards of up to 2 GB capacity. The Butler cannot operate without SD card.

Since a typical show does not take up more than 2 MB of space, it is generally not necessary to replace the provided SD card by a bigger one.



Do not remove the SD card while the device is switched on. If the SD card was removed during operation and is put back again, the show may be continued by pressing the button on the device – otherwise you need to reboot.



## DMX connections



Signal	Type
1	DMX -
2	DMX +
3	Signal GND
4	NC
5	+Vcc In
6	Power GND
7	NC
8	NC

Some DMX devices can be directly connected to the DMX output of the Butler using a standard CAT5 patch cable.

To connect DMX using an XLR-type plug, please use the adaptor cable supplied with the Butler e:cue edition or contact your nearest e:cue distributor for a suitable adaptor cable. You can also fit an XLR plug to a CAT5 cable.

## e:net connection

You can establish a network connection between the Butler and the computer in the following ways:

- Direct connection to the computer using a special CAT5 cable with crossed wires (referred to as cross cable).
- Using a standard Ethernet hub and connecting both the computer and the Butler(s) to the hub using regular CAT5 cables.

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You cannot establish the connection by:

- Using a standard CAT5 cable directly between the Butler and the computer
- Using a router (such as the devices supplied with home broadband networks) with an inbuilt DHCP server. This will only work after you have configured the Butler to an IP address range that matches the settings of the router.

## Configuration

### Factory setting

Factory setting of the IP address of a Butler is: 192.168.123.1



For proper use of the Butler all configurations and operations must be done with Programmer version 5.0 or higher.

### Basic settings

All settings on the Butler are configured remotely using the e:cue Programmer on the computer.

In case you have several Butlers they need to be configured one at a time. Please do not connect all of them to the network immediately. This is due to the fact that the devices all come with the same IP address by factory default. If they are connected simultaneously an IP address conflict will occur and configuration is not possible.

Instead, connect the Butlers one at a time. Connect the first Butler and assign a new IP address to the device (e.g. 192.168.123.11).

Repeat this sequence until all devices have received an individual IP address. In step 2 all devices can be hooked up to the connecting network.

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To assign an IP address to the Butler:

- Make sure other e:cue applications are closed.
- Start the e:cue Programmer and click on the tab Network.
- All Butler devices which are connected to the network should appear in the list. If not, check if the IP address settings for your computer are correct. Please also make sure your firewall does not prevent communication between the computer and the Butler.
- Double-click on the device you want to configure to open the device setup window.
- Click the IP address – typically this should read 192.168.123.1 at this stage, when the Butler is still set to factory defaults.
- Assign a new IP address, e.g. 192.168.123.11.
- Confirm to set the new value.
- Use the same procedure for the remaining network parameters:  
Subnet Mask – receives the value 255.255.255.0  
Gateway – 0.0.0.0
- Finish the configuration by clicking OK

## Butler status information

The Programmer displays all e:net capable devices connected to the local network in a list which is sorted by IP addresses. For the Butler, the Programmer is capable of displaying the following information:

IP-address	The IP-address of the device
Info	The content of the field "Device Name"
Software	The software version of the device
Hardware	The hardware version of the device
Status	The status of the device. If the device is connected to a control software like Programmer the IP address of the corresponding computer is displayed here.
MAC	The physical address of the device
Traffic (fps)	The DMX frames per second of the device

## Parameter settings

The following is only a brief overview of the settings you can change using the Programmer.

Device Name	The device name that will be displayed in the e:cue Programmer.
IP-address	The IP address of the device (default: 192.168.123.1)
Subnet Mask	The netmask of the device (default: 255.255.255.0)
Gateway address	The default gateway of the device (default: 0.0.0.0)
IR Remote	Auto
Master Slave Group ID	
Run Mode	
Standard	
Shuffle	
Next ql after n sec	
Next ql after n sec (on end)	
Next ql after loops	
Return to ql #1	
Playback via Remote Control	
Unlinked slave fades black	Disable
Run Mode Parameter	
Repeat on end	If enabled, the butler will repeat from ql #1 to the end of the last cuelist
Timecode Master	If enabled, the butler is the Timecode Master in its group
Don't cycle to last cuelist	If enabled, the last cuelist will not be played
On power up goto last cuelist	If enabled, the butler will start with the last cuelist after power up
Show Upload	Allow/disallow show upload
Firmware Update	Allow/disallow firmware update
Firmware Version	Current firmware version
Build Date	Date of the firmware version

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IR Version	Current IR-receiver version
Show Name	Current name of show
Show Creator	Creator of the uploaded show
Cuelists	Number of cuelists on the SD card
Show size (KB)	Size of the show on the SD card

## Localizing a Butler in the network

A specific Butler device can be found in the network:

- If you click a Butler device in the Network tab, the Butler will display a small revolving o for a few seconds.
- Additionally, when you change the parameters of any Butler using the Programmer and then click OK, the corresponding Butler displays a revolving 'o' for a few seconds.

## Reset to factory defaults

Hold the button for at least five seconds while the device is being powered up. This makes the Butler revert to its factory defaults. The display shows rSt.



You will lose all settings including the IP address and have to configure the Butler again from scratch. However, the show data which is saved on the SD memory will not be touched.

## Shows

### Exporting a show

The e:cue devices e:node and Nano use a simplified show format for saving their data. This format is automatically generated by e:cue Programmer when exporting a show file to the device.

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The Butler works in a way which is more similar to a DMX recording device. Inside the Butler, the DMX data is saved in exactly the same way as it is output during show playback.

The data which is saved to the Butler is thus exactly the same that you would have if you recorded the output of the e:cue Programmer on a DMX output device in live mode. During export, the actual DMX data of the show is rendered and compressed – analogous to creating MP3 files from a CD.

One consequence is that the export of a cuelist to the Butler takes longer if the cuelist contains loops. If you make most of a cuelist loop five times, for example, the process of exporting that cuelist will take nearly five times as long.

Due to the fact that the data is compressed, the export process is faster if the show is less complex – similar to a JPG image on the internet, which is larger if the picture contains more details. In practice this means that a cuelist with many effects and changes takes longer to export than a cuelist with simple colour changes.

The main advantage of the compressed DMX data show format of the Butler is that shows may also contain Live-FX functions and very complex overlays of several cuelists at once.

Not all Live-FX features produce meaningful results during Show Export – Sound2Light functions and Video-Wizard functions do not yield results during export.

## Before Show Export

You can export as many cuelists to the Butler as you like – the only limitation that applies is the size of the SD memory card in the Butler (the Butler supports memory cards of up to 2 GB in size).

- Cuelists may contain Live-FX functions (as opposed to nano and e:node)
- Cuelists may contain Cue Actions which start off other cuelists simultaneously – i.e. effects such as overlaying multiple cuelists can be replicated by the Butler.

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- Cuelists may not contain cues whose timing is set to manual or to a Timecode time. If you receive an error message during Show Export please check your show for such cues.

### Exporting cuelists

- In the main menu of the e:cue Programmer select **Extras - Export to Device** or simply click on the export button. – The Export Show window opens.
- In the section labelled Destination Devices on the left, highlight the devices to where you would like to export (click the box left of the name). The buttons **Select All** and **Select None** help making multiple choices.
- If you would like to check your show, click **Check it**, then close the Export Show window to read the messages generated in the logbook – or click **OK** to continue.
- In the section labelled Cuelists you can now select the cuelists to export to the Butler – for example cuelists 7–12. In this example the Butler will receive six cuelists which will be saved as cuelists 1–6.
- Click **Start Upload**. The e:cue Programmer displays a window with a progress bar to inform you about the status of the export.

It is not possible to replace individual cuelists in the Butler whilst keeping the rest – each Show Export overwrites the memory of the Butler completely.

### After show export

After the show has been uploaded, you can immediately check if it works by switching the e:cue Programmer to offline mode. In the Programmer you can do this by going to the status window (top left of the screen) under the caption **Main Switches** and clicking on **Allow Network Output**. When the Programmer switches its network output off, it takes about five seconds before all connected Butlers fall into standalone mode and start playing back the show. For a faster response, you can disconnect the network and manually reboot the Butler(s) by disconnecting and reconnecting the power.

# Show Playback

## Clustering

If the Butler does not receive any data from the e:cue Programmer it automatically switches into standalone mode and begins playback. During playback, the user can skip to the next cuelist by pressing the button on the device.

Clustering allows to let up to 20 Butlers work together instand alone mode<sup>1</sup>. Clustered Butlers are synchronized to work together on the same show. With the clustering mode stand alone shows may include up to 40 DMX universes. When exporting clustered shows, each Butler only receives one part of the show specifically for the DMX lines which are assigned to that specific device. During playback one Butler acts as a master which sends Timecode into the local network to synchronize all other devices (automatically configured as slaves) in the cluster.

Using clusters of Butlers requires the user to manually set an option. During Show Export the first Butler device in the Device Manager list of the e:cue Programmer will automatically be configured as master. After Show Export, the user has to run the Network Configuration Tool to manually set this master device to the option Timecode Master = enable. Also, all devices in the cluster will need to have their Master Slave Group ID set to the same number.

- Connect all Butlers in the cluster to the local network.
- Register them in the Device Manager in the e:cue Programmer (see beginning of this chapter).
- Take a note of the name and/or IP address of the first Butler device in the Device Manager list – this will be the Timecode Master.
- Switch to the tab Network.
- Edit each of the devices you would like to include into the cluster by selecting them individually and clicking on it.

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<sup>1</sup> These limits depend on experiments. Up-to-date versions normally are able to control more devices. If your project requires more than 40 DMX lines in stand alone mode, please contact our technical support.



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- Edit (double-click) the item Master Slave Group ID.
- Set a number between 1 and 512 (in case you would like to involve an e:com terminal for user control please use only numbers between 1 and 16).
- Confirm your changes and edit the next device in the group.
- Looking at the list, now select the Timecode Master device (identifying it by its name and / or IP address which you noted down and click on the device.
- Edit (double-click) the Timecode Master entry and set it to Enable.
- Confirm your edit and exit the configuration window.

The cluster should now be successfully configured. You can check on the status of the cluster by checking the displays of the devices themselves. The display of the master device should now read out "A01" while the displays of all slave devices should read out "b01". If the displays of the slave devices read out "-01" they are not receiving timecode synchronization – please make sure you have set the Timecode Master. If more than one device reads "A01" then there are too many Timecode Masters in the group and you need to disable the one that doesn't read out as Master in the Version column in the Programmer

## Multiple cluster in the same network

Only Butlers which have been assigned the same Master Slave Group ID listen to the signal of the Timecode Master with that ID. It is possible to have several clusters working independently from the others by assigning them different Master Slave Group IDs. Since each Timecode Master adds to the network load, however, it is not recommended to run more than five cluster groups in the same local network.

## Run mode

The run mode determines the operation of the Butler in stand alone mode. You can set the desired run mode using the Programmer:

- Switch to the tab `Network`.
- Click on the device
- Edit (double-click) the item `Run Mode` (the default setting is `Standard`).
- Choose a new run mode from the dropdown menu and confirm.

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- Depending on the selected run mode you can now set an additional parameter – edit (double-click) the item `Run Mode Parameter` (the default setting is 0) and enter a new number. Possible Run Mode parameters are explained below (the number which needs to be entered is referred to in the text as *n*).

The following Run Modes are available:

**Standard** – The respective cuelist is repeated in a loop. After powering up, the Butler immediately starts playing back the first cuelist on the SD memory card. If the option `On power up go to last cuelist` is also activated the Butler starts playing the last cuelist on the SD memory card after powering up.

**Shuffle** – At the end of each cuelist the Butler plays back a randomly selected cuelist. If the option `Don't cycle to last cuelist` is activated, the last cuelist on the SD memory card is excepted from the Shuffle feature. This means if *m* cuelists are saved on the SD memory card, only *m*-1 cuelists will be utilized for playback. In this scenario, the last cuelist can only be started by external input (e.g. via IR remote control or e:com terminal).

**next ql after n sec** – The Butler plays each cuelist for *n* seconds and then starts playback of the next cuelist. If the option `Repeat-On-End` is deactivated the last cuelist will be repeated endlessly. If the option `Repeat-On-End` is active the Butler will skip back to the first cuelist after playing the last cuelist. If the option `Don't cycle to last cuelist` is activated, the last cuelist on the SD memory card is excepted from the Shuffle feature. This means if *m* cuelists are saved on the SD memory card, only *m*-1 cuelists will be utilized for playback. In this scenario the last cuelist can only be started by external input (e.g. via IR remote control or e:com terminal).

**Next ql after n sec (on end)** – The Butler plays each cuelist for *n* seconds but then keeps playing the cuelist through to the end before it starts playback of the next cuelist. If the cuelist has ended but *n* seconds have not yet elapsed the same cuelist is repeated again. If the option `Repeat-On-End` is deactivated the last cuelist will be repeated endlessly. If the option `Repeat-On-End` is active the Butler will skip back to the first cuelist after playing the last cuelist. If the option `Don't cycle to last cuelist` is activated, the last cuelist on the SD memory card is excepted from the Shuffle feature. This means if *m* cuelists are saved on the SD

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memory card only  $m-1$  cuelists will be utilized for playback. In this scenario the last cueist can only be started by external input (e.g. via IR remote control or e:com terminal).

**Next ql after n loops** – The Butler repeats the cueist  $n$  times. After that playback of the next cueist is started. If the option Repeat-On-End is deactivated the last cueist will be repeated endlessly. If the option Repeat-On-End is active the Butler will skip back to the first cueist after playing the last cueist. If the option Don't cycle to last cueist is activated, the last cueist on the SD memory card is excepted from the Shuffle feature. This means if  $m$  cuelists are saved on the SD memory card only  $m-1$  cuelists will be utilized for playback. In this scenario the last cueist can only be started by external input (e.g. via IR remote control or e:com terminal).

**Return to ql #1** – At the end of each cueist, the Butler skips back to the first cueist on the SD memory card. This option is mainly interesting for interactive installations: If a user triggers playback of another cueist (for example through an e:com terminal which is wired to a photo sensor) then this cueist is played back only once before the Butler automatically returns to the main cueist #1. If the option Don't cycle to last cueist is active and the last cueist is running then the Butler will not skip to the first cueist at the end.

## Playback via Remote Control

The Butler comes with an IR receiver to allow the user to start cuelists using a remote control. Currently the following remote control models are supported:

- Traxon IR
- Philipps RC5 (TV-Mode)

If the respective type of remote control is not available in your area please contact your nearest e:cue distributor. To activate the IR receiver you need to set the type of remote control you are using via the programmer:

- Start the programmer.
- Highlight the device you would like to configure.
- Click `Configure`.

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- Edit (double-click) the item IR Remote – the default setting is RC5 (Philips TV).
- Choose the desired type of remote from the drop-down menu and confirm.

If the Butler receives an IR signal which it can process it shows a dot in the 7-segment display on the device. If the dot doesn't appear while you are pressing a button on the remote, the Butler could not decode the signals sent by the remote control. In the Philips RC5 mode it is also possible to enter two-digit numbers so that cue lists 1 to 99 can be started directly. To enter a two-digit code you first have to press the `-/--` key and then press the two digits. This operation needs to be carried out within a short timeframe (< 3 seconds).

## Unlinked slave fades black

If this option is activated for a Butler, a device which is configured as slave but does not receive Timecode synchronization will automatically slowly fade out its DMX output (yielding a fade to black). If part of a cluster group loses synchronization – for example if the cable is accidentally unplugged from a router – the Unlinked Slave Fades Black option prevents this part of the group from displaying an unsynchronized show. The affected parts will simply fade out slowly.

## Control via e:com

It is possible to control cue list playback in the Butler by using an e:cue e:com terminal which is configured to be in the same network. By pressing a button on the e:com (or by using one of the electrical inputs) the e:com sends a code which will start the corresponding cue list on the Butler.

However, the e:com and the Butler will not work together straight away – the e:com needs to be setup to control Butlers with the following steps:

- Configure the e:com to matching network parameters. E.g. if the Butler is set to the IP-Address 192.168.123.11 the e:com could be configured the IP-Address 192.168.123.50.

In the e:com configuration menu find the parameter Slave Mode. Set this parameter to exactly the same value as the Butler parameter Master Slave Group

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ID. This applies to all Butlers which need to be controlled with this e:com terminal. E.g. if the Master Slave Group ID is set to five for the cluster of Butlers, set the Slave Mode of the e:com to five as well. The value needs to be in the range of 1–16.

The Slave Mode parameter can be configured via the Programmer or you can use the e:com's internal system menu and edit item 4.6.

## Technical data

Order code	
Butler red	160003
Butler silver (bulk edition)	160001
General specifications	
Dimensions	71.5 x 24 x 85 mm/2.7 x 0.9 x 3.6 inch
Weight	0.15 kg / 0.4 lbs
Power	12 ... 24 DC/AC, 4 W, over power supply connector 48 V DC Power over Ethernet, 4 W 24 V DC Power over DMX, 4 W
Operating/storage temp.	0 ... 40 °C/32° ... 104 °F
Operating/storage hum.	0 ... 80%, non-condensing
Protection class	IP20
Housing	Aluminium
Mounting	Storage in 19" Butler Garage (optional)
Certifications	CE, USTC SGS
Engine specifications	
User interface	Button, IR remote control
System link	e:net (RJ45)
Output	2 x DMX512 (RJ45)
Display	7-segment LED
Data storage	SD card



## Dimensions

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