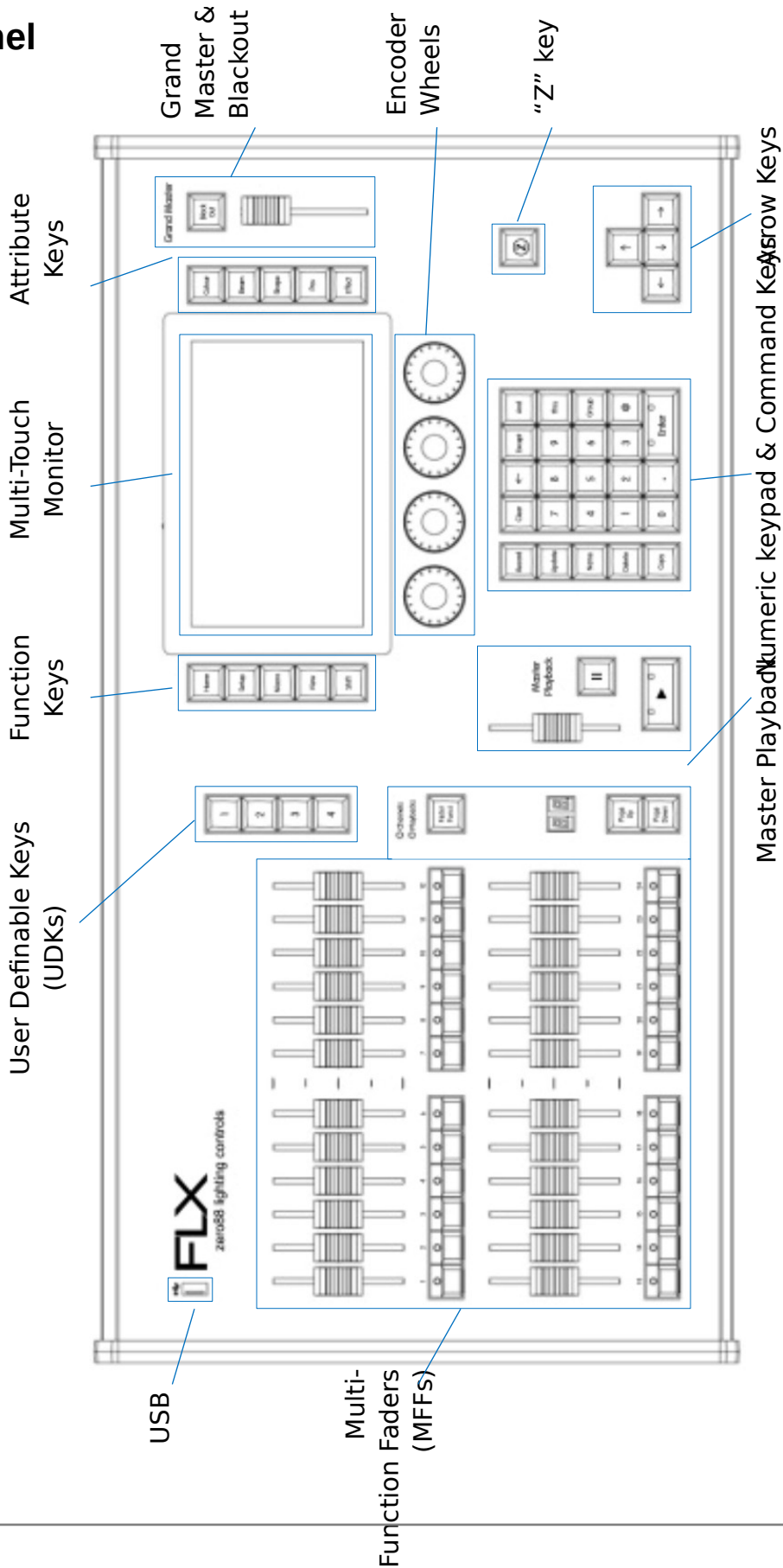# FLX training session schedule

## Generics (dimmers)

- **Overview of FLX**
    - o Front panel & rear connectors
    - o External monitor
    - o Capacity and capabilities

- **Controlling intensities**
    - o Channel faders
    - o Syntax overview

- **Groups**
    - o Recording groups
    - o Using groups

- **Cues & playbacks**
    - o Recording cues onto playbacks
    - o Adjusting fade times & names
    - o Updating cues
    - o Copy & Delete
    - o Cue settings

- **Playing back cues**
    - o Navigating the cue stack
    - o Using multiple playbacks

- **Chases**
    - o Creating a chase
    - o Updating chase setting
    - o Adding chases into a cue stack

- **UDKs**
    - o Recording UDKs & UDK settings
    - o Using UDKs as a shortcut
    - o Using UDKs for advanced functions

- **Tracking**
    - o Introduction to tracking
    - o Simple tracking exercise
    - o How to use tracking during programming

## Fixtures (moving lights, LEDs etc)

- **Patching**
    - o Patch overview
    - o Patch Wizard
    - o Editing fixtures

- **Controlling fixtures**
    - o Position parameters
    - o P/T Grid and Stage Sizing
    - o Colour parameters
    - o Colour faders, colour picker, image picker, mood boards and filters
    - o Beam parameters
    - o Homing a fixture

- **Recording fixtures into cues**
    - o Attribute fade times
    - o Move in Black

- **Palettes**
    - o Recording & naming palettes
    - o Referencing palettes
    - o Tagging / untagging

- **Effects**
    - o Using auto effects
    - o Creating your own effects

- **Macros**
    - o Using macros

- **Setup**
    - o System settings
    - o Inputs & outputs
    - o Defaults
    - o Saving & loading show files
    - o Clear options
    - o Networking (incl. remotes)

# Front panel

**Grand Master & Blackout**

**Encoder Wheels**

**"Z" key**

**Attribute Keys**

**Multi-Touch Monitor**

**Function Keys**

**User Definable Keys (UDKs)**

**Arrow Keys**

**Numeric keypad & Command Keys**

**Master Playback**

**USB**

**Multi-Function Faders (MFFs)**

FLX
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# Terminology & key features

## Multi-Function Faders (MFFs)
The FLX lighting console is equipped with 24 Multi-Function Faders. These can quickly and easily be switched between their two functions ("Channels" and "Playbacks") by using the Fader Funct. button:

## Channels
When set to "Channels", the 24 faders directly control each light (or "fixture") in the rig (this is often referred to as "Channel per Fader"). Each fixture, no matter what it is, will have a single "Channel Number", and so will take up a single channel fader. When more than 24 channels are present, the Page Up and Page Down buttons can be used to navigate through all the channels in multiples of 24. The buttons below the faders are "select" buttons.

## Playbacks (cues, stacks & submasters)
Lighting "states" (or "scenes") can be pre-recorded, ready to be recalled later. They are called "cues", and are recorded onto "playbacks". Each playback can store a single cue, or multiple cues. The FLX Lighting Console has 240 playbacks, and can store a total of 10,000 cues.

Traditionally, playbacks with a single cue have often been referred to as "submasters" whereas playbacks with multiple cues have often been referred to as "cue stacks". This manual will simply call them playbacks.

The button below the fades are "Go" buttons when in playback mode.

## Master Playback
For many shows, especially theatrical, a single playback is often used with a long list of pre-recorded cues. For these situations, an additional "Master Playback" is provided, with double-width ► (play/go) button, and a dedicated [ ▐▌ (pause) button.

## User Definable Keys (UDKs)
Four UDKs are provided, and can be assigned to a range of functionality including recalling lighting states, Groups, Palettes, and Effects, or accessing advanced functionality such as RemDim or Highlight.

## Function keys
The five function keys to the left of the touchscreen either perform functions themselves (like Home and View ), or change the functionality of other buttons when pressed at the same time (like Setup and Shift ).

## Internal, external & remote monitors

The internal multi-touch screen, and an optional external DVI-D monitor, displays the graphical interface for the FLX lighting console. Multiple mobile devices, such as smart phones, tablets and laptops, can also be connected simultaneously to show additional information or to add remote control functionality.

## Grand Master & Blackout

The $\boxed{\text{Grand Master}}$ fader allows you to temporarily decrease the overall intensity of all fixtures. In normal operation, the $\boxed{\text{Grand Master}}$ should be at 100%. The $\boxed{}$ $\boxed{\text{Black Out}}$ button takes all intensities to 0%, and the LED within the button flashes when enabled.

## Encoder wheels

Four encoder wheels are provided, and used for accurate control of various settings. The settings currently being controlled by the four encoders are displayed in the four boxes along the bottom of the touch screen, just above the encoders.

## Numeric keypad & command keys

The main keypad area is made up of a standard numeric keypad and a range of "command keys", such as $\boxed{\text{Record}}$, $\boxed{\text{Update}}$ and $\boxed{\text{Delete}}$. Channels can be controlled using either the keypad or via the faders.

## Command line

Any commands that are typed into the console are displayed in the "Command Line". This is displayed along the bottom of the external monitor (if present) or on the internal display (if external monitor is not present).

## Suggested commands bar

Above the command line is a "Suggested Commands Bar" which indicates which commands are currently available. This can be turned off if not required.

## "Z" key

The $\boxed{\text{Z}}$ Key places a range of quick access settings & functions on the internal display and encoder wheels.

## DMX channels & universes

The FLX lighting console can control 2048 DMX Channels. These are divided into four "universes", each with 512 DMX Channels. Two of these universes can be sent out over DMX and / or all four can be distributed over Ethernet.

## Fixtures

Every device controlled by a FLX lighting console is known as a "Fixture", and is assigned a "Channel Number". Fixtures can be a simple generic dimmer channel, or a more complex DMX device such as a colour scroller, LED fixture, moving head, strobe light, smoke machine or media server. Any item controllable via a DMX signal can be assigned as a fixture on the console. Fixtures can be "patched" to any channel (1- 512) on any universes (1- 4).

## DMX patch

The DMX Patch (or "patching") is a required process where the FLX lighting console is told which fixtures are being used, which DMX channels each fixture uses (referred to as the "DMX address") and what Channel Number each fixture should be assigned.

## Groups

Fixtures that are used together regularly (such as a colour wash, or all the moving lights on a specific truss) can be stored together into a "group". The desk provides 240 groups. FLX can automatically create groups if required.

## Parameters

Dimmer channels are simple fixtures with *one* parameter - the "intensity". More complex DMX devices (such as moving lights, LEDs etc) are fixtures with *multiple* parameters (for example "pan", "tilt", "red", "green", "blue", "strobe" or "focus").

## Attributes

Parameters are grouped together into four attributes for easy access and control. These attributes are called "Colour", "Beam", "Shape" and "Position". A fifth attribute, called "Effect", manipulates parameters to create effects such as "Circle", "Ballyhoo" and "Rainbow". These five attribute buttons can be found along the right hand side of the internal touchscreen.

> **The "Shape" attribute is coming soon in a free software update. Until then, "Shape" and "Beam" will be combined together under "Beam".**

## Macros

Macros are used for fixture settings such as "Lamp On" or "Reset". Which Macros are available depend on the fixtures patched.

---

The below examples show how a fixture's parameters would be split up into the four attributes.

| ETC Source 4 LED Lustr+ | | | | | |
|---|---|---|---|---|---|
| *DMX Address 100, Channel Number 50* | | | | | |
| | Colour | | | Beam | |
| Dimmer | Red | Green | Blue | Strobe | Fan |

□Fixture

□Patch Info

□Attributes

□Parameters

| Robe Robin 100 LEDBeam | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *DMX Address 106, Channel Number 51* | | | | | | | | | | |
| | Colour | | | | | | Beam | | Position | |
| Dimmer | Red | Green | Blue | White | CTC | Colour 1 | Function | Shutter | Pan | Tilt | Pan / Tilt Speed |

□Fixture
□Patch Info

□Attributes

□Parameters

| Clay Paky Alpha Spot 300 | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *DMX Address 118, Channel Number 52* | | | | | | | | | | | | |
| | Colour | | Shape | | | Beam | | | | | | Position | |
| Dimmer | Colour Wheel 1 | Colour Wheel 2 | Gobo Wheel 1 | Gobo Wheel 2 | Gobo Rotation | Prism | Prism Rotation | Focus | Shutter | Lamp | Reset | Pan | Tilt |

## Palettes

Palettes can quickly recall parameter settings that are used regularly, such as a range of colours for LED fixtures, or a range of positions for moving lights. 240 palettes are available for each of the five attributes (Colour, Beam, Shape, Position and Effects). FLX can automatically create palettes if required.

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# Syntax overview

## Selecting channels and intensities

… 1 @ 1 0 0 Enter …
This sets the intensity of channel 1 to 100%.

… 2 And 3 @ 7 5 Enter …
This sets the intensity of channels 2 and 3 to 75%.

… 5 Thru 1 0 @ 5 0 Enter …
This sets the intensity of channels 5 through to 10 to 50%.

… 5 Thru 1 0 Except 7 @ 6 5 Enter …
This sets the intensity of channels 5, 6, 8, 9 and 10 to 65%

… 3 Thru 9 Except 5 Except 6 @ 0 Enter …
This sets the intensity of channels 3, 4, 7, 8 and 9 to 0%. Note how Except is used twice to exclude two different channels from the range.

… 1 Thru 3 And 7 Thru 9 @ 2 5 Enter …
This sets the intensity of channels 1, 2, 3, 7, 8, and 9 to 25%.

… 1 And 7 Thru 1 2 Except 9 @ 5 Enter …
This sets the intensity of channels 1, 7, 8, 10, 11 and 12 to 5%.

… 1 @ @ …
@@ is a shortcut which quickly sets the intensity to 100%.

… 1 @ . …
@. (at dot) is a shortcut which quickly sets the intensity to 0%.

… Enter Enter @ . …
Enter Enter is a shortcut which quickly selects all the channels that are currently on (above 0%). In this example, it then takes them to 0% using the @. shortcut (resulting in a blackout).

… Group Group @ 1 0 Enter …
Group Group is a shortcut which quickly selects all channels, no matter what intensity they are. In this example, it then takes them all to 10% (useful for a rig check).

… Group 1 @ 4 5 Enter …
This sets all the intensity of the channels within group 1 to 45%

… Group 1 And Group 3 @ 8 0 Enter …
This sets all the intensity of channels within group 1 and group 3 to 80%

## Functions (record, update, name etc)

… Record Enter …
This will record the next available cue, within the playback you are currently viewing.

… Record 5 Enter …
This will record cue 5 within the playback you are currently viewing.

… Record Go …
This will record the next available cue, within the playback of the Go button you press (this could be one of the MFFs, or the Master Go button)

… Record 5 Go …
This will record cue 5 within the playback of the Go button you press

… Name 5 Enter …
This will bring up a keyboard to name cue 5

… Update Enter …
This will update the current cue of the playback you are viewing

… Record Colour 2 0 Enter …
This will record colour palette 20

… Name Colour 2 0 Enter …
This will bring up a keyboard to name colour palette 20

… Colour 2 0 Enter …
This will recall colour palette 20

… Record Group 1 5 Enter …
This will record the currently selected fixtures into group 15

… Record UDK1 …
This will record the current lighting state onto the first UDK

… Delete UDK1 …
This will delete the first UDK

… Group 1 Record UDK2 …
This records a shortcut to Group 1 onto the second UDK.

… Colour 2 0 Record UDK3 …
This records a shortcut to Colour 20 onto the third UDK.

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# FLX - example system diagrams

## Introduction
FLX can be built into a scalable and powerful system when combined with a range of accessories and networking equipment. This technical sheet shows various examples, with descriptions, of how these could be setup.

## ZerOS Wings
ZerOS Wings can be connected to any console running our ZerOS software, including Phantom ZerOS, to add 24 additional channel or playback faders. Multiple wings can be used at the same time, with no setup required. Wings can be mechanically attached to FLX, and optional legs are available when placing wings behind the console. They connect via a USB cable, which also powers the unit.

## Art-Net & sACN
Art-Net & sACN allow us to send multiple universes over a single cable. Some devices will accept this directly (such as media servers), whereas others will require you to convert back to DMX. FLX has a total of 4 universes, which can be sent over Art-Net, sACN, or both.

FLX includes an "EtherCON" connector – this accepts a "normal" RJ45 connector (the standard connector on an "*Ethernet cable*"), or the more robust EtherCON connector designed especially for tough touring conditions.

## Remote apps
There are various apps available to view and control FLX on mobile devices, such as smart phones and tablets. The console must be plugged into a wireless router, which your mobile devices can then also connect to. There's also a Remote Monitor application for Windows computer.

## Visualisation
Visualisation packages allow you to preview your lighting through a 3D emulator when you don't have access to the venue. Most accept Art-Net or sACN directly, but FLX also includes specific support for Capture, WYSIWYG and Light Converse.

## Media servers
Media Servers are used to serve up media content during a production. These can be triggered and controlled via FLX using the built in fixture profiles, normally using Art-Net or sACN.

## Phantom ZerOS
Phantom ZerOS is free to download, and can emulate any console which runs our ZerOS software, including FLX. Show files can be loaded, saved and transferred to "real" consoles, useful to setup your show, or make slight changes while you're not at the console. Phantom ZerOS can also be unlocked to output Art-Net or sACN with the addition of the "Phantom ZerOS Unlock Dongle". This allows it to run as a console itself, or to back up another console.
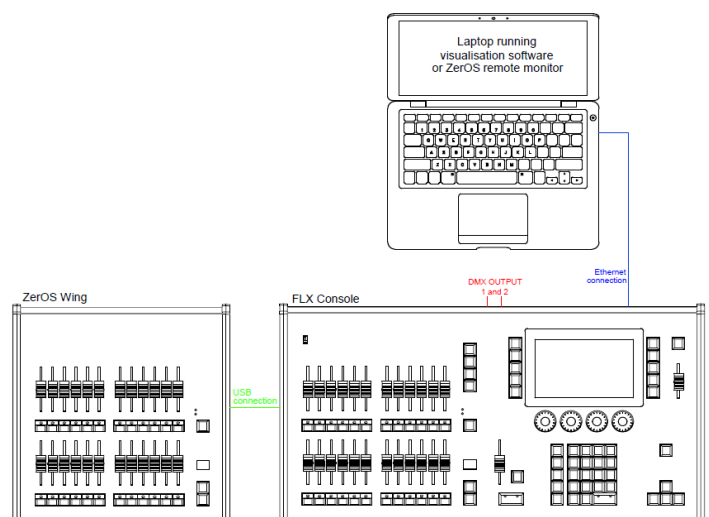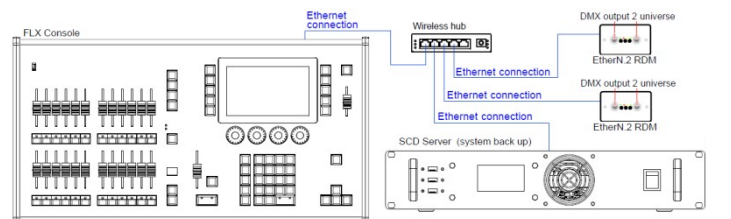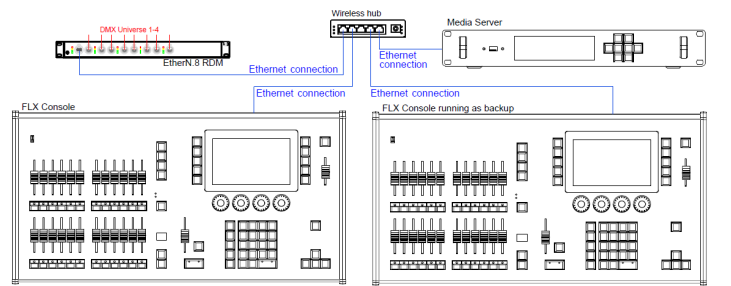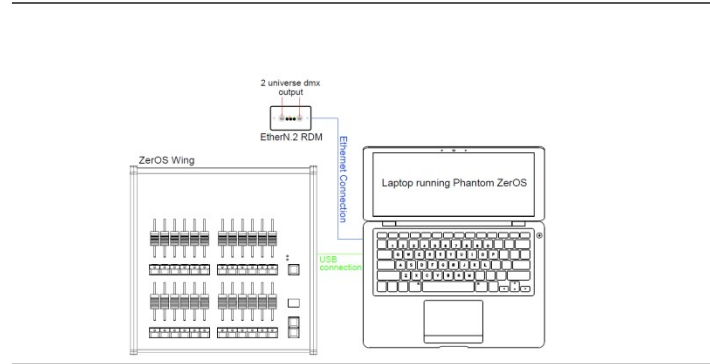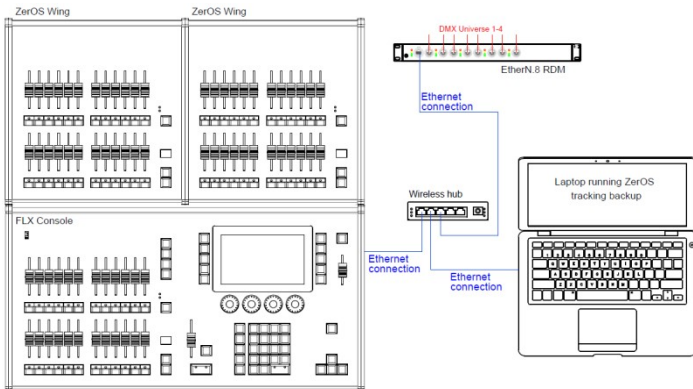
## Tracking backup
Tracking backup allows a continuous and full back up of FLX to another device, which will automatically take over if anything happens to your main console. Backups can be done to a second FLX, to a "SCD Server Pro", or to a laptop running Phantom ZerOS with an Unlock Dongle.

## Order codes
Below is a list of all the products mentioned within this technical note, and their order codes.

| | |
|---|---|
| 0020-000004-00 | *FLX with UK mains lead* |
| 0020-000005-00 | *FLX with Schuko/French mains lead* |
| 0020-000007-00 | *ZerOS Wing* |
| 00-887-00 | *Phantom ZerOS Unlock Dongle* |
| 03-081-00 | *1 Universe Ethernet Box* |
| EtherN8RDM | *EtherN.8 RDM* |
| EtherN2RDM | *EtherN.2 RDM* |
| 0020-000002-00 | *SCD Server Pro* |

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## Further information & support

For further information on setting up these systems, or if you have any questions, we have various support channels available – please don't hesitate to contact us, or your local Zero 88 distributor.

This system shows the FLX console with two ZerOS Wings connected via USB. Legs are available to ensure the Wings are the correct height when used behind the FLX.

A hub or router connects the console to a laptop running Phantom ZerOS with an Unlock Dongle. This backs up every key press and can automatically take over so you can continue exactly where you were. Using a wireless router would allow mobile devices to be connected too.

An EtherN.8 RDM is connected to this system to convert Art-Net or sACN to DMX. The eight outputs can be

individually configured to output any of the four universes.

This system shows a laptop running Phantom ZerOS with an Unlock Dongle. The console is connected to an EtherN.2 RDM to output two universes of DMX. This could be directly, using a "crossover" cable, or via a hub / router using "straight" Ethernet cables. EtherN.2 RDM can be powered via "Power-over-Ethernet" (PoE) if required.

A USB Wing is also used in this system, giving physical controls to the software package. The button below each of the 24 faders can be used as individual GO buttons.

This system shows another tracking back up system, this time with two consoles staying in-sync. These could be physically next to each other, or in different areas of a venue. An EtherN.8 RDM is being used to convert to DMX, but any other Art-Net or sACN "nodes" could be used too.

This system also includes a Media Server connected to the network. There are many servers available, some with dedicated hardware, others software based.

This system shows another tracking backup system, this time with an SCD Server Pro for the backup. This can be rack mounted, and could have a ZerOS Wing connected to it if faders were required. The space bar on a USB keyboard acts as the Master Go button.

This system also includes two EtherN.2 RDMs, which could be wall mounted in two different locations within the venue – two universes at each.

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- zero88.com/forum        -  zero88.com/training
- facebook.com/zero88     -  twitter.com/zero88

# User notes

# User notes

# User notes

# User contact details

Thank you for joining us on today's Zero 88 training session.

To continue developing and improving our training sessions,
like to ask for your feedback.

Name:

Title:

Company:

Location & country:

Email address:

If you'd prefer **not** like to be added to our monthly mailing list, please tick here 🗌

Forum username:

If you'd prefer **not** like to be added to our "Trained on FLX" user group, please tick here 🗌

Feedback & comments on today's training course: