LUMEN DMX

SMART LIGHT CONTROLLER

User manual

Version 0.17.4 · Windows 10 and 11 (64-bit)



MADE BY

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Welcome to **LUMEN**

LUMEN is a DMX lighting controller for Windows. Build scenes, effects and palettes, watch every beam on a 2D stage, then play the show live from the PC, a touch screen or your phone.

PROGRAM
Scenes with steps and crossfades, effects in time with the music, colour, position and beam palettes, and named groups.

PLAY LIVE
One button per scene, toggle or flash, exclusive zones, grand, speed and group masters, tap tempo, Sync, and a BPM that follows the music.

SEE THE RIG
A 2D stage shows colours, dimmers and moving-head beams as they play, with or without the real lights.

PATCH
Built-in profiles, about 650 real fixtures from the Open Fixture Library, a profile finder and editor, QLC+ and GDTF files.

OUTPUT
Art-Net and sACN over the network, or USB DMX interfaces: ENTTEC DMX USB Pro and Open DMX USB. Other LUMEN PCs can join a show and send it out of their own.

REMOTE AND WING
Run scenes or program from a phone or tablet on the same Wi-Fi, from a touch screen wing, or from your own panel of buttons and faders on a small touch screen.

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CHAPTER 1

01 Getting started

Install LUMEN, open the demo show and find your way around the window.

What you need

- A PC with **Windows 10 or 11, 64-bit**.
- To drive real lights: an **Art-Net** or **sACN** node on your network, or a **USB DMX interface** (ENTTEC DMX USB Pro or compatible, or an Open DMX USB cable).
- For the phone remote: a phone or tablet on the same Wi-Fi as the PC.

No lights connected? You can still build a whole show: the Stage view shows what the rig would do.

Install

LUMEN comes in two versions. Both do the same things; pick the one that suits the computer.

INSTALLER

Lumen-DMX-Setup-0.17.4.exe

Installs for the current user, with no admin rights needed. Adds Start-menu and desktop shortcuts, and opens `.lumen` show files with a double-click.

PORTABLE

Lumen-DMX-0.17.4-portable.exe

A single file that runs without installing. Handy on a show laptop, or carried on a USB stick from venue to venue.

NOTE **"Windows protected your PC".** LUMEN isn't code-signed yet, so Windows SmartScreen warns you the first time it starts. Click **More info**, then **Run anyway**.

First launch

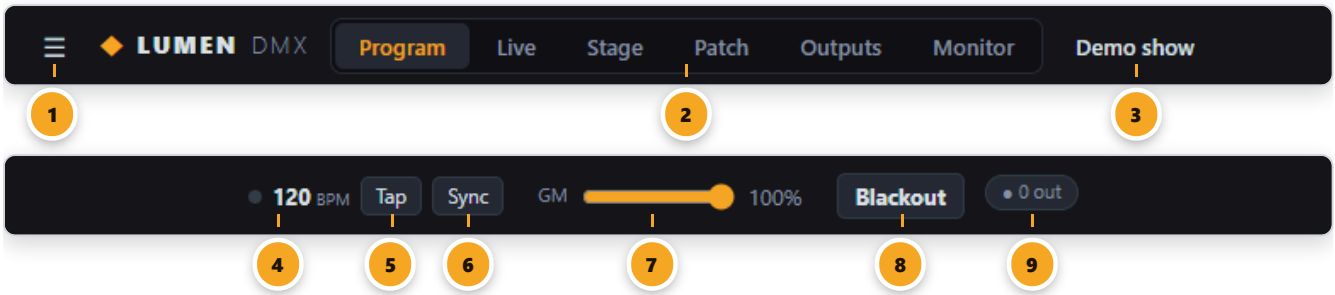
After the splash screen, LUMEN opens with a **demo show**: ten fixtures (four LED pars, two spots, two washes, an LED bar and a fog machine) and eight scenes ready to play. Explore it freely. **Load demo**, at the bottom right of the window, brings it back at any time.

LUMEN **saves your show automatically** as you work and restores it the next time it starts. To keep a show, back it up or take it to another PC, save it as a `.lumen` file with Ctrl + S.

TIP Press F11 for full screen on a show laptop. The ☰ menu stays at the left of the header.

The main window

The header runs across the top of every view. It's also the window's title bar: drag an empty part of it to move the window.



1. **Menu ☰**: new, open and save shows, import fixture files, find profiles, load the demo, undo and redo, full screen, this user manual, About and Exit.
2. **Views**: Program, Live, Stage, Patch, Outputs and Monitor (F1 to F6).
3. **Show name**: click it to rename the show.
4. **Tempo**: the beat light (brighter on beat 1) and the show's BPM.
5. **Tap**: tap in time with the music to set the BPM.
6. **Sync**: press it on the downbeat to put effects and chases back on the beat.
7. **GM**: the grand master, which scales every intensity.
8. **Blackout**: every intensity to zero until you press it again.
9. **Output status**: how many outputs are sending. Click it to open Outputs.

The six views

VIEW	KEY	WHAT IT'S FOR
Program	F1	Select fixtures and build scenes, effects and palettes.
Live	F2	Play scenes from a button board, with masters, tap tempo and MIDI.
Stage	F3	Place fixtures on a 2D plan and watch the output as it plays.
Patch	F4	Add fixtures, set their DMX addresses and manage the fixture library.
Outputs	F5	Send universes over Art-Net, sACN or USB DMX. Switch on the phone remote.
Monitor	F6	See the value of every channel of each universe.

The **status bar** at the bottom tells you whether the show is saved, how many fixtures, scenes and universes it has, and how many scenes are live.

Quick start: your first show

Six steps from an empty show to lights playing in time with the music.

1 Patch your fixtures
In **Patch** (F4), click **+ Add fixtures**, pick a profile, set the quantity, universe and start address, then click **Add**.

2 Connect the output
In **Outputs** (F5), add an Art-Net, sACN or USB DMX output to the universe and set it up. The output pill in the header shows when it's sending.

3 Make a look
In **Program** (F1), select fixtures, pick a colour, aim the moving heads. Everything goes straight into the selected step of the selected scene.

4 Add movement
On the **Effects** tab, add a dimmer chase, a rainbow or a circle. Tick **BPM sync** to keep it on the beat.

5 Play it live
In **Live** (F2), click the scene's button. Tap the tempo, ride the masters, and press **Sync** on the downbeat.

6 Save the show
Press Ctrl + S to save a `.lumen` file. Autosave also keeps your work safe between sessions.

Words used in this manual

Fixture
One light in your rig, patched at a DMX address.

Profile
The channel layout of a fixture model and mode, also called a personality.

Universe
A line of 512 DMX channels. Each fixture uses the channels starting at its address.

Scene
A look or a sequence: a list of steps, plus effects. Each scene gets a button in Live.

Step
The channel values of one moment, with a fade time and a hold time.

Effect
Movement that runs while its scene plays: chases, rainbows, circles and sweeps.

Palette
A stored colour, position or beam setting you apply with one click.

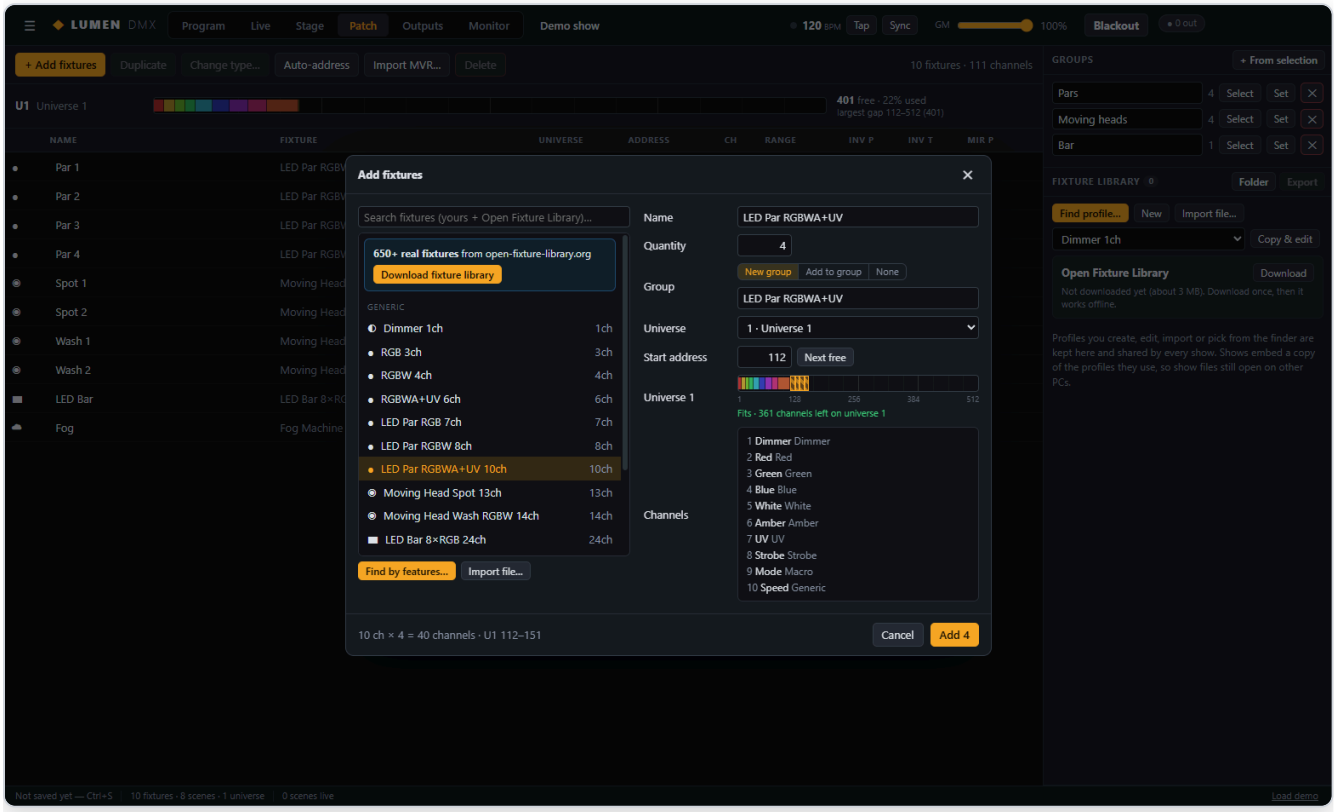
Group and zone
A group is a named set of fixtures. Scenes in the same zone replace each other.

CHAPTER 2

02 Patch

Tell LUMEN which lights you have and where they sit on the DMX line.

Add fixtures



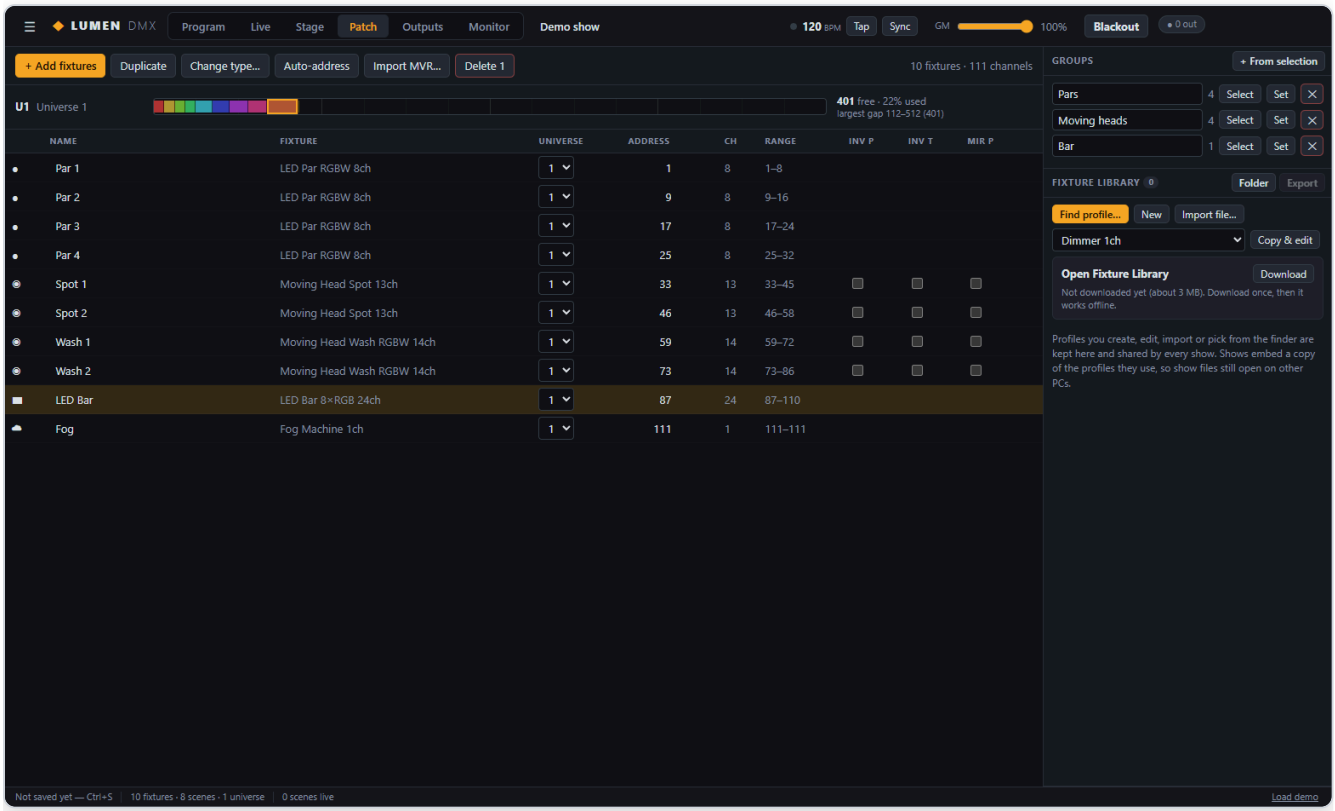
Add fixtures: four LED pars at address 112, with a preview of where they land on universe 1.

In **Patch** (F4), click **+ Add fixtures**:

1. **Pick a profile** from the list, or type to search your library and the Open Fixture Library. **Find by features…** opens the profile finder, and **Import file…** adds a QLC+, GDTF or Open Fixture Library file.
2. Set the **Name**, the **Quantity** (up to 128), the **Universe** and the **Start address**. **Next free** fills in the first free address.
3. **Group**: **New group** (named after the fixtures, the choice when you add several), **Add to group** or **None**. The group keeps the fixtures in patch order, left to right on the stage.
4. **Check the bar**: it shows where the new fixtures will land and whether they fit, for example “Fits · 361 channels left on universe 1”. The profile's channels are listed underneath.
5. Click **Add**. Fixtures follow one after the other: four 10-channel pars from 112 take channels 112 to 151.

> **TIP** Click a free gap in a universe's channel map, at the top of Patch, to add fixtures right there.

The patch



Patch: the channel map of universe 1, the patch table, and the Groups and Fixture library panels.

Channel map

Each universe has a bar at the top of Patch. Every fixture's channels show in its own colour, with the free gaps between them and any **overlaps in red**. On the right: the free channels and the largest gap. Click a fixture's block to select it, or a gap to add fixtures there.

Patch table

One row per fixture: name, profile, universe, address, channels and range. Rename fixtures and change their universe or address in the table. Overlaps and addresses past 512 are flagged. For moving heads, **Inv P** and **Inv T** invert pan or tilt, for fixtures hung the other way round, and **Mir P** mirrors their pan when you program (page 23).

Tools

- **Duplicate** copies the selected fixtures.
- **Change type…** (also on right-click) gives the selected fixtures another profile or mode, keeping their name, address, stage place and groups. Programming moves to the matching channels (dimmer to dimmer, red to red); what the new type lacks is dropped.
- **Auto-address** packs the selected fixtures, or all of them, one after the other.
- **Move…** on a universe's bar sends all its fixtures to another (or a new) universe at the same addresses, or swaps two. Programming, groups and stage places stay.
- **Delete** removes the selected fixtures from the show.

Groups

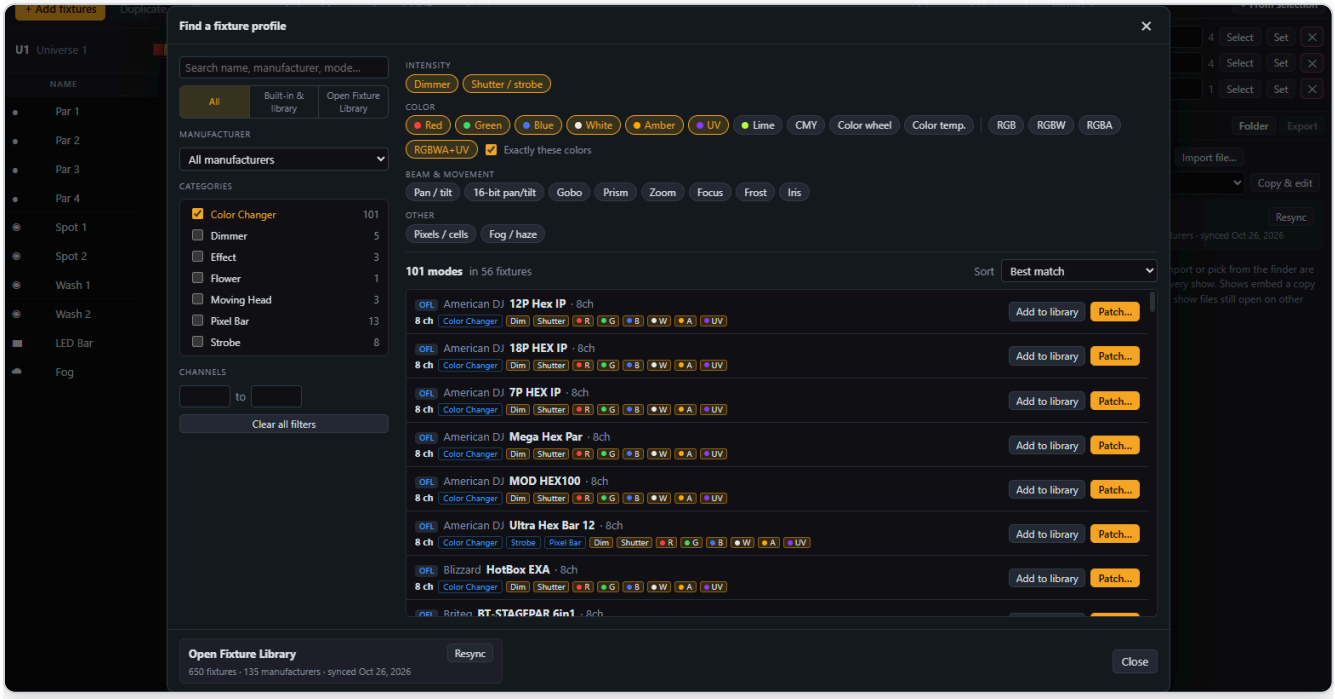
The **Groups** panel lists your named groups. **+ From selection** creates one from the selected fixtures, **Select** selects a group, **Set** replaces its fixtures with the selection, and ✕ deletes it. You can also make groups in Program (page 26).

Fixture library

Every profile you create, edit, import or pick goes into **one fixture library** on your computer, shared by all your shows. A show also carries a copy of each profile it uses, so it opens exactly as it is on another PC.

- **Folder** shows the library file on disk. **Export** saves the whole library to one file, as a backup or to move it to another PC.
- When the library has a newer version of a profile than the open show, the profile says **show differs**. **Update show** replaces the show's copy. Patched fixtures never change behind your back.

Profile finder



Find profile: Color Changer with dimmer, shutter and RGBWA+UV, closest match first.

Find profile... searches the built-in profiles, your library, the Open Fixture Library and GDTF Share, with the same filters as the Open Fixture Library website: free text, **manufacturer** and **device**, **categories** (Color Changer, Moving Head, Pixel Bar...), a channel-count range, and **features** such as dimmer, shutter and strobe, each colour emitter (with RGB, RGBW, RGBA and RGBWA+UV presets and an "exactly these colours" option), colour wheel, pan and tilt, 16-bit, gobo, prism, zoom and pixels. Results come closest match first: **Add to library**, or **Patch...** straight away.

Open Fixture Library sync

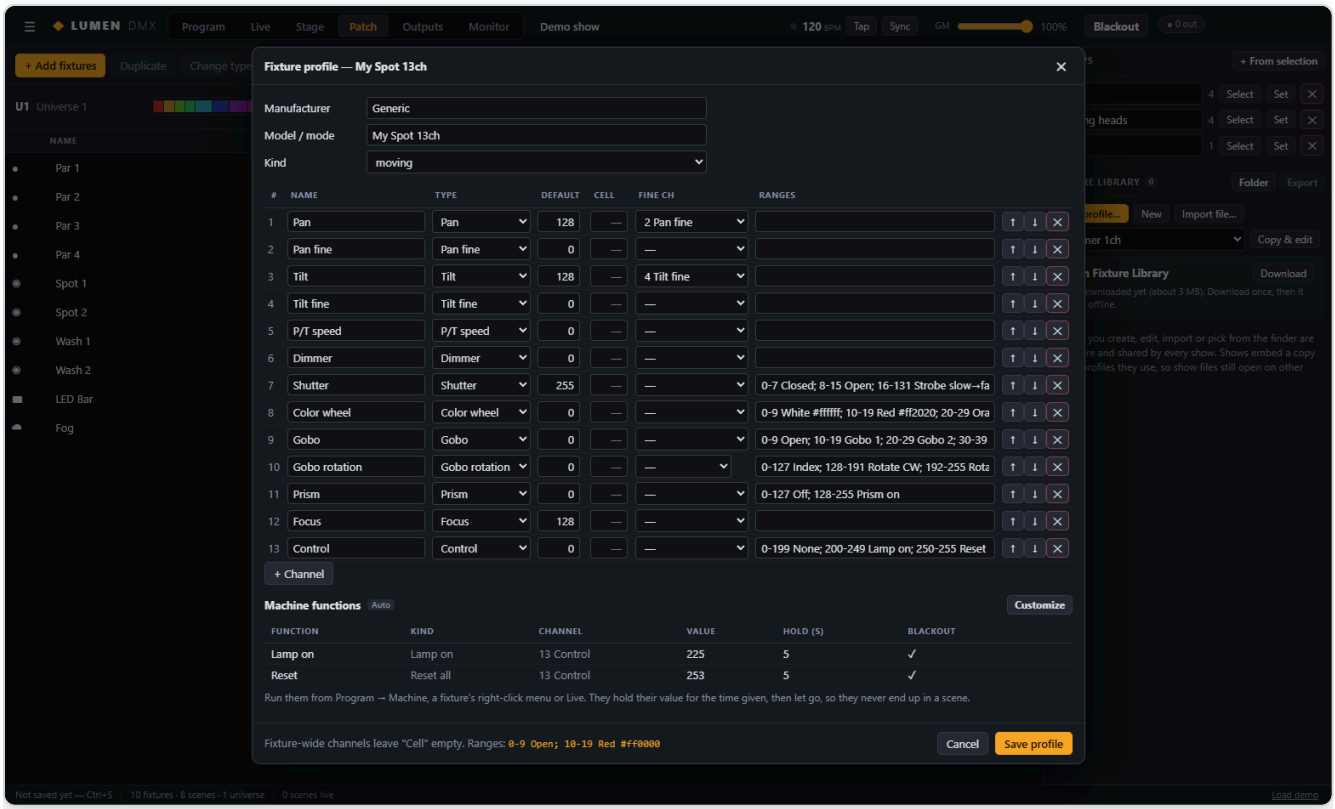
Download the first time, then **Resync**, fetches the latest fixtures from the Open Fixture Library: about 3 MB, some 650 fixtures from about 135 manufacturers. LUMEN keeps a copy on the computer, so the finder works offline. Resync only downloads when something has changed, and updates the library profiles that came from it, except the ones you've edited yourself (marked **OFL***).

GDTF Share

Sign in... with your free GDTF Share account (gdtf-share.com) and the finder lists its fixtures too, many from their manufacturers, with features guessed from their names (≈) until one is added. **Add to library** or **Patch...** downloads its latest revision and imports that mode. LUMEN keeps the list for offline searches; **Refresh** updates it. With **Remember**, Windows keeps the password encrypted.

Create and edit profiles

Can't find your fixture? Build its profile from the channel table in its user manual. **New** starts a blank profile, **Copy & edit** starts from the profile chosen in the list, and **Edit** on a library profile changes it.



Fixture profile editor: a 13-channel spot with 16-bit pan and tilt and named ranges.

FIELD	WHAT IT DOES
Manufacturer, Model / mode	How the profile is named in lists, for example “Generic · Spot 13ch”.
Kind	Par, moving, bar, dimmer, strobe, fog or generic. Sets the icon and how the stage draws the fixture.
Name and Type	Each channel's label and its job: Dimmer, Red, Pan, Gobo, Shutter… The type drives the colour picker, the position pad, the presets and the effects.
Default	The value sent when nothing else controls the channel: 128 centres pan and tilt, 255 opens a shutter.
Cell	The pixel number on multi-cell fixtures such as LED bars. Leave it empty for channels that control the whole fixture.
Fine ch	Pairs a channel with its fine channel for smooth 16-bit control.
Ranges	Named values, written `0-9 Open; 10-19 Red #ff0000`. They become buttons on the Beam & presets tab, with a swatch when a colour is given.

+ Channel adds a channel, the arrows reorder, ✕ removes one. Under the table, **Machine functions** lists the lamp and reset functions found in the ranges (page 24). **Save profile** stores it in the library, ready to patch.

QLC+ and GDTF files

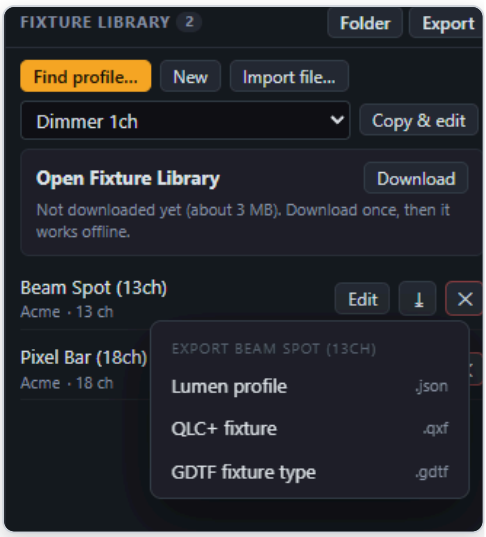
Share fixture profiles with other lighting software, or use the profile a manufacturer publishes.

Import

Import file... is in Patch → Fixture library, in the Add fixtures dialog, and in the ☰ menu. It reads:

FORMAT	FILE
QLC+ fixture definition	`.qxf`
GDTF fixture type	`.gdtf` (GDTF 1.0 and 1.1+)
Open Fixture Library	`.json`
Lumen profile or library	`.json`

Every mode in the file becomes its own profile. LUMEN brings across 16-bit channels, named ranges, colour and gobo wheel slots with their colours, pixel heads on LED bars, default values, and the pan and tilt range in degrees.



The ⤓ button on a library profile opens the export menu.

Export

Click ⤓ on a profile in the fixture library and choose a format:

.JSON
Lumen profile
For another LUMEN, or a backup of one profile.

.QXF
QLC+ fixture
A fixture definition for QLC+ 4.

.GDTF
GDTF fixture type
GDTF 1.1, for consoles and visualisers that read GDTF.

GOOD TO KNOW Exported GDTF files have no 3D model or thumbnail: try one in your console or visualiser before the show.

A QLC+ channel whose function changes with another channel imports its first setup only. GDTF channels on a second DMX break are skipped.

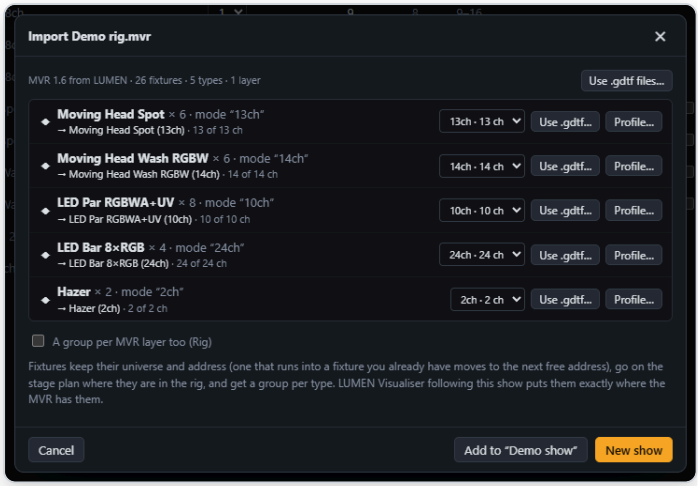
Built-in profiles

Dimmer 1ch · RGB 3ch · RGBW 4ch · RGBWA+UV 6ch · LED Par RGB 7ch · LED Par RGBW 8ch · LED Par RGBWA+UV 10ch · Moving Head Spot 13ch · Moving Head Wash RGBW 14ch · LED Bar 8×RGB 24ch · LED Bar 4×RGBW + Dimmer 18ch · Strobe 2ch · Fog Machine 1ch · Hazer 2ch · Generic channel

Import an MVR rig

An MVR file (My Virtual Rig) holds a whole rig, as Vectorworks, grandMA3, Capture and Depence export it: every fixture with its type, DMX mode, address and place, and the fixtures' GDTF files.

Import MVR..., in Patch and in the ☰ menu, brings it straight into LUMEN. The dialog lists the rig's fixture types, each with what it comes in as and its channels against the **room between its addresses**: "13 of 13 ch".



A demo rig: five fixture types, each with its GDTF file and DMX mode, ready to come in as a new show or into this one.

Fixture types

- ◆ **A GDTF file in the MVR**: its channels, in the mode the MVR names. Pick another mode in the list.
- ⚠ **A placeholder file** (Depence and Capture write one with a single dimmer channel and no model) or ◇ **none**: the LUMEN generic type that fits the room. Blinders patched every 4 channels get the 4-channel RGBW, not the 8-channel par, which would run into the next blinder.
- **Use .gdtf...** takes the manufacturer's file for a type (e.g. from the GDTF Share), **Use .gdtf files...** several at once, each going to its type. **Profile...** picks one of your profiles, a built-in or an Open Fixture Library one. ↺ goes back to what the MVR gives.
- A mode bigger than the room shows **in red**: each fixture would run into the next one's channels. Check the mode.

New show, or add to this one

New show starts a show named after the file. **Add to "..."** adds the rig to the open show, in one undo step: a fixture that runs into one you already have moves to the next free address. Universes are added as needed, and fixtures the MVR leaves unpatched go after the rest. A message says what came in.

What comes in

- Every fixture with its universe and address, named after its type and fixture ID (Moving Head Spot 1).
- Its place on the **Stage** plan, seen from above with upstage at the top, scaled to fit with the rig's proportions kept, and turned the way it is in the rig. Hung or on the floor makes no difference in 2D.
- A **group per type** (upstage row first, then left to right) and, if you tick it, one per MVR layer.
- The profiles from GDTF files go into the show. Add them to your library from Patch → Fixture library → **Only in this show**.

VISUALISER Each fixture keeps its MVR position. LUMEN Visualiser following the show puts it exactly where the MVR has it, under truss over the hung rows. Moving it on LUMEN's stage plan doesn't move it in 3D: the plan is only a picture of the rig.

Patch sheet and stage plot

For the crew, the rental company or the venue: **Patch sheet…** in Patch, or **Stage plot…** in Stage. Both open **Print & share**, one tab apart, showing the document as it will print.

The header

- **Project** and **Event date**: saved with the show. With no project, the title is the show's name, else its file's.
- **Prepared by**: remembered on this PC, so your name is there next time. **Prepared on**: today, unless you change it.

Patch sheet

A4. Each universe with its output (Art-Net net:sub-net:universe and address, sACN, USB) and channels used. Then every fixture by universe and address (or in the fixture list's order): its type, **mode**, channels and **groups**, with a ⚠ where two overlap or one runs past channel 512. Then each group, with its addresses.

- **Save CSV…**: one row per fixture, for Excel, Numbers or Google Sheets.
- **Copy text**: to paste into an email or a chat.

Stage plot

The stage from above on one landscape page, **A4 to A0**. Each fixture is a symbol in its universe's colour, with its name and **universe.address**. Where they're packed tight, labels turn upright, then show the fixture's number and address. Also: the groups outlined, the plan picture and labels, a metre grid with rulers, and a legend of fixture types (mode, channels) and universes.

- **Scale**: Standard (the largest of 1:50, 1:100, 1:200… that fits) or Fill the page. A scale bar shows it.
- **Labels**: name and address, address, or name. **Groups**, **Grid**, **Plan**: on or off.

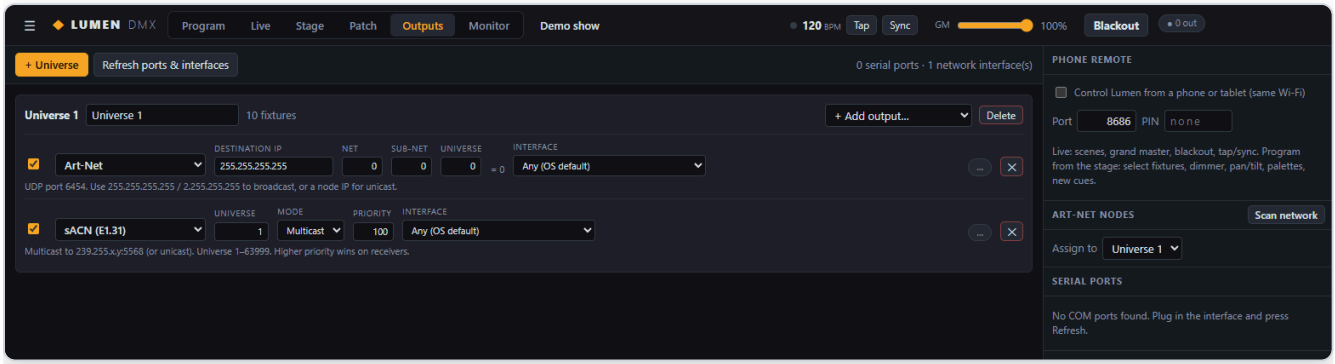
Print… opens the system's print dialog; **Save PDF…** makes a PDF to send, share or print elsewhere, and **Show in folder** finds it. Every page's footer gives the document, page *n* / *m*, and *LUMEN DMX*, its version, *Built by AMOLVIN STEWART · www.amolvin.com*.

> **TIP** For A2 to A0, save a PDF and take it to a print shop or a plotter: it keeps its paper size and scale.

CHAPTER 3

03 Outputs

Send your universes to the lights: over the network with Art-Net or sACN, or through a USB DMX interface.



Outputs: universe 1 sent over Art-Net and sACN at the same time. Phone remote, Art-Net nodes and serial ports on the right.

Each universe can have **any number of outputs**, so the same universe can go to an Art-Net node and an sACN receiver at once. **+ Universe** adds a universe, and **Delete** removes one that has no fixtures. Choose an output type in **+ Add output...**, tick its box to switch it on or off, and click ✕ to remove it.

OUTPUT	SETTINGS
Art-Net	**Destination IP**: 255.255.255.255 or 2.255.255.255 to broadcast, or the IP of one node. **Net**, **Sub-net** and **Universe** make the 15-bit port address. **Interface** picks the network card. UDP port 6454.
sACN (E1.31)	**Universe** 1 to 63999. **Multicast** (239.255.x.y) or **Unicast** to a receiver IP. **Priority**: the higher one wins when two sources send the same universe. **Interface**.
ENTTEC DMX USB Pro	**COM port**. Also works with DMXking ultraDMX Pro and other interfaces that use the Pro protocol.
ENTTEC Open DMX USB	**COM port**. FTDI's driver makes the cable show up as a COM port. The PC generates the DMX timing.

Find Art-Net nodes

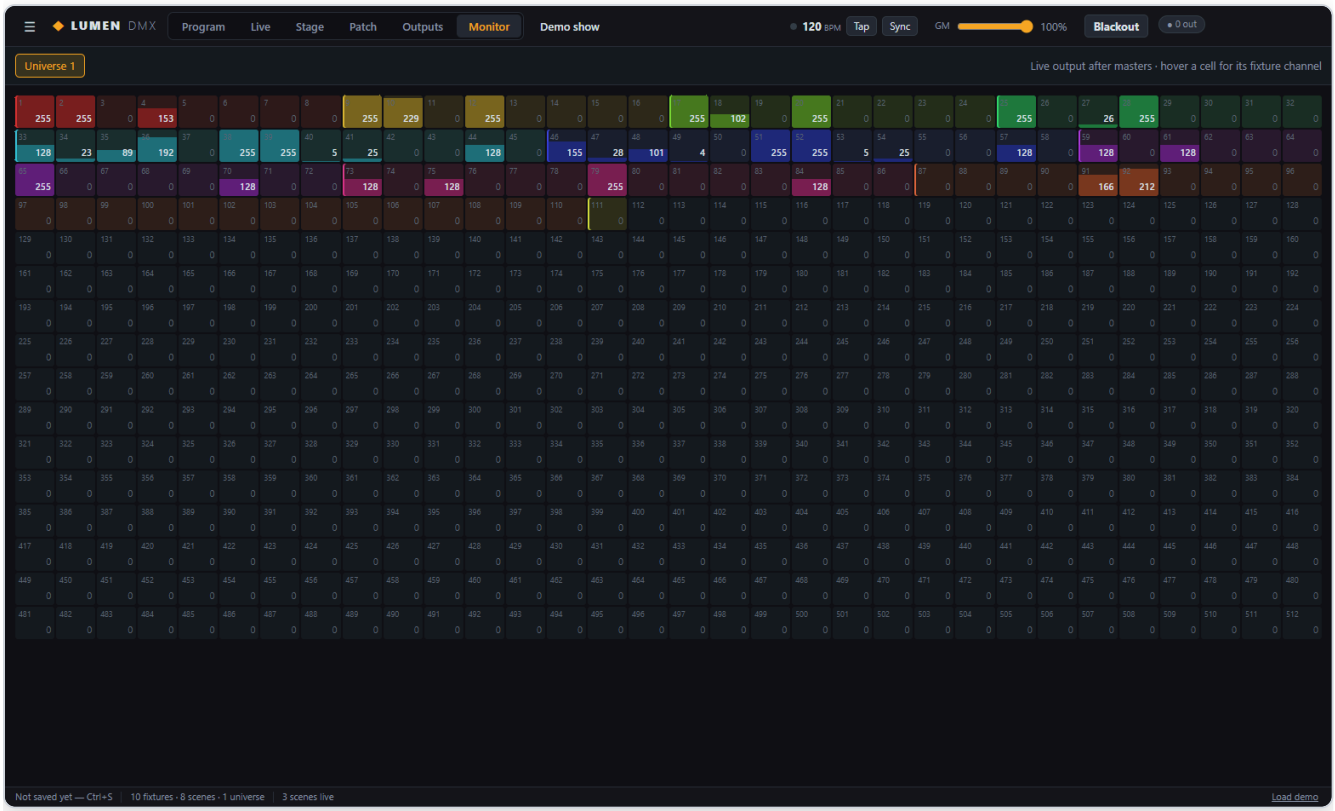
Scan network asks the Art-Net nodes on your network to reply. Choose a universe in **Assign to**, then click a node in the list to send that universe to it in one click.

USB interfaces

ENTTEC interfaces need **FTDI's USB driver**. Windows often installs it by itself when the interface is plugged in. When the PC doesn't have it, the LUMEN installer says so and opens FTDI's driver page: download the driver for Windows from there and run its setup.

Plug in the interface and click **Refresh ports & interfaces**. The **Serial ports** list shows every COM port and flags FTDI devices, which is what Open DMX cables use.

Check the output: Monitor



Monitor: the 512 channels of universe 1 while three scenes play. Each fixture's channels share a colour.

Monitor (F6) shows every channel of a universe as it leaves LUMEN, after the masters and blackout. Each fixture's channels share a colour, and you can hover over a cell to see which fixture and channel it is. Choose the universe with the buttons at the top.

Is it sending?

- The **output pill** at the right of the header counts the outputs that are sending. Click it to open Outputs.
- If the Monitor shows values but the lights stay dark, check the fixture's address and DMX mode on the fixture itself, the cable or network, and the output's settings.
- If the Monitor shows zeros, check the **Grand** master, **Blackout** and whether a scene is playing (or **Preview** is on in Program).

> **TIP** On a network, give the PC an address in the same range as the nodes (Art-Net often uses 2.x.x.x or 10.x.x.x) and choose that network card under **Interface**.

Troubleshooting continues on page 51.

CHAPTER 4

04 Program

Select fixtures, set them up and record the result into scenes. Everything you do in Program is written straight into the selected step.



1. **Fixtures**: every patched fixture. A dot means it has values in this step.
2. **Groups**: click a chip to select a group. **+ Group** saves the selection.
3. **Tabs**: Channels, Color, Position, Beam & presets, Palettes, Effects and Machine.
4. **Editing**: the scene and step you're editing, with Fan, Full, Zero and Release; below, Highlight, ‹ ›, All, Locate and Preview.
5. **Palettes** for this tab: click one to apply it.
6. **Editor**: here the colour picker. Each tab has its own.
7. **Mini stage**: the 2D stage, live. Select fixtures on it too.
8. **Scenes**: every scene in the show. Click one to edit it.
9. **Scene settings**: playback, timing, fades, trigger, zone and shortcut key.
10. **Steps**: the steps of the scene with their fade and hold times.

Select fixtures

- **Click** a fixture to select it. `Ctrl`-click adds or removes one, and `Shift`-click selects a range.
- **All** (`Ctrl` + `A`) selects every fixture, **Type** selects every fixture of the same type as the first one selected, and **None** (`Esc`) clears the selection.
- Click a **group** chip, or draw a box around fixtures on the stage.

How editing works

Whatever you set goes into the **selected step of the selected scene**. If there's no scene yet, moving a fader creates one. Only the channels you touch are stored, so a step can hold just a colour, or just a position, and leave the rest to other scenes.

BUTTON	WHAT IT DOES
Full / Zero	Selected fixtures' dimmers to full or zero (their colour channels, on fixtures with no dimmer).
Release	Removes the selected fixtures from the step.
Highlight, ‹ ›, All, Locate	Find the selected fixtures on the rig, one at a time if you like (page 25).
• **Preview**	Outputs the step you're editing on top of live playback, so you see it on the rig as you build it. Switch it off to see only what's playing.

The editor tabs

Channels

One fader per channel, grouped by fixture type. Click a channel's name to release just that channel from the step.

Color

Colour wheel with brightness and saturation, swatches and the system colour picker, plus **Extra emitters** for white, amber and UV. Works with RGB, RGBW, CMY and colour wheels (nearest slot). Options: *Use white LED for pastels* and *Open dimmer when picking colour*.

Position

XY pad for pan and tilt, in 16-bit. **Pan fan** and **Tilt fan** spread the beams, **Mirror pan** makes them symmetrical, **Fine** gives 10× precision, plus **P/T speed**, **Center** and **Release P/T**.

Beam & presets

A button for every named range: gobos, colour wheel slots, shutter and strobe, prism, macros. Under it, a **Fine** fader sets the exact value: within the chosen range (a colour slot, a gobo rotation speed, a strobe from slow to fast), or across the whole channel for focus, zoom, iris and frost, in 16-bit where the fixture has it.

The **Effects** and **Palettes** tabs are described on pages 18 and 26.

> **TIP** A step only stores what you touched. Build a colour scene and a separate movement scene, then mix them live.

Scenes

The **Scenes** panel lists every scene in the show. Its buttons: + new scene, ⧉ duplicate, ↑ ↓ move, ✕ delete. Drag a scene up or down the list to move it; double-click it to rename it. Badges show its effects (**fx**), an Override cue (**OVR**), its zone (**Z1** to **Z8**) and its number of steps (**st**). Scenes that are playing are highlighted. Their order is the Live page's and the wing's, where ✎ **Arrange** moves them too (page 27).

Scene settings

SETTING	CHOICES
Name, colour, icon	Shown on the scene's button in Live, on the wing and in the lists. **Colour, icon** opens a picker: ten colours or any colour, and 104 icons in groups such as musicians and performers (drums, keyboards, choir, brass, DJ, dancers…), light and stage, beam positions (X, V, W, fan…), shapes and movement (circle, square, figure 8…) and selections (odds, evens, halves…).
Playback	**Loop**, **Once (hold last)**, **Bounce** or **Random** order of the steps.
Timing	**Seconds**, or **Beats (BPM sync)** to time the steps in beats of the show's tempo.
Fade in / out	Seconds to fade the scene in when it starts and out when it stops.
Live trigger	**Toggle** (click on, click off) or **Flash (while held)**.
Type	**Normal**, or **Override**: what it sets wins over every other cue, and over palettes and effects put on live, until it is released (page 28).
Zone	Opens the zones as big tiles: **No zone** and **Zone 1** to **8**, each with its name and the cues already in it. Tap one. ✎ **Names** names them (Movers, DJ…). Starting a scene stops the others in its zone.
Shortcut key	A key that plays the scene from the keyboard. `Backspace` clears it.

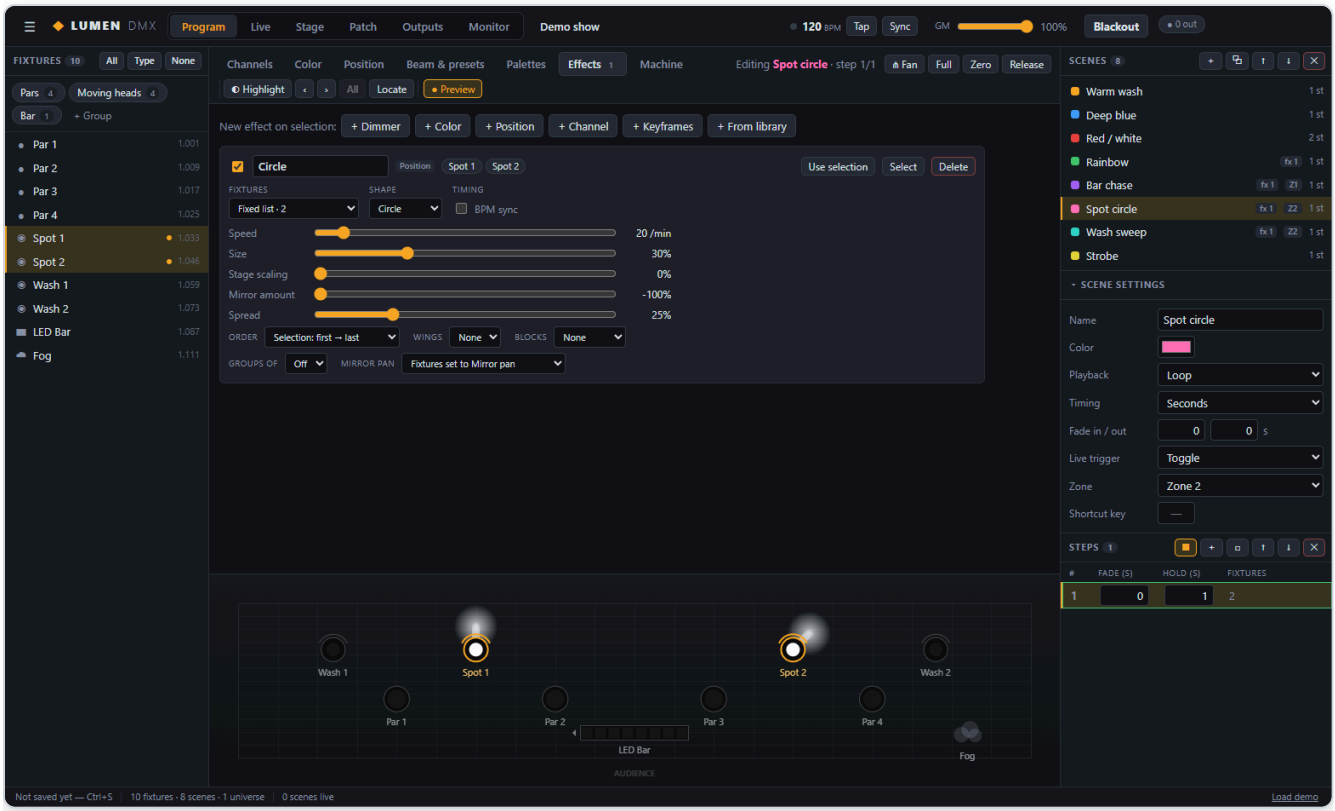
Steps

A scene with one step is a still look. Add steps to make a chase or a sequence: each step fades in over its **Fade** time, then holds for its **Hold** time before the next one starts.

BUTTON	WHAT IT DOES
▶	Plays the scene in the editor preview.
+	Adds a step: a copy of the selected one.
□	Adds an empty step.
↑ ↓ / ✕	Moves the selected step / deletes it. Or drag a step up or down the list.
Fade, Hold titles	Click the **Fade** or **Hold** column title to give every step the selected step's time.

> **TIP** To build a chase fast: set step 1, press +, change what moves, press + again, and so on. Then set the times once and click the column titles to copy them to every step.

Effects



Effects: a circle on the two spots of the "Spot circle" scene.

Effects run for as long as their scene plays. Select fixtures, open the **Effects** tab and add one with **+ Dimmer**, **+ Color**, **+ Position**, **+ Channel** or **+ Keyframes**.

EFFECT	WHAT IT DOES	ITS OWN SETTINGS
Dimmer	Intensity chases and waves.	Waveform, Min and Max, Width (pulse and square waves).
Color	A rainbow, or a move between two colours.	Mode: Rainbow (Saturation) or Two colours (the two colours and a waveform). Use white LED.
Position	Moves moving heads.	Shape: Circle, Figure 8, Pan sweep, Tilt sweep or Square. Size.
Channel	A wave on any channel: zoom, focus…	Channel, Waveform, Min and Max.
Keyframes	Your own looks in a cycle: colours, positions, beams, levels.	Lanes of keys on a timeline (page 19).

Settings every effect has

- **Fixtures**: a fixed list, or a **group**, which the effect follows when you change it. **Use selection** takes the selection; **Select** selects them.
- **Timing**: **BPM sync** with ¼ to 32 beats per cycle, or a free **Speed** in cycles per minute.
- **Spread**: how far apart the fixtures are in the cycle (at 0%, all together).
- **Order** (the selection, the stage or random), **Wings**, **Blocks**, **Groups of**: page 23. LED bar cells follow along.
- **Waveforms**: Sine, Triangle, Square, Saw up, Saw down, Pulse, Random. **Backwards**: the cycle the other way.
- The checkbox switches the effect off without deleting it; ☆ **Palette** saves it as an effect palette (page 26). Drag its ⠿ grip to move it: effects run top to bottom, so on a shared channel the lower one wins.

Keyframe effects

Build an effect from your own looks: a colour that walks through three palettes, beams that sweep between positions, a fade up and a snap out. Like key frame shapes on a lighting desk.

Select the fixtures, open the **Effects** tab and click **+ Keyframes**, then **Edit timeline**. A keyframe effect is one cycle with **lanes**, and each lane holds **keys**: a value at a moment in the cycle. Between two keys the value moves along the first key's **curve**.

LANE	ITS KEYS SET
Intensity	A level, or the dimmer values in the programmer. *Intensity (scale)* scales the scene's own level instead.
Colour	A colour, a colour palette or the programmer's colours. The dimmer opens when the scene leaves it closed.
Position offset	A pan / tilt offset around where the scene aims them: circles, sweeps, waves.
Position · Beam	A position or beam palette, or the programmer's values: go from one place, or gobo, to the next.
Channel	A level on one channel type: zoom, focus, frost…

Palette keys follow the palette: change the palette and the effect changes with it, on every fixture type it knows. Gobos, colour wheels and other stepped channels switch half-way between two keys.

Timing and spread

- **Length**: beats with **BPM** (the tempo sets the speed), or seconds. **Beat-locked** keeps the cycle on the beat clock: **Sync** puts it back on beat 1.
- **Play**: *Loop*, *Bounce* (each fixture forwards, then backwards), *Ping-pong* (the whole pattern runs to the last fixture and back), *Once* (then it holds the last key) or *Random order* (the keys' values in a new order every cycle).
- **Spread**, **Order**, **Wings**, **Blocks** and **Groups of** work as on every effect (page 23): at 0% spread all the fixtures move together. LED bars take their turn cell by cell.
- **Amount, first / last** fans how much of the effect each fixture gets, for example nothing on the first and all of it on the last.
- **Mirror pan**: fixtures set to Mirror pan, and every second wing, turn their pan offsets the other way. **Stage scaling** and **Mirror amount** fan them from the centre (page 23).

The timeline editor

The timeline opens under the programmer tabs, in place of the small stage, so you can set a look in any tab and record it without leaving.



The timeline: the *Stadium* super effect on the four moving heads, with its Position offset and Intensity lanes, on a grid of 8 beats.

Record keys

1. Drag the ruler to the moment you want, or start at the beginning.
2. Set the look on the effect's fixtures in the Colour, Position, Beam or Channels tabs.
3. Click **+ Key**. Every family you set (intensity, colour, position, beam) becomes a key there, in its own lane; a key already at that moment is updated. The values leave the step, so the effect shows through (released faders show what the effect gives).
4. Move on and repeat. With no moment chosen, the next key lands one grid step after the last.

Stopped, the effect stays out of the preview: you see the programmer, or the moment under the playhead, with what the programmer holds on top (set a dimmer to 0 and it goes dark there). ▶ **Play** plays the scene with the effect. **Spread** in the toolbar sets how far behind each fixture runs.

Edit keys

DO	HOW
Select	Click a key; `Shift`-click to add; drag across empty space to select several.
Move	Drag the keys: they snap to the grid (**Snap**: a beat, ½, ¼, or 0.5 s, 0.1 s). Hold `Alt` to place them freely.
Add	Double-click a lane, or **+ Lane** for a new lane.
Keyboard	`Delete` removes the selected keys, `Ctrl` + `D` duplicates them one grid step later, `←` `→` nudge them (click the timeline first).
Inspector	The selected key's time, its curve to the next key (linear, ease in, ease out, ease in-out, smooth, step) and where its value comes from: a level, a colour, a palette, the programmer or a pan / tilt offset. **Update from programmer** takes the step's values again; **Load into programmer** puts the key's values in the step to change them in the tabs.

Lanes can be switched off with their checkbox, or deleted with ×. Every change can be undone with `Ctrl` + `Z`; a drag is one step. **Close** brings the stage back.

Keyframe effect library

Keep the keyframe effects you build and use them again, in any show, on any fixtures. LUMEN also comes with 22 ready-made super effects.



Keyframe effect library: each picture shows one cycle: the colours, the intensity, and the pan (blue) and tilt (green) with the path they draw.

Use a shape

1. Select the fixtures, or a group.
2. Click **+ From library** in the **Effects** tab or in the timeline. Choose a category, or search by name, category or lane.
3. Click **Apply**, or double-click the shape: it becomes an ordinary keyframe effect in the scene you are editing, on the selection (linked to its group when it is one), in one undo step. From the timeline it opens there, playing. **Add its lanes to "..."** puts its lanes into the effect open in the timeline instead.

Save your own

Click **Save to library** on a keyframe effect's card or in the timeline, name it and pick a category. A shape keeps the lanes, keys and curves, the timing (BPM, beats or seconds, sync, play mode), spread, order, wings, blocks, groups, the amounts, mirror pan, Stage scaling and Mirror amount, but not the fixtures: keys recorded from the programmer become values that fit any fixture.

RECORDED	SAVED AS
Intensity	A level (their average if the fixtures had different levels).
Colour	The colour, with the colour wheel slot's name (Red, Deep Blue...): another wheel takes its slot of that name, or the nearest colour. RGB, CMY and LED cells mix it.
Position	A move around wherever the fixtures point. Pans that fanned out from the centre, or mirrored left and right, become Mirror pan with Stage scaling. Keys that were all position palettes stay palettes, by name.
Beam	Values by channel type: zoom, focus, frost as DMX values; gobos, prisms and shutters by their slot's name (Gobo 3, Open).

The save form shows what the shape will do, and lists what couldn't be kept exactly (⚠), such as fixtures that had different colours on one key. An effect saved from a shape can **Update** it later.

Super effects

Built in, ready for any rig: intensity and colour play on spots, washes, LED pars and bars (cell by cell), moves are offsets around wherever the fixtures point, and the timing follows the BPM.

INTENSITY	
Chase	A pulse runs through the fixtures, once a bar.
Breathe	A slow swell, rippling out from the centre.
Bump on the beat	Full on every beat, falling back.
Ping-pong	A light runs across the stage and back.
Sparkle	Random short flashes over a low glow.
Build-up	16 beats of faster, brighter pulses, then full.
Strobe burst	Fast flashes on beat 1, dark for the rest of the bar.

COLOUR	
Rainbow roll	The rainbow rolls across the stage.
Two-colour swap	Amber and blue, neighbours opposite.
Police	Red and blue double flashes, mirrored wings.
Fire	Red, orange and amber flickering at random.
Ocean	Blues and cyans rolling slowly across.

POSITION	
Circle	Circles, the left side turning the other way.
Figure 8	A figure of eight, the second wing mirrored.
Wave	A tilt wave running across the stage.
Fan open / close	Beams fan out from the centre and close (Stage scaling).
Crossing	The two sides sweep and cross in the middle.
Ballyhoo	Wide moves to random places.
Sweep	All sweep left and right, each a little late.

COMBINATIONS	
Stadium	Beams lift and open over the crowd, brightest at the top.
Searchlight	Slow, wide sweeps at full, each on its own course.
Disco	Colours changing on the beat, on small circles.

Built-in shapes can't be changed: **Duplicate** makes an editable copy in your library. A fixture without a lane's channels sits that lane out (blinders don't move).

Manage the library

- **Rename** a shape, change its category or notes in the panel on the right. **Duplicate** it, **Delete** it (click twice), or **Update from "…"**: replace it with the effect open in the timeline. Effects made from a shape don't change.
- **Every show** sees your library: it's kept with the app (page 50), not in a show.
- **In a show**: applying a shape keeps a copy in the show (**Keep in show** does it by hand), so the show takes it to another computer. There, **In this show** lists it and **Add to my library** keeps it.
- **Share**: **Export…** saves a shape, and **Export my library…** all of yours, as a `.lumenfx` file; **Import…** adds the shapes in such files to your library, leaving out the ones you already have.

Fan, wings and mirror

Spread one move across many fixtures: a pan fan, an intensity ramp, a colour gradient, two halves that mirror each other.

Fan mode

Click ⋔ **Fan** above the programmer tabs. The Fan bar opens. With two or more fixtures selected:

- **Faders** move each fixture by its share of the change: the further you drag, the wider the fan.
- **Full** sets an intensity ramp, cell by cell on LED bars.
- **Color**: click well **A** or **B**, then pick its colour on the wheel or a swatch. The selection runs from A to B: straight (**RGB**), round the colour wheel (**Hue**) or through every colour (**Rainbow**), **per cell** or per fixture.
- **Position**: **Pan fan** and **Tilt fan** spread the beams around where the pad aims, with the fan on or off.

FAN BAR	WHAT IT DOES
Centre · First · Last	Which fixture keeps its value. Centre: the others spread both ways.
Order	The selection (first → last, from or to the centre), the stage (left → right, back → front, centre → sides) or random (**Shuffle**).
Wings	Parts that mirror each other. 2 wings on 8 fixtures: 1 2 3 4 4 3 2 1, a V.
Blocks	Neighbours that take the same value. 2 together: 1 1 2 2 3 3.
Groups of	Repeat the fan every N fixtures. Groups of 3: 1 2 3 1 2 3.
Curve	Linear, Ease in, Ease out, S-curve or Step.

Effects have the same Order, Wings, Blocks and Groups of: they decide when each fixture takes its turn.

Flip, Invert pan and Mirror pan

SETTING	WHERE	WHAT IT CHANGES
Flip	Stage	The drawing only: an LED bar's cell 1 at the other end, a moving head's beam drawn the other way, as it is hung.
Inv P · Inv T	Patch	The DMX: pan or tilt runs the other way, for a fixture hung the other way round.
Mir P	Patch, Stage	Programming: positions you set and position effects turn its pan the other way, so one move looks symmetrical. **Mirror left half** sets it for the moving heads left of centre.

The Position tab and position effects choose which fixtures mirror: those set to Mirror pan, those plus everything left of centre, or none. In a mirrored wing, pan turns the other way too.

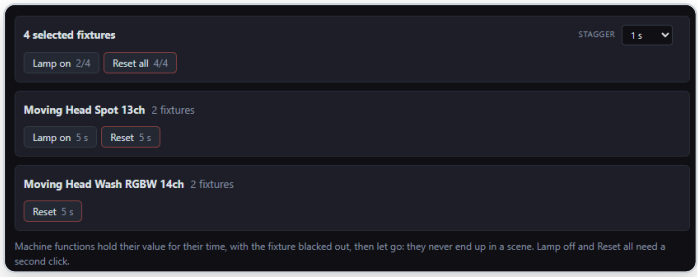
Proportional mirror

Fan the beams open from the middle of the stage: the further a fixture hangs from the centre, the further it pans, the sides opposite ways. With Mirror pan on, in the Position tab, position effects and keyframe pan offsets:

SETTING	WHAT IT DOES
Stage scaling	How much a fixture's distance from the centre scales its pan move. 0%: all take the whole move. 100%: the centre ones stay put, the outermost take the whole move.
Mirror amount	What the mirrored side does: −100% the opposite move, 0% stays still, +100% the same move.

Machine functions

Lamp on, lamp off, resets: a fixture does them when its control channel holds a value for a few seconds, usually with the shutter closed. LUMEN sends that value for the right time, then lets go, so it never ends up in a scene.



Program → Machine with the spots and washes selected.

Where they come from

From the fixture's profile. LUMEN finds them in the control channels' ranges: *Lamp on*, *Lamp off*, *Pan/Tilt reset*, *Total reset*, *Display*, *Fan mode*… A label that says how long to hold, such as "Lamp on (hold 3 s)", gives the time (plus half a second); otherwise it is 5 s. GDTF, QLC+ and Open Fixture Library files can say which ranges are lamp and reset functions, and how long to hold them: LUMEN keeps that when it imports them. Fixture settings such as "Blackout while pan/tilt moving" are left out.

In the profile editor, **Machine functions** shows what was found (*Auto*). **Customize** lets you change the value, the hold time or the blackout, and add your own; **Back to automatic** returns to the ranges.

Run them

WHERE	HOW
Program → Machine	The selected fixtures' functions, or every fixture's when nothing is selected. One button per kind, with how many fixtures have it ("Lamp on 3/4"), then a card per fixture type with each of its functions and how long it holds. **Stagger** starts one fixture after the other (default 1 s), so the lamps don't all strike at once.
Fixture list	Right-click a fixture, or the selection: its lamp and reset functions.
Live	**All lamps on**, **All lamps off**, **Reset all**, also from MIDI.
Phone remote	The Lamps row on the Live page.

While a function runs, the fixture is blacked out (dimmer at 0, shutter closed) and its control channel holds the value, above the grand master, blackout and every scene. The speed master doesn't shorten it. The Machine tab lists what is running and waiting, with **Cancel**.

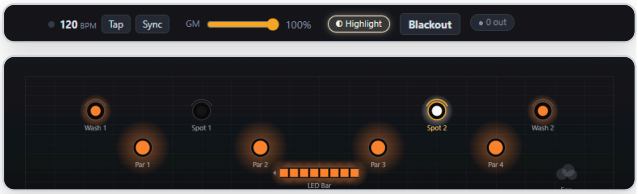
> **SAFETY** **Lamp off** and **Reset all** ask for a second click within 3 seconds (a second press from MIDI, a confirmation on the phone). A lamp that was just switched off often needs a few minutes to cool before it strikes again.

Scenes and control channels

When a scene fades in or out, gobos, colour wheels, prisms, shutters and control channels now jump to their value instead of sweeping through every value in between, which could pass a control channel through a reset or lamp-off range.

Find units: Highlight and Locate

Twelve spots on a curved truss look alike from the desk. Select one and press Highlight to see which it is, then step through the others one at a time.



Highlight on Spot 2: the ◐ Highlight pill in the header, and the spot in open white on the stage.

BUTTON	KEYS	WHAT IT DOES
◐ **Highlight**	Ctrl + H	The selected fixtures at full in open white, **on the output only**: nothing goes into the step, the scenes or the show file. Switch it off and the rig is exactly as it was. While it is on, the header shows ◐ **Highlight** in every view; click it to switch off.
‹ ›	Ctrl + ← →	Prev / Next: select the fixtures one at a time. Highlight follows. The counter between them shows where you are (*3/12*).
All	Ctrl + ↑	Back to every fixture you were stepping through.
Locate	Ctrl + L	Pan and tilt in the middle, open white at full and zoom half way, written into the step as ordinary values. One Ctrl + Z undoes it. ▾ → **Save as Locate** keeps what the step holds for the selected fixtures (position, zoom, focus, colour…) as their own Locate look, saved in the show; **Default Locate** goes back to the built-in one. *Locate* • shows when the selection has its own.

Open white

- Dimmers at full (16-bit too). Red, green, blue and white at full; amber, lime and UV out. CMY at 0.
- The colour wheel on its *Open* (or *White*) slot; gobo wheels, prism, frost and iris open; CTO on *No function* or 0.
- The shutter on its open range (*Open*, *No function (open)*, *No strobe*); strobe and colour macros off.
- Zoom, focus, pan and tilt stay where they are. Fog and haze machines aren't touched.

LUMEN reads this from the profile: the channel types, then the range labels, as GDTF and QLC+ files give them. It sends the middle of the range. A shutter with no labels goes to its default value, or 255.

One at a time

- **Several selected**: Next starts at the first, Prev at the last, then they go round.
- **One or none selected**: Next and Prev go through the whole rig in patch order, skipping fog machines.
- Click one of the fixtures and Next carries on from it.
- **A group**: right-click its chip → **One by one**. Highlight comes on, on its first fixture.

Masters and blackout

Highlight is above the grand master and the group masters, so a master you pulled down while programming doesn't hide it. **Blackout** still wins: in blackout nothing lights. A lamp on or reset that is running keeps its fixture blacked out.

MIDI, PHONE, VISUALISER In MIDI learn (Live), switch to Program and click Highlight, ‹, ›, All or Locate, then press a pad: a pad toggles Highlight, a CC button holds it on above the middle. The phone remote has them under **Find units** on its Program page. Highlight is in the DMX output, so the LUMEN Visualiser and the 2D stage show it.

Palettes

Palettes store the looks you use again and again, and apply them with one click. A palette only holds, and only gives back, its own family: a colour palette never sets a position or a dimmer.

COLOUR	POSITION	BEAM	EFFECT
Colour sets: many fixtures, each with its own colour, cell by cell on LED bars.	Pan and tilt: centre stage, audience, a cross…	Focus, zoom, iris, frost, prism, gobo, shutter, strobe.	A cue's effect, such as the circle on the beams of cue 4.

They sit above the Color, Position and Beam & presets tabs (effect palettes above the Effects tab), and all together on the **Palettes** tab.

Record

Select fixtures, set them up, then click **+ Record new**. Double-click a palette to rename it; drag it onto another, starting sideways, to move it there (the wing follows). Its **colour and icon**, shown on the wing too: ◐ **Look**, then click the palette (or right-click it).

Update: Merge or Replace

Press ● **Record**, choose **Merge** or **Replace**, then click the palette.

- **Merge** adds or overwrites the fixtures and channels you recorded, and keeps the rest.
- **Replace** makes the palette exactly what you have now.

Apply

Click a palette. As on an Avolites desk, it goes on the selection; with nothing selected, on every fixture it has something for. Fixtures that weren't recorded use the values of their fixture type, and colour palettes find the nearest colour on RGB, CMY or colour-wheel fixtures. A palette lights up when the selection matches it.

Effect palettes

☆ **Palette** on an effect's card saves a copy of it. Click it to put the effect in the cue being edited, on the selection or its own fixtures; on the wing's Live page it runs live (page 42).

Delete

Switch on ✕ **Delete**, then click the palettes to remove.

Groups

Save fixtures under a name, such as *Left beams*, *Right beams*, *Front FX* or *BG washes*, and select them in one click.

- Select the fixtures, click **+ Group** in the fixture list and type a name.
- Click a group to select it, or Ctrl-click to add it to the selection. Double-click to rename it. Right-click for **Select**, **Update from selection**, **Rename** and **Delete group**.
- **Drag** a group onto another to put it there (or right-click → **Move earlier** / **Move later**). Live's group masters and the wing follow the order.
- Each group gets its own **master fader** in Live, and effects can follow a group (page 18). Deleting a group keeps linked effects on the same fixtures.

CHAPTER 5

05 Live

Play the show one button at a time, and keep the whole rig in time with the music.



1. **Scene buttons**: click to start or stop. Flash scenes play while you hold them. Right-click a button to edit its scene.
2. **Masters**: Grand, Speed, and one fader for each group.
3. **Tempo**: BPM, **TAP** and **SYNC**, and the beat within a bar of four.
4. **Audio BPM**: the tempo follows the music (page 29).
5. **Blackout**, **Fog (hold)** and **Release all**.
6. **Lamps**: All lamps on and Reset all (page 24).
7. **MIDI learn**: map scenes, faders and buttons to a MIDI controller.
8. **Stage**: the live output, as on the Stage view.

Scene buttons

Each button shows the scene's colour and badges: **fx** (effects), **OVR** (an Override cue), its zone, **flash** and its shortcut key. While a scene with several steps plays, it shows the current step (1/2). Scenes fade with their own times.

✎ **Arrange** above them (they don't play meanwhile): drag a button onto another to put it there, the others move on; tap one for its colour and icon. The Program list and the wing follow.

Zones

Put scenes in the same zone when they shouldn't run together: starting one stops the others in that zone. In the demo show, *Spot circle* and *Wash sweep* share Zone 2, so starting *Wash sweep* stops *Spot circle*. Scenes with no zone run alongside everything. Name zones in the zone picker (page 17).

Masters

MASTER	WHAT IT DOES
Grand	Scales every intensity in the show. The **GM** fader in the header is the same master.
Speed	Speeds up or slows down every scene and effect. 1.00× in the middle.
Group masters	One per group, scaling that group's intensity: ride the pars without touching the moving heads.

Masters and blackout scale intensity. On fixtures without a dimmer channel, they scale the colour channels instead. Highlight (page 25) is above the masters, but not above blackout.

Tempo and Sync

TAP sets the BPM from your taps; you can also type the BPM, or let LUMEN follow the music with **Audio BPM** (page 29). Scenes timed in beats, and effects with BPM sync, follow it.

When the tempo is right but the lights have drifted off the beat, press **SYNC** on the **downbeat** (beat 1). That moment becomes beat 1: BPM-synced scenes restart from their first step, and BPM-synced effects restart their cycle. The tempo doesn't change, and free-running scenes and effects aren't touched. The **1 2 3 4** lights show where you are in the bar. Sync is also in the header and MIDI-learnable. **Tempo out** (page 30) sends both to Resolume.

Show buttons

- **Blackout**: every intensity to zero until you press it again (the header has one too).
- **Fog (hold)**: fires the fog while you hold it. The line under it (**Fog: All fog · 100%** ▾) sets what: every fog machine or the fixtures you pick, their channel, a level or a pulse (page 41). Saved with the show.
- **Release all**: stops every scene.
- **Lamps**: **All lamps on** (one fixture after the other), **All lamps off** and **Reset all** (click twice), when the show's fixtures have them. MIDI-learnable.

MIDI

Click **MIDI learn**, click a scene button, a fader or a button, then move a control or hit a pad on your MIDI controller. Notes toggle or flash scenes, and CCs drive faders. In Program, Highlight, ‹ ›, All and Locate can be learned too. **Clear** removes a mapping; click **Exit MIDI learn** when you're done. Mappings are saved in the show.

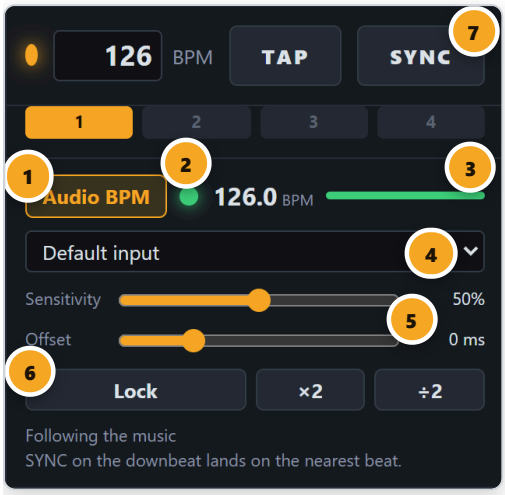
How scenes mix

- **Intensity** channels are **HTP**, highest takes precedence: the highest value from all the running scenes wins.
- **Everything else** (colour, position, gobos…) is **LTP**, latest takes precedence: the scene started most recently wins.
- Fading a scene in or out crossfades its LTP channels and scales its HTP ones.
- An **Override** cue (**OVR**) keeps what it sets, whatever starts after it: three washes it puts on the DJ stay there when other cues, or palettes and effects put on live, would move them. The rest plays as usual. It fades in and out over what plays, and lets go when released.
- The Program preview overrides only the channels stored in the step you're editing.

> **TIP** Give each scene a **Shortcut key** in its settings to play it from the keyboard, for example `S` flashes the Strobe scene in the demo show.

Audio BPM

Let LUMEN listen to the music: the tempo follows it, and BPM-synced chases and effects land on its beats.



1. **Audio BPM**: on or off. MIDI-learnable, like TAP.
2. **Beat**: flashes on the music's beats, green while LUMEN follows them.
3. The **BPM heard**, and how sure LUMEN is of it.
4. **Input**: the sound card input or microphone to listen to.
5. **Sensitivity**: higher counts softer beats and quieter sound. **Offset**: if the lights land after the beat (the DMX interface and the fixtures take a moment), raise it: +20 ms puts them 20 ms earlier.
6. **Lock** holds the BPM (MIDI-learnable). **×2** and **÷2** double or halve it.
7. **SYNC**: press it on a downbeat. It lands on the music's nearest beat, so a little early or late is fine.

Switch it on

1. Give LUMEN the music: a line from the mixer into the PC's line in or a USB sound card is best; the built-in microphone works in a loud room.
2. Click **Audio BPM** in the Live view and pick the **input**. If Windows blocks it, allow microphone access for desktop apps in Settings → Privacy & security → Microphone.
3. Play music. After a few seconds the BPM follows it, the beat light turns green and the **1 2 3 4** lights step with the beats.
4. Press **SYNC** on a downbeat to set beat 1.

What follows the music

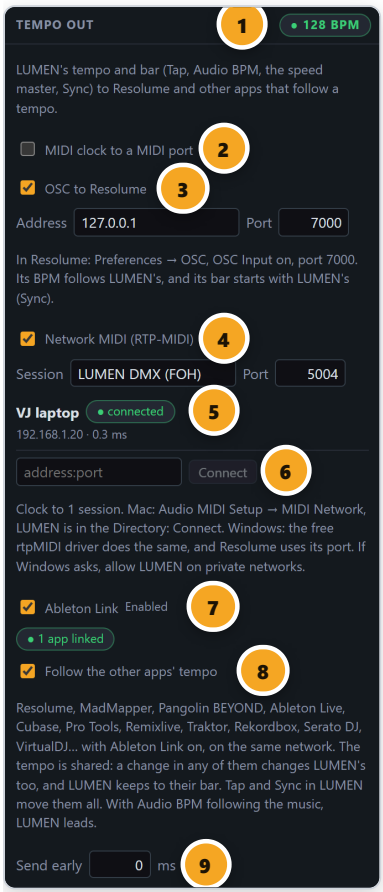
The show's **BPM**: every scene timed in beats and every effect with BPM sync runs at the music's tempo. The **beat clock** is kept on the music's beats too. Beat-locked keyframe effects follow it, and BPM-synced chases and effects move with it, so after a Sync they stay on the beat instead of drifting. LUMEN listens to the kick and the bass (40–250 Hz) and finds tempos from 60 to 200 BPM.

WHEN	LUMEN
It isn't sure of the beat	Holds the last BPM through breakdowns, talking and silence. The beat light goes grey and the bar shows how sure it is.
You tap or type a BPM	Your tempo wins until the music agrees with it, or moves on to another tempo. Tap at half or double speed and LUMEN follows in your octave.
Lock is on	The BPM holds where it is. The beat clock stays on the music while the music keeps that tempo.
The BPM is double or half	Busy music can read at twice its tempo (190 for 95) or half: press ×2 or ÷2. LUMEN keeps that octave, with no jumping between 64 and 128.
You move the Speed master	It still applies. At ¼×, ½×, 1×, 2× and 4× the lights stay on the beat; in between they run free at the scaled tempo.

> **PRIVACY** The sound is analysed as it comes in and is never recorded or saved. Audio BPM's input, sensitivity, offset and on / off are saved with LUMEN, not in the show; the phone remote can switch it on and off.

Tempo out

Send LUMEN's tempo and bar to Resolume and other apps that follow a tempo, so the video and the lights stay on the same beat.



Outputs → Tempo out: OSC to Resolume on this PC, a laptop connected by network MIDI, and one app on Ableton Link, sharing the tempo.

1. The **tempo sent**: the show's BPM (TAP, typed or Audio BPM) at the **Speed** master. Shown while an output is on.
2. **MIDI clock to a MIDI port**: 24 ticks a beat, with Start on the first beat of a bar. Choose the port: a USB MIDI interface, the rtpMIDI driver's port, or a virtual port such as loopMIDI.
3. **OSC to Resolume**: the address of Resolume's PC (127.0.0.1 when it runs on this PC) and its OSC input port, 7000 unless you changed it.
4. **Network MIDI**: LUMEN is a network MIDI session that Macs, and PCs with the rtpMIDI driver, find by its **Session** name. **Port** 5004; the clock uses the next port too.
5. The **sessions connected**, with their address and delay. ✕ stops connecting to one you added.
6. Sessions LUMEN finds on the network get a **Connect** button. For one it can't find, type its **address:port** and click Connect.
7. **Ableton Link**: Enabled or Disabled, and how many apps are linked.
8. **Follow the other apps' tempo**: the tempo is shared: a change in any of them changes LUMEN's, and LUMEN keeps to their bar. TAP and SYNC move them all. While Audio BPM follows the music, LUMEN leads.
9. **Send early**: sends everything this many milliseconds ahead, for a screen or projector that shows the beat late.

Sync and the bar

Press **SYNC** on the downbeat (page 28): Resolume resyncs, MIDI clock sends Start and Ableton Link moves its bar, so beat 1 is the same everywhere. An app that connects later starts on LUMEN's next bar. A new tempo, from TAP, Audio BPM or the Speed master, goes out straight away.

> **NOTE** Tempo out is saved with LUMEN, not in the show. If Windows asks, allow LUMEN on private networks: network MIDI and Ableton Link need it.

Connect an app

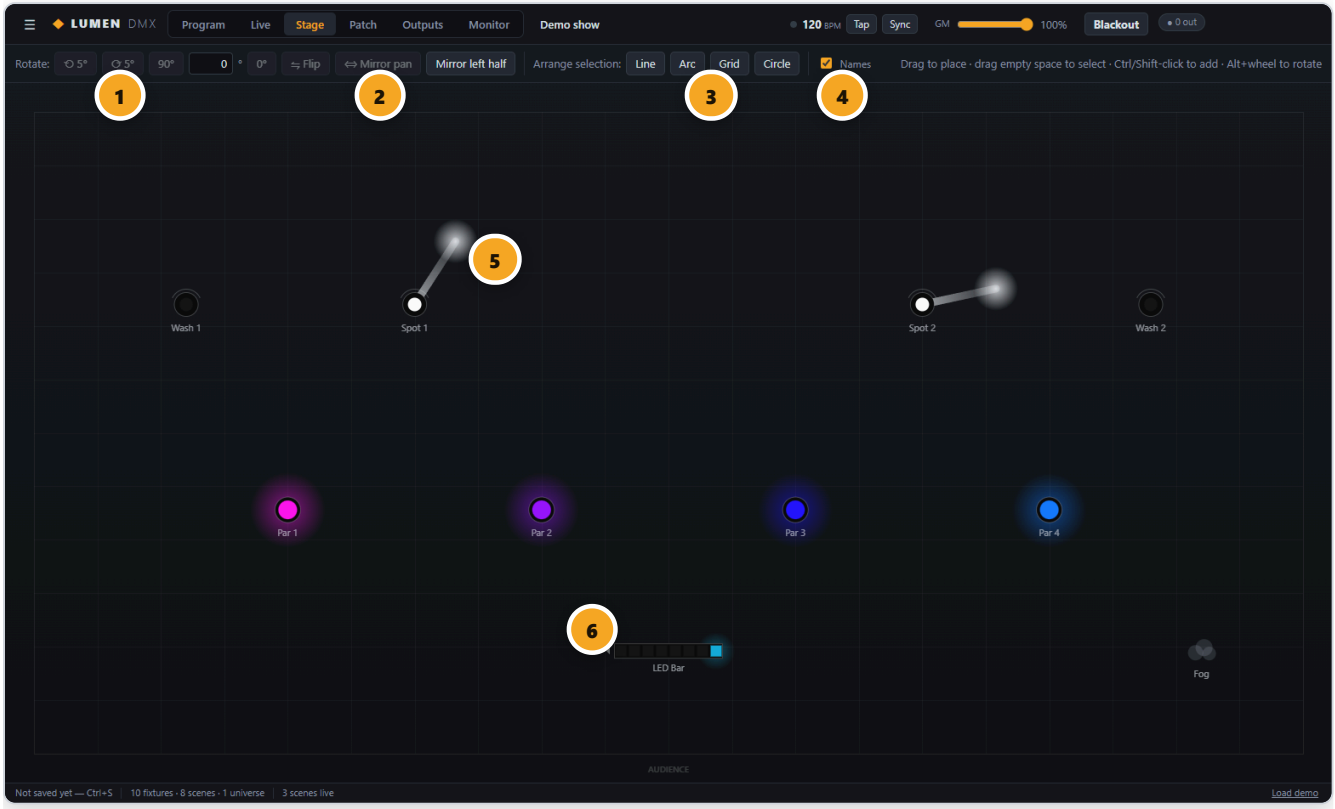
One way per app is enough. OSC is the quickest with Resolume; Ableton Link and MIDI clock also work with DJ and music apps.

WAY	IN LUMEN	IN THE OTHER APP
OSC	Tick **OSC to Resolume**, with Resolume's address and port.	Resolume: Preferences → OSC, **OSC Input** on, the same port.
Ableton Link	Tick **Ableton Link** (and **Follow**).	Switch Ableton Link on, on the same network.
Network MIDI	Tick **Network MIDI**.	Mac: Audio MIDI Setup → MIDI Network, choose LUMEN in the Directory, then Connect. Windows: the free rtpMIDI driver, the same way. The app then takes the clock from that MIDI port.
MIDI clock	Tick **MIDI clock to a MIDI port** and choose the port.	That port's MIDI clock input. Resolume: Preferences → MIDI.

CHAPTER 6

06 Stage

See every beam before the doors open. The 2D stage shows your rig as it plays: colours, dimmers and moving-head beams, live.



1. **Rotate**: 5° either way, 90°, or type an angle (↑ ↓ = 5°). 0° resets.
2. **Flip**: reverse an LED bar's cells and draw a moving head's pan the other way. **Mirror pan** and **Mirror left half** mirror programmed pan (page 23).
3. **Arrange selection**: Line, Arc, Grid or Circle, and the other tools of ✎ **Edit stage** (page 32).
4. **Names**: show or hide the labels.
5. **Beams**: moving heads draw their beam as they pan and tilt.
6. **Cell 1 marker**: shows which end of an LED bar is cell 1.

Lay out the rig

- **Drag** fixtures to where they hang. Draw a box across empty space to select several, or Ctrl / Shift -click to add to the selection.
- ✎ **Edit stage** holds the tools to build the stage in metres: arrange, align, distribute, snap, size, plan and labels (page 32). Off, the layout is locked.
- **Rotate** the selection in 5° steps with the buttons, or hold Alt and turn the mouse wheel (with Shift too, for 1° steps). Beams follow the fixture's rotation.
- **Flip** puts cell 1 of an LED bar at the other end, to match how the bar is really hung, so chases run the right way.

The same stage appears under the editor in Program and under the buttons in Live, so you can check every look and effect without the real rig.

Building the stage

Turn on ✎ **Edit stage** to change the layout: a second toolbar holds the tools. Turn it off for the show. The layout is then locked on the Stage tab, under Program and under Live, so nothing moves by accident.

A stage in metres

- **Stage setup…** gives the stage its real **width × depth**, up to 1000 m: 200 × 40 m for a festival stage, say. The first time, the layout stays where it is on the stage. After that, a new size keeps every fixture where it is on the rig, and the room goes around them.
- The rulers along the top and left, and the pointer's position in the bottom corner, count metres from the **downstage centre**: X left − / right +, and Y upstage from the front edge.
- **Grid**: squares of a set size (Stage setup), or **Auto**, finer as you zoom in. **Snap** puts a dragged fixture on the grid; hold Alt to place it freely. Arrow keys nudge the selection a square (on Auto, a small step; Shift: ×10).

Arrange, align, distribute

TOOL	WHAT IT DOES
Line, Arc, Grid, Circle	**Gap**: metres between neighbours, the same across and down. **Span**: metres the whole shape reaches (a circle: across). A negative value lays them out the other way round, fixture 1 on the right. **Auto**: the shape spans what the selection spans now, so **Line** straightens a row where it is. **Cols**: a grid's width.
Align	Left edges, centres or right edges; upstage edges, middles or downstage edges, in place: within the selection.
Distribute	Across or down the stage, the same gap between each. **Auto** keeps the first and last where they are; a gap in metres lines them up from where they stand.
Layout	Flip left ↔ right or front ↔ back, or turn 15°, about the middle. Fixtures turn with it.
Stretch	Drag a handle of the box round the selection: it stretches or squeezes from the other side.

Several whole groups move as one each, so five rows line up as five pieces; one group alone lines up or spreads its own fixtures (Alt : every fixture). Change Gap, Span or Cols right after arranging to spread them again.

> EXAMPLE Five rows of pars side by side on a 200 m stage: **Line** each row with a 1.5 m gap, select the five, **Align middles**, then **Distribute across** with a 4 m gap.

Groups as blocks, plan, labels

- Select a whole group and choose how it shows: **Fixtures**, **Block when crowded** (it opens up as you zoom in) or **Block**: a strip of live colour cells in the group's shape, with its name. Click a block to select its fixtures; double-click it to zoom in on them.
- **Stage setup…** → **Venue plan**: a picture of the plan under the rig. Set its width in metres to match a known distance, then its centre and opacity.
- **+ Label** adds text such as FOH or truss names. Drag it, double-click it to rename it, or press Delete to remove it.

The Show view

A **show** lays this file's cues on a time axis and plays them for you: the lights run themselves while you watch, or press one button and let a whole sequence go. F7 opens it. (Chapter 10 is about *show files* on disk — a different thing with a similar name.)

Down the left are the shows this file holds; **+ Add show** makes another. Across the middle is the timeline, in **tracks**, one above the other. On it sit **blocks**: each block plays one cue, from where it starts, for as long as it lasts.

Put cues on it

- Click an empty spot and pick a cue. The block goes there, running to the next block on that track or ten seconds, whichever comes first.
- **Drag the block** to move it, up and down tracks as well as along. **Drag either end** to change when it starts or stops.
- **Snap** sets what it lands on: off, or 0.1, 0.5, 1 or 5 seconds.
- The last track is always empty, so there is always somewhere to start a new one.

What a block does

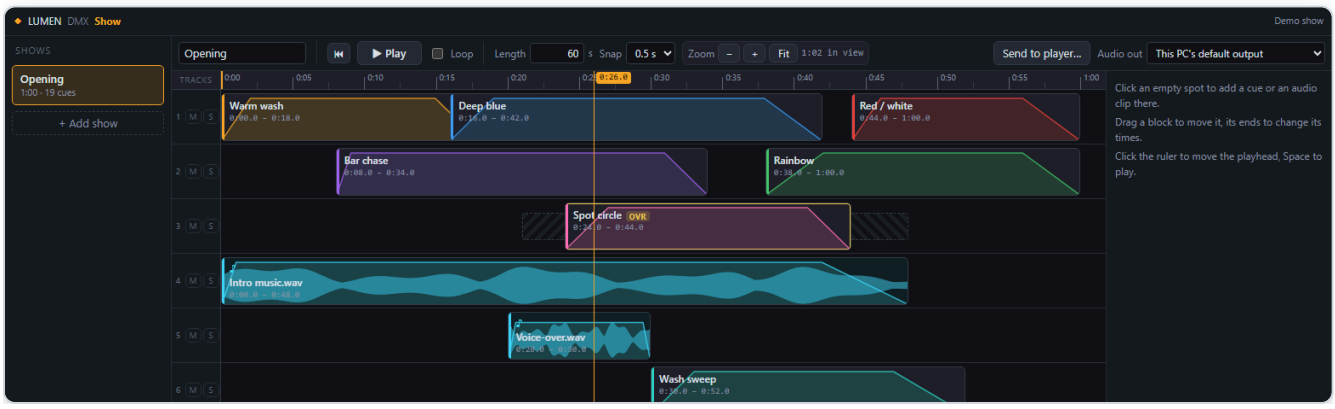
Click a block and the panel on the right holds its settings. **Start** and **Length**, or **To the end of the show**. **Fade in** and **Fade out**, each either its own or **the cue's own**, so a cue keeps its usual fades unless this block says otherwise. **Level** is how much of the cue plays here — the whole envelope is drawn on the block itself, up the fade in, along at its level and down the fade out.

The **−** and **+** beside each time step it by half a second, for setting one quickly without typing. The arrow keys in the box do the same, Shift for ten at a time.

Play it

- ▶ **Play** runs it from the playhead; Space does the same. ⏮ or Home goes back to the start, End to the end.
- Click the ruler to move the playhead, or hold and drag to scrub along it. While a show plays the view follows the playhead.
- **Loop** runs it round again instead of stopping at the end.
- The cues play exactly as they do in Live — their steps, their effects, their zones — with the show saying how much of each.

> **ZONES HOLD** A cue in an exclusive zone behaves on the timeline as it does on the Live board: one cue a zone, and where two blocks in the same zone cover the same moment, the one that starts later has it. A cue you fire by hand takes the zone while you hold it, and the show takes it back when you let go.



Getting about, and working on several blocks

A show an hour long does not fit on a screen. The timeline moves and zooms like the ones in audio software.

TO DO THIS	DO THAT
Zoom in or out	Ctrl and the wheel, about the pointer: the moment under the cursor stays where it is. Or **Zoom − +** in the toolbar, about the middle of the view.
Fit the whole show	**Fit**. Beside it, how much of the show the window is showing.
Run along the timeline	Shift and the wheel, the scrollbar along the bottom, or hold the **middle button** and drag.
Up and down the tracks	The wheel on its own (when there are more tracks than fit).
Move the playhead	Click or drag the ruler; or the arrow keys when no block is picked (Shift: ten steps).

Several at once

- Ctrl, ⌘ or Shift and a click adds a block to what is picked, and takes it out again.
- **Drag across empty space** to sweep a rectangle over the tracks: everything it covers is picked. Ctrl + A picks the lot.
- Drag any one of them and they all move, keeping their spacing and their tracks.
- With more than one picked, the panel says what they are and sets their level and fades together.

Copy, paste, duplicate

Ctrl + C, Ctrl + X and Ctrl + V work on what is picked. A paste lands **at the playhead**, on the tracks the blocks were copied from, keeping how they sat against each other. Ctrl + D duplicates them straight after themselves. Delete removes them.

Tracks off, for rehearsing

Each track's head carries **M** and **S**. **M** switches that track off — its cues and its sound both stop — so you can work on the rest without it. **S** plays one track on its own. The toolbar says how many tracks are off while any are, with **All on** beside it.

> **IT IS NEVER SAVED** Tracks switched off are a rehearsal setting that belongs to this sitting, not to the show. Open the file again and every track plays. A show cannot go out silent because somebody muted the music on a Tuesday.

Music, voice and effects

A block can be an **audio clip** instead of a cue. Click an empty spot, switch the chooser to **Audio**, and add files from this computer or pick one already there. The waveform is drawn on the block, so you can see where the beats and the gaps are.

- **Drag its left end** to trim into the file: the clip's own start moves with it, so you can top and tail a track on the timeline.
- **From** is where in the file the block starts. **Whole clip** makes the block as long as what is left of the file.
- A clip's **fades are its volume**, and its **Level** is how loud it plays. A dashed line marks where the file runs out, if the block is longer than it.
- **Audio out** in the toolbar chooses which sound card the clips play out of.

The files belong to the computer, not to the show: a show names the files it plays. Open it somewhere else and a clip whose file is missing says so on the block and in its panel, and the rest of the show plays as normal.

Moving heads: in place before the light

Fade a moving head up and it swings across the stage in front of everyone, because its position fades in with its level. Two settings on a block put a stop to that.

Put the fixtures in place first

With this on, the cue's fixtures are sent where they belong **in the dark**, before the block starts. The fade that follows then only lifts the dimmer: nothing moves. Say how long the move takes — LUMEN works out **when** to do it by looking at what else on the timeline lights those same fixtures, and puts it as late as it can in the dark before the cue. The lead-in is drawn as a hatched tail in front of the block, striped when there is less darkness than the move wants. If something is lighting those fixtures right up to the cue there is nowhere to do it, and the block says so rather than moving them in view.

Keep them in place afterwards

The other end of the same problem: as a cue fades out its heads drift home, and when the block ends they snap back. With this on they stay where they are for as long as you give it, dark, so the fade out is a dimmer fade too. It is drawn as a tail after the block.

Override

Override on a block means that while it plays, what its cue sets beats the other cues and anything live — the same idea as an Override cue, for this block alone, leaving the cue itself as it is everywhere else. Only the channels the cue actually stores are taken over; whatever it leaves free stays with the cues underneath. The block is outlined and marked **OVR**.

Firing a show, and sending it to a player

A show need not be watched from the Show view. It can be fired like any other look, from wherever you run the night.

- **Live** (F2): a strip of show buttons above the cues. Press one to play it, press it again to stop. It fills as it runs.
- **The fader wing, the touch panel and the phone remote**: a button can be set to a show, the same way it is set to a cue. The auto grid gains a **Shows** page.
- **MIDI**: a show button can be learned like anything else — a pad plays it, a fader up plays and down stops.
- Cues that a show is driving read differently on the board from ones you pressed yourself, so a lit button is never a surprise.

Send to player

A **LUMEN Player** plays a show on its own, with no PC: the same engine, so the cues look the same. **Send to player...** in the Show toolbar looks for players on the network and lists what it finds, with the show each one is holding.

Sending gives the player this file's cues, the shows on its timeline, and any audio files the player has not got. It keeps its own **playlists, power-on cues and schedule** — those belong to the player, not to your show file — so sending does not undo how the venue is set up.

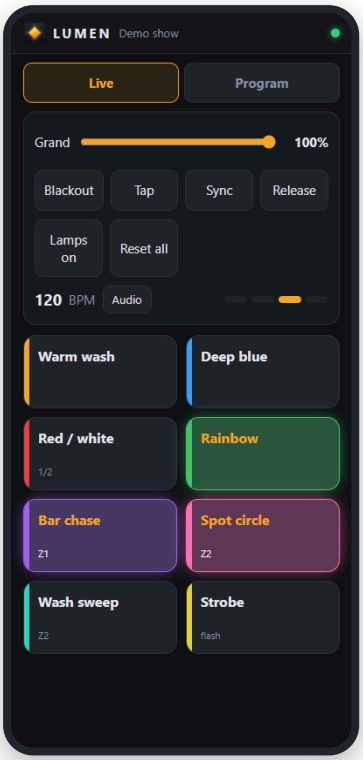
- If a player asks for a **PIN**, it says so before anything is sent.
- A player that discovery does not reach can be named by hand: type its address, or *address:port*, and **Look there**.
- When it finishes it says what went — how many cues and shows, which audio files it sent, and any it could not because this computer does not have them.

> **SENDING REPLACES THE SHOW ON THE PLAYER** The cues and the timelines on the player are replaced by yours. What it was playing stops. Its playlists, its power-on cues, its schedule and its clock are left alone.

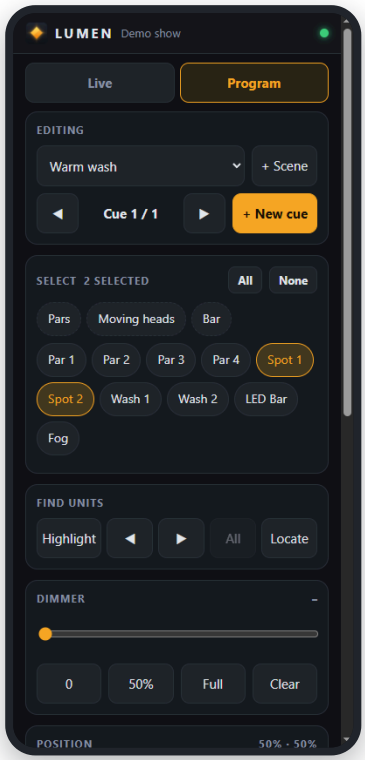
CHAPTER 7

07 Phone remote

Your phone becomes a lighting desk: run scenes from anywhere in the room, or program from the stage.



Live page



Program page

Switch it on

1. In **Outputs** → **Phone remote**, tick *Control Lumen from a phone or tablet*.
2. Optionally set a **PIN**. The port is 8686 unless you change it.
3. Scan the **QR code** with the phone's camera, or type the address shown into its browser. Click the address to copy it.
4. If Windows asks, allow Lumen on **private networks**.

The remote is off by default. The PIN protects every command, and the QR code includes it, so phones connect in one scan. The header shows ◉ **Remote** with the number of phones connected.

Live page

The scene buttons (toggle, and flash while held), grand master, blackout, tap, sync and release all, and lamps on / off and reset all when the fixtures have them. **Audio** switches Audio BPM on and off; the BPM turns green while it follows the music.

Program page

Pick the scene and cue to edit, select fixtures or groups, find them with **Highlight**, ◀ ▶ (one at a time), **All** and **Locate**, set the dimmer, aim moving heads with the pan and tilt pad, and apply palettes. Save new palettes, or merge into or replace existing ones. Build cues with **+ Scene** and **+ New cue**.

While a phone is on its Program page, the PC previews the cue being edited.

CHAPTER 8

08 Touch wing

A programming and playback surface for a touch screen: select fixtures, set every attribute, build effects, then run the show from big buttons and faders.

THIS PC'S SCREENS

☰ → View → **Wing window (touch screen)**. At first a window on LUMEN's screen; in ☰ → Touch & Wing settings, its screen, full screen, and opening with LUMEN (page 46). Works with the phone remote off.

ANOTHER PC OR A TABLET

Switch the phone remote on and open its address followed by `/wing` in a browser, for example `http://192.168.1.20:8686/wing`. The PIN is asked once.

LUMEN WING APP

A full-screen app for a touch PC on the same network. It finds every LUMEN by itself and opens its wing with a tap (page 45).



Program mode: fixture tiles, groups and the keypad on the left; the cue, the pages, the Fan bar, and the Position page with Mirror pan and its encoders on the right.

Program and **Live** at the top switch the whole screen. In Program, **Preview** shows the cue being edited on the output; in Live it never does, so the show isn't disturbed. ↓ **Save**, beside Undo and Redo, saves the show to its file on LUMEN's PC (a show never saved: LUMEN's Save dialog opens there); it lights up while changes aren't saved.

Select fixtures

- **Tiles**, numbered in patch order, show each fixture's colour on the output. Tap one or **swipe across** several (from a selected tile, a swipe takes them out). **Groups** select in one tap.
- The **keypad** selects by number: `1 thru 4 + 9`, `- 3`, `4 thru 1` (that order, for fans). **Add** adds, **‹ ›** steps one at a time, **Hi** is Highlight.

Program mode

The cue bar picks the **scene and cue** being edited, with ‹ ›, **+ Cue** (a copy of this one, after it) and **+ Scene**. **Clear sel.** takes the selected fixtures out of the cue; **Clear cue** takes every fixture out (tap twice; Undo brings it back). Everything you set goes straight into the cue, as on the PC. ◐ **Look** gives the scene a colour and an icon; ◐ **Look** above the palettes, then a palette, does the same for it.

Pages and encoders

Dimmer, Colour, Position, Beam and Control each have an **encoder** for every attribute the selection has, colour wheels, gobos, prisms and macros included.

- Drag up or right to raise, down or left to lower. Each fixture moves from where it is, so fans and spreads keep their shape.
- **Fine** makes the encoders 10× finer; the mouse wheel works too.
- A **double-tap** releases the attribute from the cue.
- An amber top edge: the cue sets it. **2/4**: only 2 of the 4 selected fixtures have it.

Colour, Position, Beam

Colour has a colour wheel, brightness, swatches and the colour-wheel slots. **Position** has the XY pad, **Center** and **Locate**. **Beam** and **Control** have the preset ranges: gobos, prism, shutter, strobe, macros. Palettes of the page's kind apply in one tap; **+ Save** records a new one, ● **Rec** then a palette merges into it or replaces it.

Channels page

Every channel of each selected fixture type, by name, with **−** / **+** steps and a bar to drag: for anything the other pages don't name.

Fan bar

With **Fan** on, an encoder's move spreads across the selection, each fixture by its share, and a level button such as Full or 50% becomes a ramp.

- **Centre**, **First** or **Last**: which fixture keeps its value.
- **Wings**: mirrored parts of the selection (2: a V). **Blocks**: neighbours that move together.
- The **order**: the selection's, or the stage's (left to right, centre out…), and a **curve**.

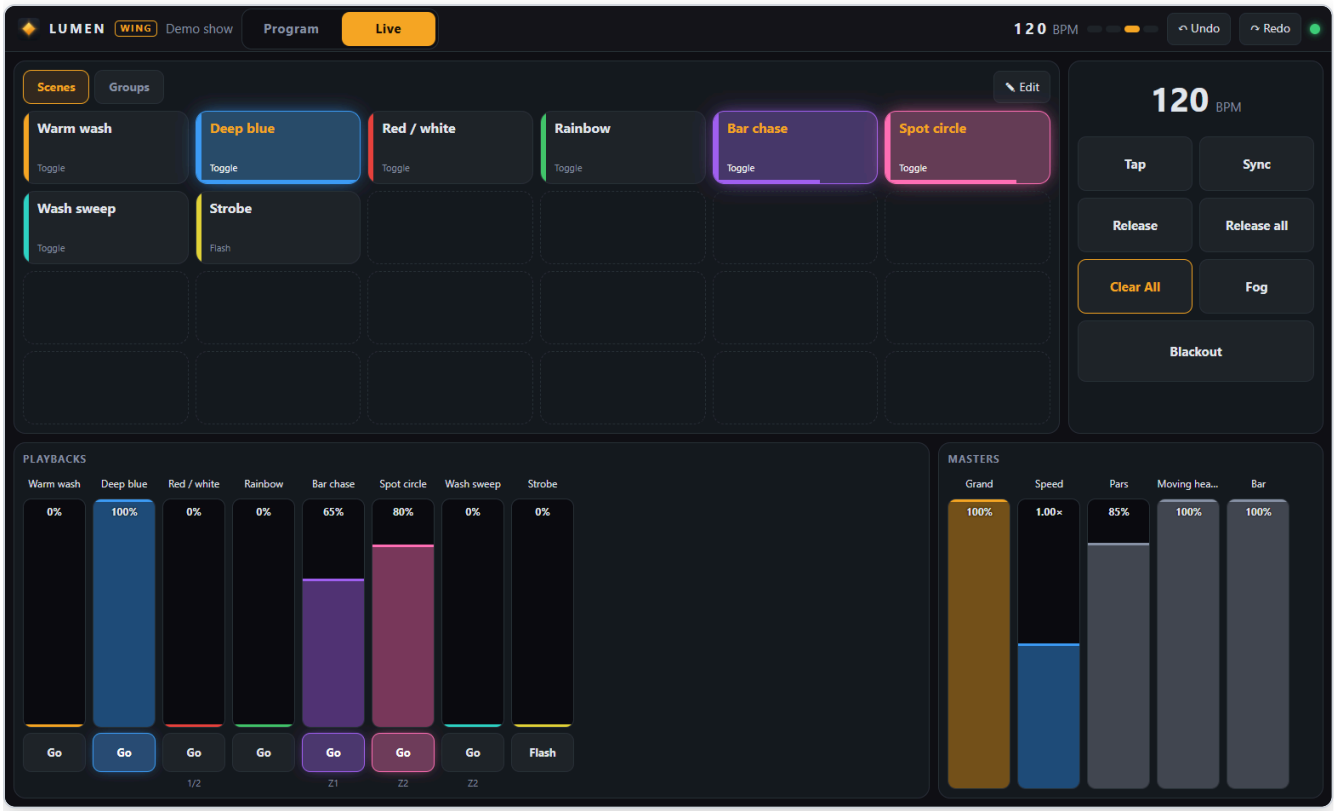
Mirror pan

On the Position page, as on the PC's Position tab (page 23): **Off**, **Fixtures** (those set to Mirror pan in Patch) or **+ Left half** (and everything left of the stage centre). The pad aims, fans and mirrors the selection; its encoders add:

- **Pan fan** and **Tilt fan**: spread the aim across the selection.
- **Stage scaling**: the pan opens from the middle of the stage, outer fixtures moving most.
- **Mirror amount**: what the mirrored side does, from the opposite move to the same move.

> **TIP** The Fan bar and Mirror pan are the PC's own: change them on the wing or in LUMEN and both follow.

Live mode



Live mode: the button grid (three scenes playing), the actions, then a fader per scene and the masters.

The button grid

Pages of 6 × 4 buttons. Out of the box the grid is made from the show: its scenes (toggle, or flash for flash scenes), then its palettes, then its groups and the actions. A button lights up while its scene plays, Blackout is on, its group is selected, its palette or effect is on the lights, or its fog is on. Palettes, groups, effects and Fog buttons: next page. Scenes and palettes show their colour and icon, an Override cue a red **OVR**; in ✎ **Edit** a button's sheet changes them (◐ **Colour and icon**, ⛨ **Zone and type**).

Edit the grid

1. Tap ✎ **Edit**; the buttons get a red edge.
2. Tap a button and choose what it does: a **scene** (Toggle, Flash, Go or Release), a **palette**, a **group** (Select or Add), an **effect**, or an **action**: Blackout, Release all, Clear All, Tap, Sync, Highlight, Fog (hold), Audio BPM, All lamps on.
3. **+ Page** (up to 8), **Rename page**, **Remove page**; **Automatic grid** goes back to the one made from the show.

The grid is saved in the show, with Undo for each change, so every wing shows the same buttons.

Faders and masters

A fader per scene sets its level directly, with no fade: up from 0 starts it, down to 0 stops it. **Go** or **Flash** below it plays it as its button would. Grand, Speed and a master per group sit beside them. When there are more faders than fit, the big ‹ › buttons page through them ("7–12 of 14"), or drag the bar above them.

Actions

- **Tap** and **Sync**, under the BPM.
- **Release**: it lights up, and the next **Go** you tap releases that playback with its fade out. Tap Release again to release them all; it lets go by itself after 5 seconds. **Release all** does it in one press.
- **Clear All**: nothing selected, Highlight and one at a time off, the keypad emptied. The cue keeps what you programmed.
- **Fog** while held (it fires what LUMEN's Fog button is set to, written under it), and **Blackout**.

Palettes, effects and fog on the grid

Palettes and groups

On the Live page a **palette** goes on the lights at once, as on an Avolites desk: the selected groups take it, or, nothing selected, every fixture it has something for. Only its own attributes change (a colour palette leaves the dimmer to the cues), over everything playing, until **Release all** or **Clear All**. It isn't saved in the show. An **effect palette** runs its effect, tap on, tap off. The Program page's palettes go into the cue.

A **group** button adds its fixtures to the selection and a second tap takes them out, so several groups make one selection. In ✎ **Edit** it can be **Select only** instead.

Effect buttons

Keep an effect at hand, such as your moving-beam circle:

1. In ✎ **Edit**, tap a button, then **Effect**, and pick one of the 22 built-in effects, or your own keyframe effect saved to the library with “Keep a copy in this show”.
2. In Live, select a group, then tap the button: the effect runs on those fixtures, over everything playing (a position effect moves the beams of the cue that has them on). With nothing selected, nothing runs.
3. Drag up or down on the button to set its speed, ¼× to 4× (doubling every 120 px, shown on its ring). Hold it still to go back to 1×.
4. Tap it again to stop it; **Release all** and **Clear All** stop it too.

Fog buttons

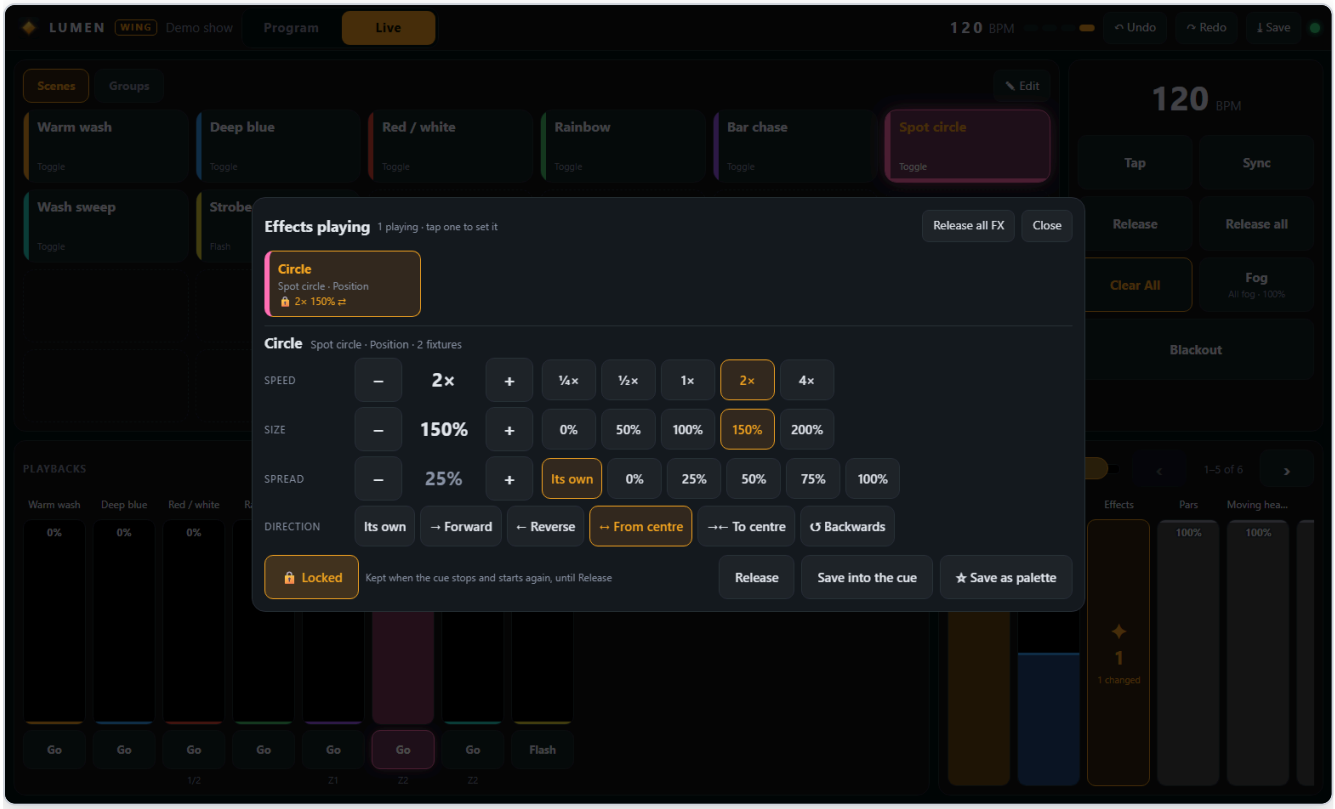
The big **Fog** button fires what LUMEN's Fog button is set to (Live page, page 28), written under it. A **Fog (hold)** grid button can follow it (*Same as the Fog button*) or have its own:

- **Which**: every fog machine, or the fixtures you pick: a hazer, a CO2 jet, a fog machine patched as a dimmer. Each fires its usual channel (its fog channel, else its dimmer, else its first); pick another by hand when needed, such as a CO2 jet's *Shot*.
- **How**: a level all the time, or a **pulse**: on, then a wait, over and over from the press, for a machine that is only on or off. Set it as a **presence** on a **cycle** (50 % of 5 s) or as the two times (on 2.5 s, then wait 2.5 s): they are the same, and each shows the other. 100 % presence is on all the time.
- **The button**: **Hold to fire** (for CO2), or **Tap on, tap off** (a hazer left running until you tap it again).

A button with one fixture of its own takes its name (“CO2 · Shot · 100%”). Fog held stops if the wing drops off; a tapped-on Fog button runs on. Sparklers and other shots on a cue: a scene button set to Flash.

Effects playing: the FX sheet

Play the effects running now faster, bigger or the other way, from the Live page, without changing the show.



The FX sheet: Spot circle's circle at 2×, 150 %, from the centre, locked; the Effects tile beside Speed shows "1 changed".

Open it

The ✦ **Effects** tile beside the Speed master shows how many effects are playing; it lights up when one plays otherwise. Tap it: every effect playing is a tile (a cue's, an Effect button's, an effect palette's). Tap one to set it.

Set it

- **Speed**: – and +, or ¼× ½× 1× 2× 4×.
- **Size**: 0 to 200 % of its size (a circle's size, a chase's range). A colour effect has none.
- **Spread**: its own, or 0 (all together) to 100 %.
- **Direction**: its own, Forward, Reverse, From centre or To centre, and ↺ **Backwards** (a circle turns the other way).

Keep it, or let it go

- Unlocked, it goes back to the cue's settings when the cue is released.
- 🔒 **Lock**: kept when the cue stops and starts again, until **Release** (or **Release all FX**).
- **Save into the cue**: these settings become the cue's own.
- ☆ **Save as palette**: an effect palette, as it plays now.

Effect palettes

On the FX page, ☆ **Palette** on an effect saves it. On the grid, an effect palette runs live on the selected groups (nothing selected: its own fixtures), tap on, tap off; in the FX tab's palettes it goes into the cue.

A cue's zone and type

⛨ **Zone** beside the scene picker (or a scene button's sheet in ✎ **Edit**): Normal or Override, and the zones as tiles, with ✎ **Names**.

FX page

The **FX** page in Program mode holds the effects of the scene being edited, the same ones as the Effects tab on the PC (page 18).



FX page: a dimmer chase and Rainbow roll on the pars, a circle on the spots, each with its encoders.

Add effects

Select the fixtures, then:

- **+ Chase**, **+ Colour FX**, **+ Circle**, **+ Wave** or **+ Keyframes** (an empty keyframe effect);
- **★ Effect library**: one of the 22 built-in super effects (page 21), or a shape this show carries, by category.

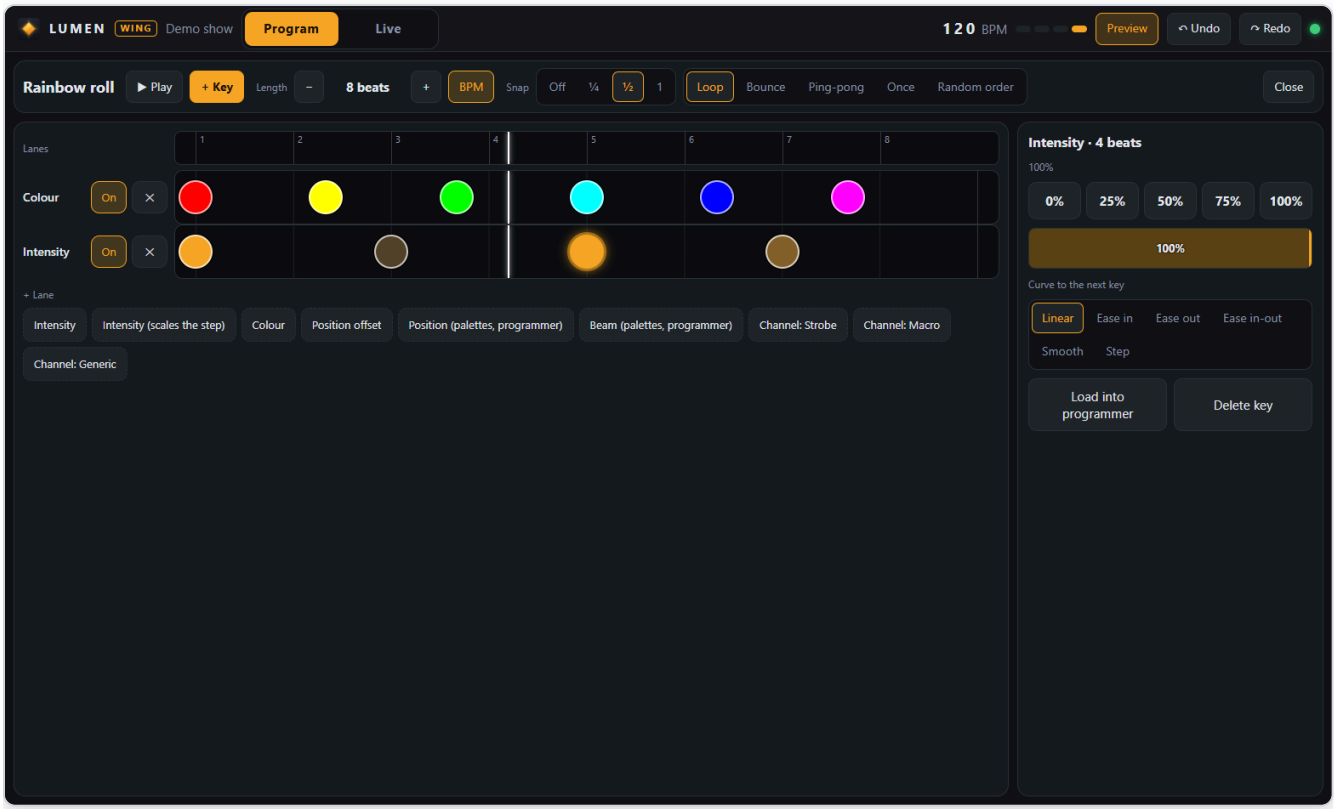
When the selection is a whole group, the effect follows the group.

Each effect's card

- Encoders for its **timing** (speed, or beats with BPM on, or length), its **size** or **width**, and its **spread** across the fixtures.
- **BPM**: timed in beats, following the tempo. **On** / **Off** switches it without deleting it.
- **✎ Edit keyframes** on keyframe effects opens the keyframe editor (next page).
- **Delete** asks for a second tap; Undo brings the effect back.

Keyframe editor

A big card over the whole wing, for a keyframe effect's lanes and keys. It edits the same effect as the timeline on the PC (page 19), which opens on it too.



Keyframe editor: Rainbow roll with a colour lane and an intensity lane, the playhead at 3.2 beats, and the inspector on the selected key.

The header

- **▶ Play** / **■ Stop**: the scene plays in the preview.
- **+ Key**: records what you set on the effect's fixtures in the Dimmer, Colour, Position and Beam pages, as keys at the playhead.
- The length in beats (with **BPM**) or seconds, with **−** / **+**; **Snap** (Off, ¼, ½, 1 beat); the **play mode**: loop, bounce, ping-pong, once or random order.

Lanes and keys

- Tap an empty place in a lane to add a key there; tap a key to edit it; drag it to move it. Keys snap to the grid.
- Tap or drag the **ruler** to move the playhead: the stage shows the effect at that moment.
- **+ Lane**: intensity, colour, position offset, position, beam, or a single channel. A lane switches **Off**, or is deleted with ✕ (tap twice).

The inspector

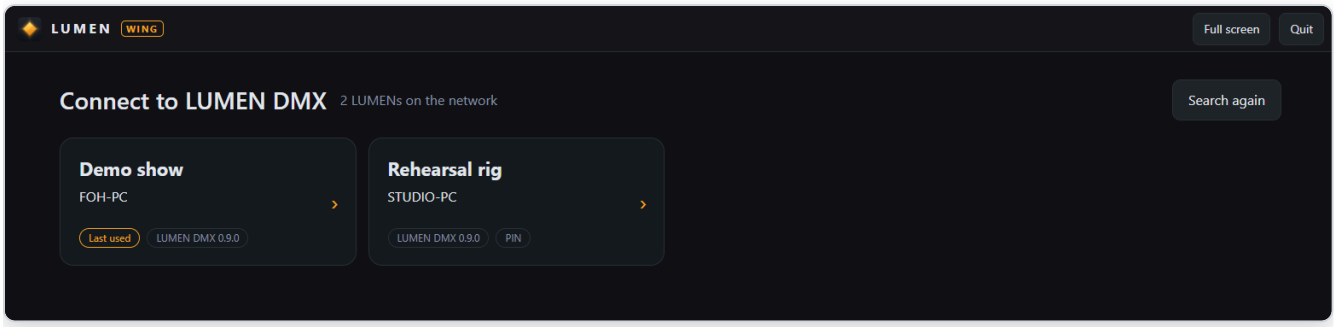
For the selected key:

- its value, by lane: a **level** (0–100% buttons and a bar), a **colour** (swatches or a colour palette), a **pan / tilt offset**, or a position or beam **palette**;
- its **curve** to the next key: linear, ease in, ease out, ease in-out, smooth or step (a square key);
- **Load into programmer**: puts the key's values in the cue, to change them in the other pages;
- **Delete key** (tap twice).

Close returns to the FX page.

LUMEN Wing app

LUMEN Wing turns a separate touch PC, such as an all-in-one beside the desk, into a wing. It is installed on its own (Setup or portable exe, Windows 10 and 11, 64-bit).



LUMEN Wing: every LUMEN on the network, with its show, its PC and version, and whether it has a PIN.

1 **Switch the remote on**
On the LUMEN PC: **Outputs** → **Phone remote**, tick it. If Windows asks, allow LUMEN on private networks.

2 **Open LUMEN Wing**
On the touch PC, on the same network. It opens full screen and lists every LUMEN it finds, searching again every few seconds.

3 **Tap a LUMEN**
Its wing opens, with the PIN asked once if it has one. ⇄ **LUMENs** at the top left of the wing comes back to the list.

Good to know

- The wing comes from the LUMEN you connect to, so it always matches that LUMEN's version: update LUMEN and the wing follows.
- The LUMEN used last stays on the list, marked **Last used**.
- F11 switches full screen on and off; Esc leaves it.

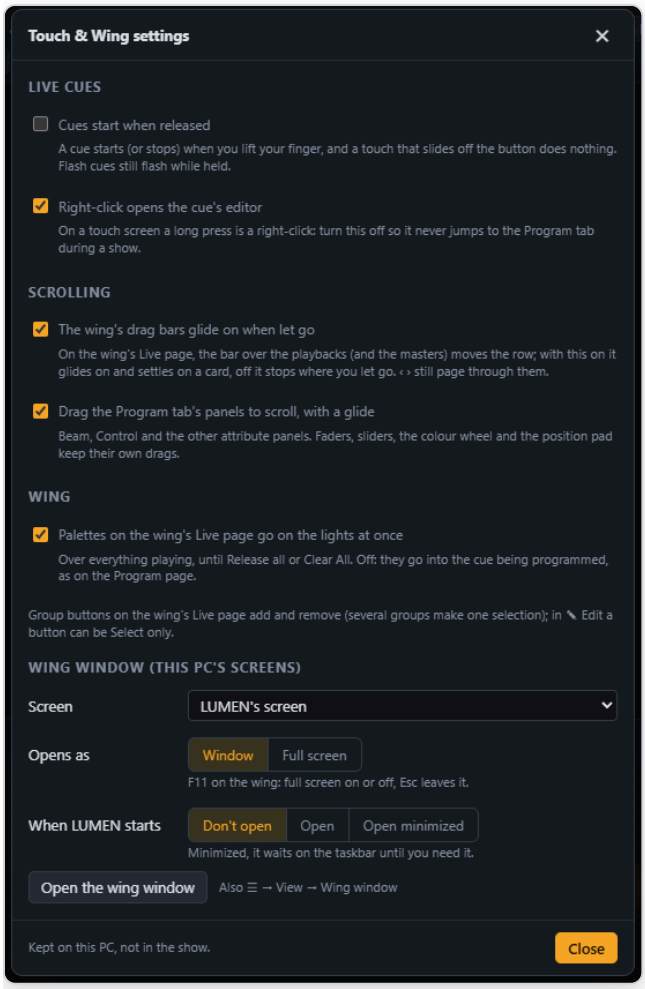
When none shows up

- Is the phone remote on, and are both PCs on the same network (not a guest network)?
- Windows must allow LUMEN on private networks on the LUMEN PC.
- Some networks block discovery: type the LUMEN PC's address and port at the bottom of the list, then **Connect**.

> **OPEN** The wing and the phone remote use an open, PIN-protected protocol, so your own controllers and scripts can drive LUMEN too. For its description, write to **support@amolvin.com**.

Touch & Wing settings

☰ → View → **Touch & Wing settings**: this PC's choices for a touch screen and the wing. They are kept on the PC, not in the show, so a show plays the same everywhere.



Touch & Wing settings as on a first run: the wing window opens as a window on LUMEN's screen, and not with LUMEN.

Live cues

- **Cues start when released**: a cue starts (or stops) when you lift your finger; a touch that slides off does nothing. Flash cues still flash while held.
- **Right-click opens the cue's editor**: off, a long press never jumps to the Program tab during a show.

Scrolling

- **The wing's drag bars glide** on when let go, and settle on a card.
- **Drag the Program tab's panels** to scroll them, with a glide.

Wing

- **Palettes on the wing's Live page go on the lights at once**; off, they go into the cue being programmed.

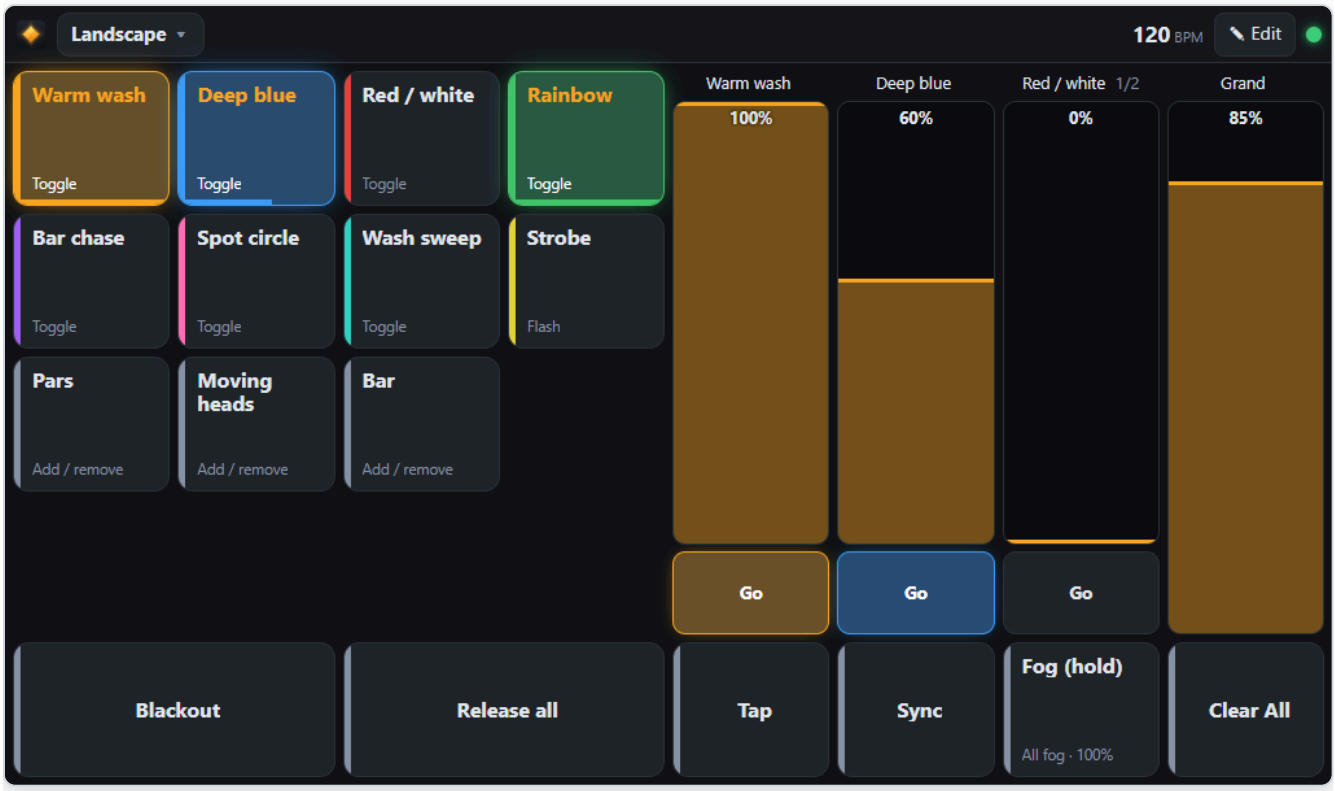
Wing window

- **Screen**: LUMEN's screen at first, or one of this PC's screens (its size, main, touch, where LUMEN is). A screen unplugged: a window on LUMEN's screen until it is back, never full screen over LUMEN.
- **Opens as**: Window or Full screen. `F11` on the wing switches; `Esc` leaves full screen.
- **When LUMEN starts**: Don't open, Open, or Open minimized (it waits on the taskbar).
- **Open the wing window**: opens it, or brings it forward.

> **TIP** A second screen may be showing something else, such as the Visualiser: the wing only takes it when you pick it.

LUMEN Panel app

Your own buttons and faders, where you want them, on a touch screen: a small 7" screen beside LUMEN's PC, or a screen on another PC of the same network, landscape or portrait. LUMEN Panel is installed on its own (Setup or portable exe).



LUMEN Panel on a 7" 1024 × 600 screen: the panel made from the demo show, with two cues playing and one faded half way.

1 Switch the remote on

On the LUMEN PC: **Outputs** → **Phone remote**, tick it. If Windows asks, allow LUMEN on private networks.

2 Open LUMEN Panel

On the PC with the touch screen, which can be LUMEN's own. It opens full screen on the touch screen and lists every LUMEN it finds, this PC's own too.

3 Tap a LUMEN

Its panel opens. Next time, LUMEN Panel goes back to it by itself as soon as it answers. ⇄ at the top left comes back to the list.

Play

- **Buttons** do what the wing's grid buttons do: a cue (Toggle, Flash, Go, Release), a palette, a group, an effect (drag up or down for its speed), or an action such as Blackout, Release all, Tap or Fog. They light up as on the wing.
- **Faders**: a cue's level with its **Go** (or **Flash**) under it, a group master, Grand or Speed. A fader wider than it is tall moves across.
- Several fingers at once: two faders, or a fader and a button.

Its screen

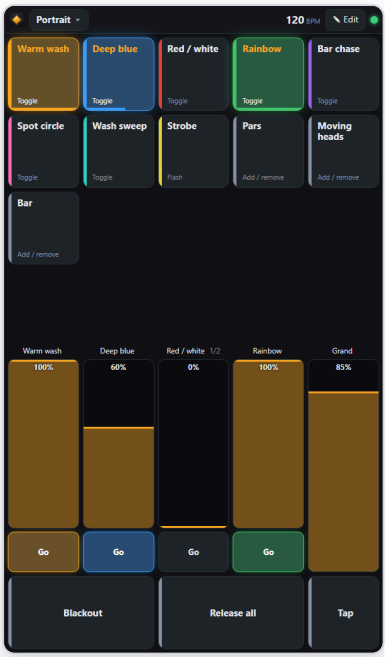
- The list has a button for each screen, to move the panel there, and **Start with Windows**. F11 switches full screen; Esc leaves it.

Make your panel

The panels are saved in the show, so every panel screen sees the same ones and they travel with the show. A show without panels gets two made from it: **Landscape** 8 × 5 and **Portrait** 5 × 8.



Edit: a cue fader tapped, with what it does, its size, label and colour.



The screen turned: its **Portrait** panel.

Edit

1. Tap **Edit**: the items get an outline and a corner handle, and free squares show **+**.
2. Tap a free square and choose what goes there: a **Cue**, **Palette**, **Group**, **Effect**, **Action** or **Fader**. A fader takes up to 4 squares, as much as is free.
3. Drag an item to move it; drag its corner to size it. A red outline: something is in the way.
4. Tap an item to change what it does, its size (**Wide**, **High**), its label and colour, or **Remove** it.

Pages and panels

- **+ Page** (up to 8), **Rename page**, **Remove page**.
- **Panels...** (or tap the panel's name): the panel for this screen. While editing: a new landscape or portrait panel, a copy of this one (to make a portrait version, say), its name and size (2 to 12 squares each way), Remove, or **Automatic panels**.
- Each screen keeps the panel you pick for the way it's turned: turn the screen, and its other panel shows.

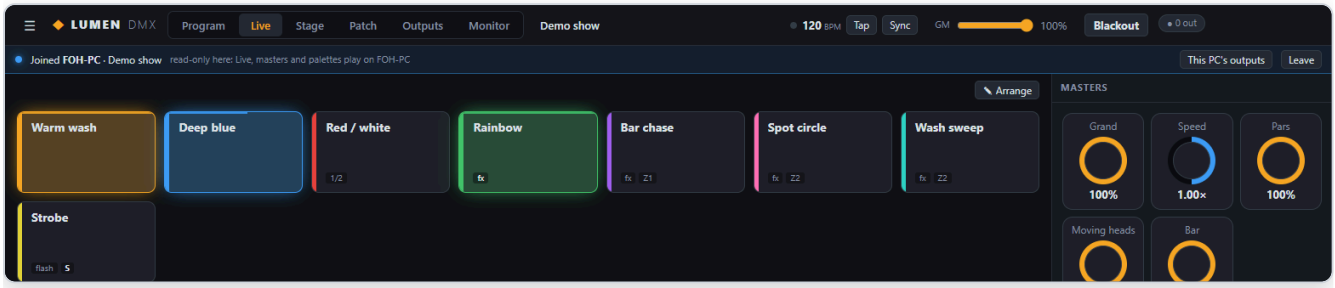
Each change is one Undo step in LUMEN. Save the show to keep it.

TOUCHES ON THE WRONG SCREEN? Windows has to know which screen the touch belongs to: Control Panel → Tablet PC Settings → **Setup...** → Touch input, then touch the screen it names.

CHAPTER 9

09 Network sessions

Other LUMEN DMX PCs on the network can join the show this PC has open and play it with it, each sending any of its universes out of its own interfaces, as on a multi-console desk. One show: a cue started on any PC plays on all of them.



A guest joined: the bar under the header names the host PC and its show, with **This PC's outputs** and **Leave**.

The host

The PC that opened the show file. It keeps the show and saves it, and computes the light for every PC, streaming each universe to them, so nothing drifts. Its phone remote has to be on (**Outputs** → **Phone remote**): sessions use the same port and PIN. The header shows ⇄ **guests**.

Join

1. On the other PC: ☰ → **Join a show on the network…**
2. Pick the LUMEN (show, PC, version, guests), or type its address.
3. The PIN, if it has one, is asked once.

While joined

- The show is the host's, read-only here: an edit is put back, with a message.
- Cues, faders, masters, Tap and the BPM, Sync, Blackout, Fog, Release all, lamps and palettes play on the host. The Stage and Monitor show its output.
- Each PC keeps its own selection, tab and preview.

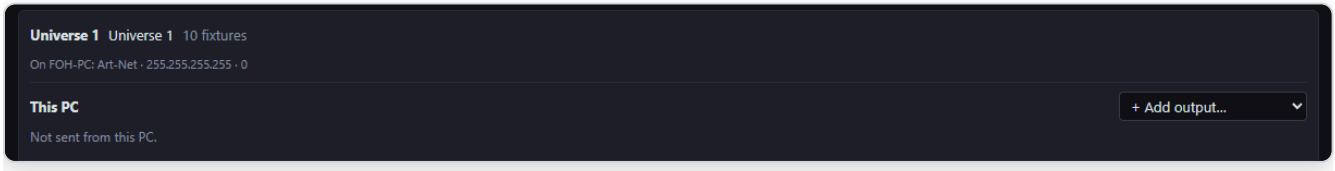
This PC's outputs

Outputs, joined, lists each universe of the show with the host's outputs and a **This PC** section (below). Give a universe any of this PC's outputs: Art-Net, sACN, ENTTEC DMX USB Pro or Open DMX. It sends what the host computes. They're kept on this PC for that show, and come back each time it joins it.

Leave, or the host lost

- **Leave**: this PC's own show comes back, unsaved changes and all.
- Its outputs for the session hold the last frame, so nothing goes dark: **Rejoin**, or **Release outputs**.
- A host that stops answering (powered off, the network cut) counts as lost after 6 seconds.

> **SAME VERSION** Run the same LUMEN DMX version on every PC. A host of another session version turns the guest away and says why.



Outputs on a guest: universe 1 goes out of the host's Art-Net, and **+ Add output…** under **This PC** sends it from this PC too.

CHAPTER 10

10 Shows, files and shortcuts

Show files

A show holds the patch, scenes, effects, palettes, groups, outputs and MIDI mappings, plus a copy of every fixture profile it uses. It's saved as a `.lumen` file.

- ☰ → **New show**, **Open show…**, **Save**, **Save as…**. **Load demo show** replaces the current show with the demo.
- **Autosave** keeps the show safe in the background and restores it at the next launch. The status bar tells you when it hasn't been saved to a file yet.
- With the installer, double-click a `.lumen` file to open it. LUMEN runs only once: opening another show loads it into the open window.

Where LUMEN keeps things

WHAT	WHERE
Fixture library	`%APPDATA%\Lumen DMX\fixture-library.json`
Keyframe effect library	`%APPDATA%\Lumen DMX\fx-library.json`
Open Fixture Library copy	`%APPDATA%\Lumen DMX\ofl`
Autosaved show	`%APPDATA%\Lumen DMX\autosave.lumen.json`
Settings (phone remote, Audio BPM)	`%APPDATA%\Lumen DMX\settings.json`

Keyboard shortcuts

KEYS	ACTION
F1 … F6	Program, Live, Stage, Patch, Outputs, Monitor
Ctrl + N / Ctrl + O	New show / open a show
Ctrl + S / Ctrl + Shift + S	Save / save as
Ctrl + Z / Ctrl + Y	Undo / redo
Ctrl + A / Esc	Select all fixtures / clear the selection
Ctrl + H / Ctrl + L	Highlight on or off / Locate the selection
Ctrl + ← → / Ctrl + ↑	Previous / next fixture, one at a time / back to all of them
Alt + **mouse wheel**	Rotate the selection on the stage by 5° (add Shift for 1°)
F11	Full screen
Scene keys	Set per scene in Scene settings → Shortcut key

CHAPTER 11

11 Troubleshooting

PROBLEM	WHAT TO CHECK
No light from the fixtures	Is an output ticked for the fixture's universe in Outputs, and does the header show it sending? Do the fixture's address and DMX mode match the patch? Check the Grand master and Blackout. Monitor shows whether values leave LUMEN.
Art-Net node doesn't respond	Put the PC and the node in the same address range, choose that network card under Interface, and try Scan network. Windows Firewall must allow Lumen.
sACN receiver gets nothing	Use the same universe number on both sides. If the network doesn't pass multicast, switch to Unicast with the receiver's IP.
Open DMX cable isn't listed	Install FTDI's USB driver (from ftdichip.com, Drivers → VCP drivers), plug the cable in, then click Refresh ports & interfaces.
Colours or movement are wrong	The mode set on the fixture must match its profile. Try another mode in the finder. Use Inv P or Inv T if pan or tilt runs backwards.
The phone can't connect	The phone must be on the same Wi-Fi as the PC, not a guest network. Allow Lumen on private networks in Windows, and check the PIN.
LUMEN Wing finds no LUMEN	Switch the phone remote on in LUMEN, put both PCs on the same network, and allow LUMEN on private networks. If the network blocks discovery, type the LUMEN PC's address and port in LUMEN Wing.
LUMEN Panel shows nothing, or touches miss	Switch the phone remote on in LUMEN. A panel on another PC needs both PCs on the same network. If touches land on the wrong screen, set it in Windows: Control Panel → Tablet PC Settings → Setup… → Touch input.
A guest can't join	The host's phone remote must be on, and both PCs must run the same LUMEN version. Allow LUMEN on private networks on the host.
Effects are off the beat	Tap the tempo again, or switch on Audio BPM, then press Sync on the downbeat.
Resolume doesn't follow the tempo	With OSC: OSC Input on in Resolume's Preferences, the same port on both sides, and Resolume's PC address in LUMEN. With network MIDI or Ableton Link: both PCs on the same network, and LUMEN allowed on private networks. The pill in Outputs → Tempo out shows the BPM LUMEN sends.
Audio BPM doesn't follow	Pick the right input and allow microphone access for desktop apps in Windows. A line from the mixer works better than a microphone. Raise Sensitivity for quiet music.
“Windows protected your PC”	Click More info, then Run anyway. LUMEN isn't code-signed yet.

Specifications

Platform	Windows 10 and 11, 64-bit. Installer (per user, no admin rights) or portable exe.
Outputs	Art-Net (with node discovery), sACN / E1.31 (multicast or unicast, priority), ENTTEC DMX USB Pro and compatible, ENTTEC Open DMX USB.
Universes	As many as you need, 512 channels each, each with any number of outputs.
Engine	40 updates per second, 16-bit pan, tilt and fine channels, HTP and LTP mixing.
Fixtures	15 built-in profiles, the Open Fixture Library (about 650 fixtures), a profile editor, QLC+ (.qxf) and GDTF (.gdtf) import and export.
Remote	Any phone or tablet browser on the same network, with a QR code and an optional PIN.
Touch wing	A wing window on a second screen, any browser on the network, or the LUMEN Wing app, which finds LUMEN on the network by itself.
LUMEN Panel	Your own buttons and faders on a grid of 2 to 12 squares each way, landscape or portrait, any screen size (made for 7" 1024 × 600). The app finds LUMEN on this PC or the network.
Tempo out	MIDI clock (24 ticks a beat, Start on the bar) to a MIDI port, OSC to Resolume, network MIDI (RTP-MIDI, found with Bonjour), Ableton Link (LUMEN leads, or follows the others' tempo).
Sessions	Other LUMEN DMX PCs join a show and send any universe out of their own outputs; the host computes the light for all of them.
Show files	`.lumen`, with the fixture profiles they use embedded.

SUPPORT Questions, or a fixture that won't behave? Write to **support@amolvin.com** or visit **www.amolvin.com**.



LUMEN DMX

SMART LIGHT CONTROLLER

Program scenes, effects and palettes, see them on a 2D stage, and run the show live from the PC, a touch screen wing or your phone, over Art-Net, sACN or USB DMX.

MADE BY

STEWART AMOLVIN

www.amolvin.com · support@amolvin.com

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