40+ lasers

BEYOND Ultimate currently supports 40 Hardware controllers (FB4 or FB3) per installation. This requires a high-performance pc to run. However, there are a few options, as we do have a number of clients who regularly exceed 40 lasers, and even up to hundreds of lasers. This mainly looks like having multiple PCs running together.

For Timeline shows:

The best way to create a timeline show for over 40 lasers is to create one very large timeline and zone file on one pc to program. A common workflow is to build a single huge zone file and a huge timeline for programming, BEYOND supports plenty of actual zones in a file and tracks to build it.

Once you are finished programming, load the zone file and timeline on each computer, then just delete the unneeded zones from each PC, depending on which lasers are connected to that PC.

The easiest to code them all together is probably Artnet timecode, you can broadcast it on a network that is separate from all the laser nets, and plug each pc into that network through separate network adapters on those computers. Then some master can send it all over the network, and all BEYOND instances can listen to it.

Otherwise, you will want to have something like a TC4000 for each computer and run separate audio tracks to each.

We recommend maintaining a PC as the “programming session” that doesn't connect to lasers but is just used as a preview in the system, so you can follow what the whole rig is doing.

Depending on PC performance, you may need to delete the unneeded tracks from each playback PC to reduce CPU usage.

You can also reduce CPU usage vastly by running the actual show from the Playlist, which is much more efficient on the PC than from the Timeline.

But simplistically, build it all on one install/ session, then spread that install to all PCs, and delete unneeded zones from each pc. Run from Playlist. Use Artnet Timecode.

- You can learn more about Beyond and timecode here

For Live Shows:

Create your live workspace and save the file. Distribute this to each pc for each group of lasers, so that the workspace file is the same for them all. Then use the Beyond talk server to connect all “secondary” PC's to follow instructions from the “Primary” PC. So any triggers like a cue, master fx, midi command

etc, are duplicated on all the “secondary” PC's.

- You can learn about the Beyond talk server here.

For DMX Shows:

For DMX-controlled shows, the process is very similar to live shows, except that for each zone, you will want to use the DMX server inside of Beyond. This lets each laser be individually controlled from a console using BEYOND as a server to supply data to the lasers.

Check out more on DMX Server:

- DMX Server
- How to use BEYOND DMX server

Direct DMX control of FB4s:

There is an alternative option for DMX control of FB4's from a console directly, where the content is stored on the SD card on the FB4's and triggered from DMX directly, the limitations on this are setup is longer on the console, and the lasers look less smooth as dmx and artnet packets only really go up to about 30fps while lasers can run above 120fps regularly. DMX server smooths this out for you.

Learn more about Direct DMX Control of FB4s:

- How to install and set up the FB4 Beam Content Pack
- How to setup your FB4 laser from a lighting console

Things to keep in mind when making lasershows with this many lasers:

This is a lot of work for the computer to process. You will want and need a high-performance PC, and you will need to use parametric images when making your cues. They are very efficient and help with performance:

Check out more about performance:

- How to use the Parametric Images Editor in BEYOND software
- How to use BEYOND Monitoring Tools and Performance Tuning

Note that:

Each computer needs its own separate BEYOND license
Each computer and group of lasers needs to be on an independent network from each other, so each computer can only see up to 40 FB4s on the network.

It is also recommended that you power up the lasers in the order you want them to be in. BEYOND this will make zoning and assigning FB4s to zones much faster.

We hope this helps clear up and explain how you can use Pangolin products to control more than 40 lasers! Let us know if you have any further questions!

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