Tips: Scan speeds and Lasershow Converter FLASH

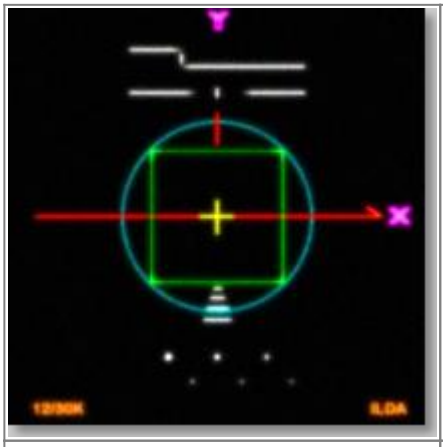
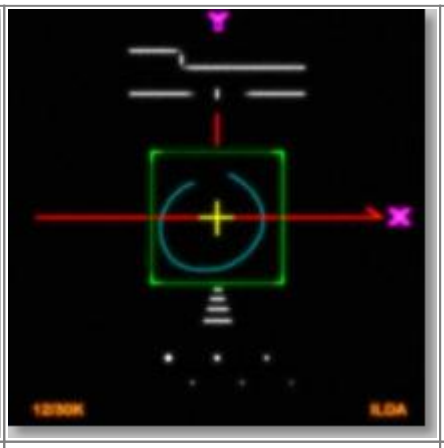
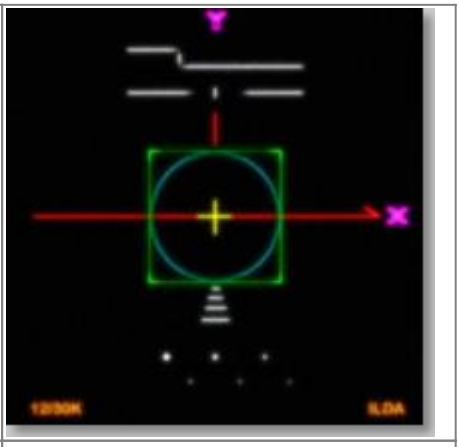
Lasershow Converter FLASH's default settings assume that:

1. your scanners are tuned to the ILDA 30K standard, and
2. you are scanning at an output rate of 30,000 pts/sec

If you are using differently-tuned scanners, or a different scan rate, then you need to make some adjustments. But first, some background.

Scanner tuning vs. scan speed

The ILDA 30K tuning standard says that your scanners can show the ILDA Test Pattern in a specific way (circle touching the sides of the square), when the ILDA Test Pattern is displayed at 30,000 points per second:

		
Scanning too slow: Circle outside of square	Scanning too fast: Circle can't touch square	Scanning correctly: Circle touches midpoint of square

The ILDA 30K speed is used when tuning. **It does not mean that all frames must be shown at 30,000 pts/sec.** Now, some people may adopt a scan speed of 30,000 points per second. In fact, this is Pangolin's suggestion. But you do not have to do this.

So there are two cases: You tune and project at 30,000 points per second, or you prefer other speeds for tuning and/or projection.

If you prefer 30K tuning/30K projection

Pangolin suggests that all LD2000 users be using ILDA 30K-tuned scanners, AND that images be

projected at 30,000 points per second.

Lasershow Converter FLASH's default settings follow this recommendation. You can find these default settings by looking in the picture on the Object Point Spacing topic page.

If you prefer other tuning/projection speeds

You may have frames or shows which require a different tuning or projection speed. If so, there are five ways in which you can adjust for this:

1. **Create 30K LC FLASH frames and adjust their speed**. Let's say you have a lot of frames created to look good at 18,000 pts/sec when seen on an ILDA 30K-tuned projector. You can set the overall output speed of the LD2000 system to 18,000 points per second. Then, use the “scan rate multiplier” feature of LD2000 to adjust the scan speed of the Lasershow Converter FLASH frames. They now are scanning at 18,000 pts/sec but we want them to go 30,000 pts/sec, so the scan rate multiplier will be 30/18 or 166% of the overall speed. This means the scanners will run at 18,000 pts/sec on your older frames, and 30,000 pts/sec on the scan-rate-multiplied Lasershow Converter FLASH frames.
2. **Create 30K LC FLASH frames and adjust other frames' speed**. Let's take the same situation as above: you have a lot of frames created to look good at 18,000 pts/sec. You can set the overall speed of the LD2000 system to 30,000 frames per second. Adjust the scan rate multiplier for the 18K frames so they will run at 18/30 or 60% of the overall speed. This means the scanners will be scan-rate-multiplied to run at 60%, or 18,000 pts/sec on your older frames, and 30,000 pts/sec on the Lasershow Converter FLASH frames.
3. **Create 18K LC FLASH frames**. To do this, you need to change the object point spacing. AutoAnchor settings will be reduced (smaller) since you don't need as many points at corners. The AutoSpace distance settings will be increased (larger) since the lines can be less dense. You can calculate the amount based on the speed, or just estimate and re-render to see if the frame quality still looks good.
4. **Create a scan rate effect in Showtime**. For some shows, it may be easier to adjust scan speeds in Showtime. Create an effect that speeds the scan rate up to 30,000 pts/sec for the Lasershow Converter FLASH frames, and slows the scan rate down to 18,000 pts/sec for your older frames.
5. **Use the resample feature in Showtime**. This will remove or add points within a frame. You can either resample up, so frames created at 18,000 pts/sec have additional points to look good at 30,000 pts/sec, or you can resample down, so frames created at 30,000 pts/sec have points removed but still look good at 18,000 pts/sec.

Better scanners give better results

Lasershow Converter FLASH gives the best results if your scanners are tuned perfectly, and the bearings are in good shape. Please make sure that the low frequency damping and high frequency damping are adjusted properly for “critical damping.” Pangolin recommends ScannerMAX Saturn-series scanners for best results.

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