



Laser Sequencer

The laser sequencer is an optional feature in OsTech laser drivers that is available on request. Up to 20 points can be set. The time resolution is 1 ms.

There is a mode bit that activates the laser sequencer mode. If this bit is enabled and the laser is in CW mode, a start of the laser starts the predefined sequence. The laser turns off automatically after the end of the sequence. As always, if any failures are detected (interlock, temperature errors, ...) the laser turns off. The laser can also be turned off (by the LS command) while the sequence is running.

When the laser sequencer mode is active, LVC control is disabled. It is important to set LVC properly before using this mode.

There are status bits to detect if the sequence is running and if the sequence finished normally.

Sequence Definition

To define a sequence all the points of the sequence are selected one by one. For each point the target current of that point and the time until the next point are entered. This can only be done while the laser is turned off.

The sequence will start with the target current of point 1. Then it takes the time that is set in point 1 to get to the target current of point 2 and so on.

The sequence ends after point 20 or if 0 is entered as time value for a point. If all 20 points are used, the time of point 20 is used to go down to 0 A.

Command description

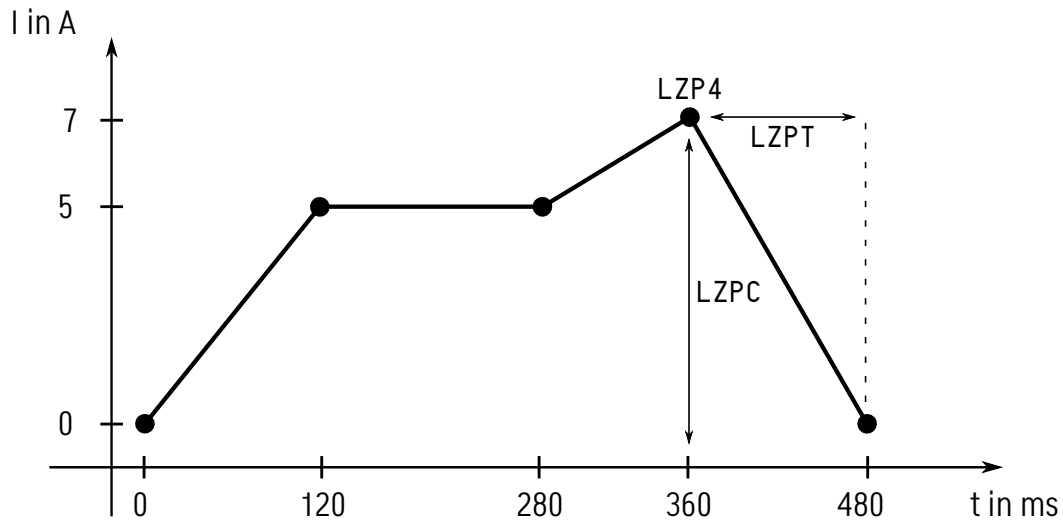
- | | |
|----------|---|
| LAMS4096 | <ul style="list-style-type: none">• set laser sequencer mode bit• if set, turning on the laser in CW mode starts the sequence |
| LAMC4096 | <ul style="list-style-type: none">• clear laser sequencer mode bit |
| LZP | <ul style="list-style-type: none">• select point (1...20) |
| LZPC | <ul style="list-style-type: none">• set or read current target for selected point (in mA)• only writeable while laser is off |
| LZPT | <ul style="list-style-type: none">• set or read time from selected point to next point (in ms)• 0 marks end of sequence• only writeable while laser is off |
| LZPA | <ul style="list-style-type: none">• read number of currently executed point• returns 0 if sequence is not running |
| LAS | <ul style="list-style-type: none">• read laser status• status bit 512: laser sequence is running• status bit 1024: laser sequence finished normally (set after laser sequence finished, cleared after laser on) |



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Example

In the image below an example sequence is defined. The current starts at 0 A. It then takes 120 ms to go up to 5 A. It stays at 5 A for 160 ms. Then it goes up to 7 A in 80 ms. At last, it goes down to 0 A in 120 ms.



LZP1	LZP2	LZP3	LZP4	LZP5
LZPC0	LZPC5000	LZPC5000	LZPC7000	LZPC0
LZPT120	LZPT160	LZPT80	LZPT120	LZPT0

The commands for defining this sequence are shown below the corresponding points. For example, point 4 is selected with LZP4. Then the current target of 7 A is entered by LZPC7000. The command LZPT120 sets the time until the next point to 120 ms. This sequence ends after reaching point 5, because the time of point 5 is set to 0.

After the sequence is defined with the commands above, the laser sequencer mode bit must be set with the command LAMS4096. When the laser is now started with LR, the sequence runs for 480 ms. Then, the laser turns off.