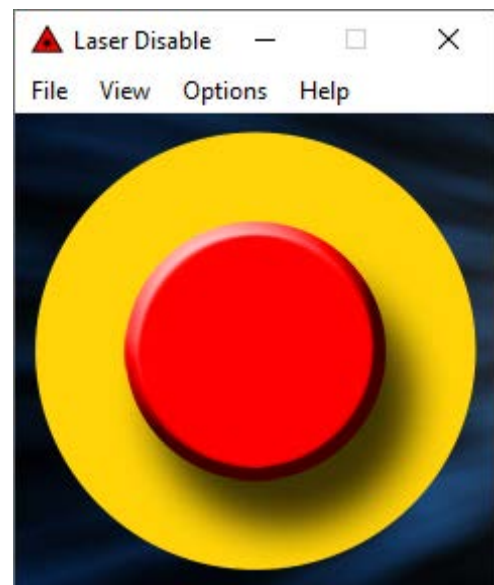


## Laser Disable



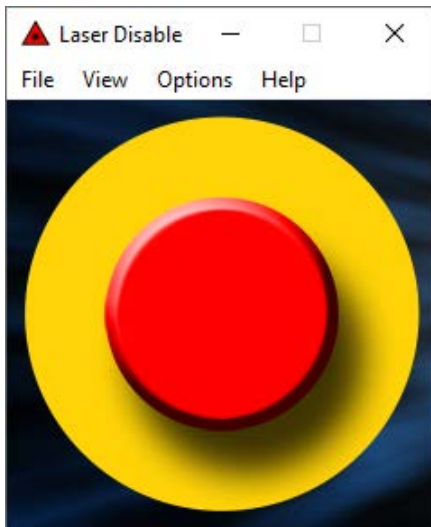
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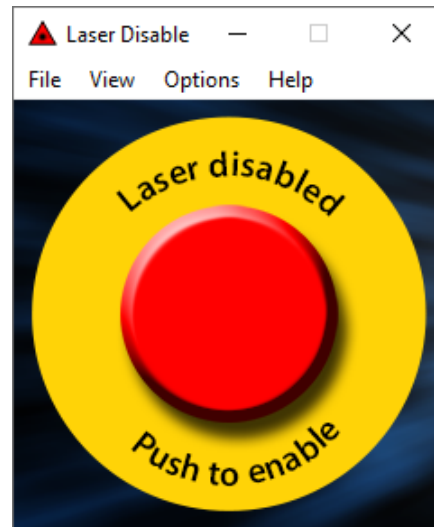


# 1 Introduction

The software "Laser Disable" allows to enable and disable the laser output of one or more laser projectors.



Laser output is enabled



Laser output is disabled

The software uses the same communication protocol as the "Laser Disable Button":



Since the entire communication is based on Ethernet, there is no need for additional cables and the individual control units can be placed separately (e.g. FOH and backstage).

Just like the "Laser Disable Button", the software "Laser Disable" continuously sends so-called "heartbeats". If the connection to the laser is interrupted (e.g. by a defective cable, power failure or similar), the connected devices can detect it and turn off the laser output.

Whether the "Laser Disable" mechanism can replace the emergency-off button which is required by law or if it can only be used in addition depends on the respective laws and has to be determined in each individual case.

The software "Laser Disable" can be used to control all devices that support the "Laser Disable" communication protocol, such as:

- Lasergraph DSP Mark 2
- AVB2ILDA
- PHAENON X with build in AVB2ILDA
- PHAENON accurate

The software "Laser Disable" is available for Windows® and macOS®.

## 2 Grouping

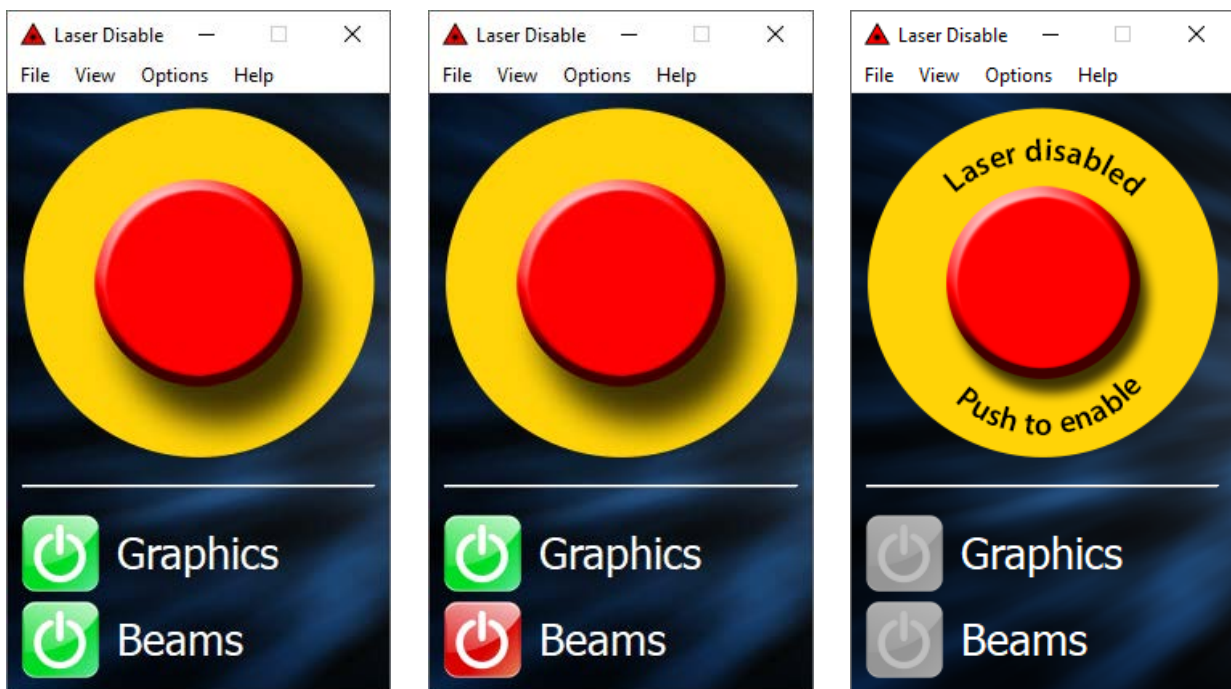
Lasergraph DSPs can be placed into groups, which can be turned on and off independently as needed (e.g., during setup or programming).

Up to eight different groups can be defined.

### Example:

A setup consists of several graphic and beam projectors.

During programming, it should be possible to turn the graphics and beam projectors on and off independently.



All lasers are enabled

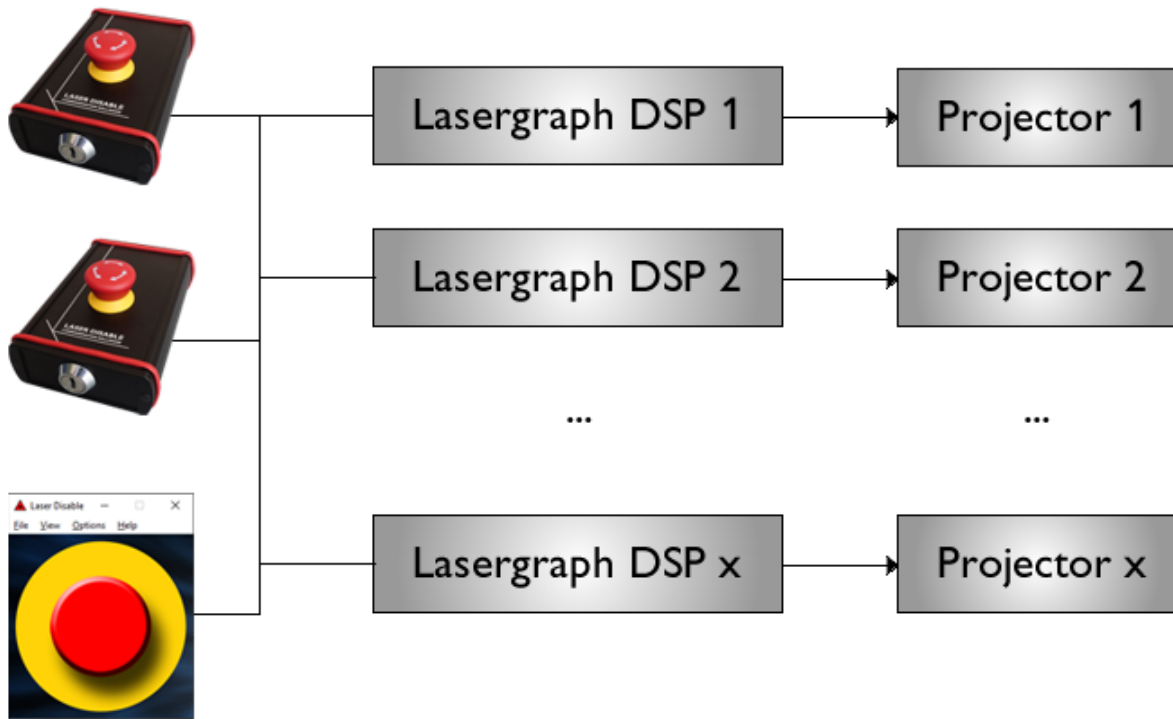
The lasers of the group  
"Beams" are disabled

All lasers are disabled

### 3 Application Examples

#### Example 1:

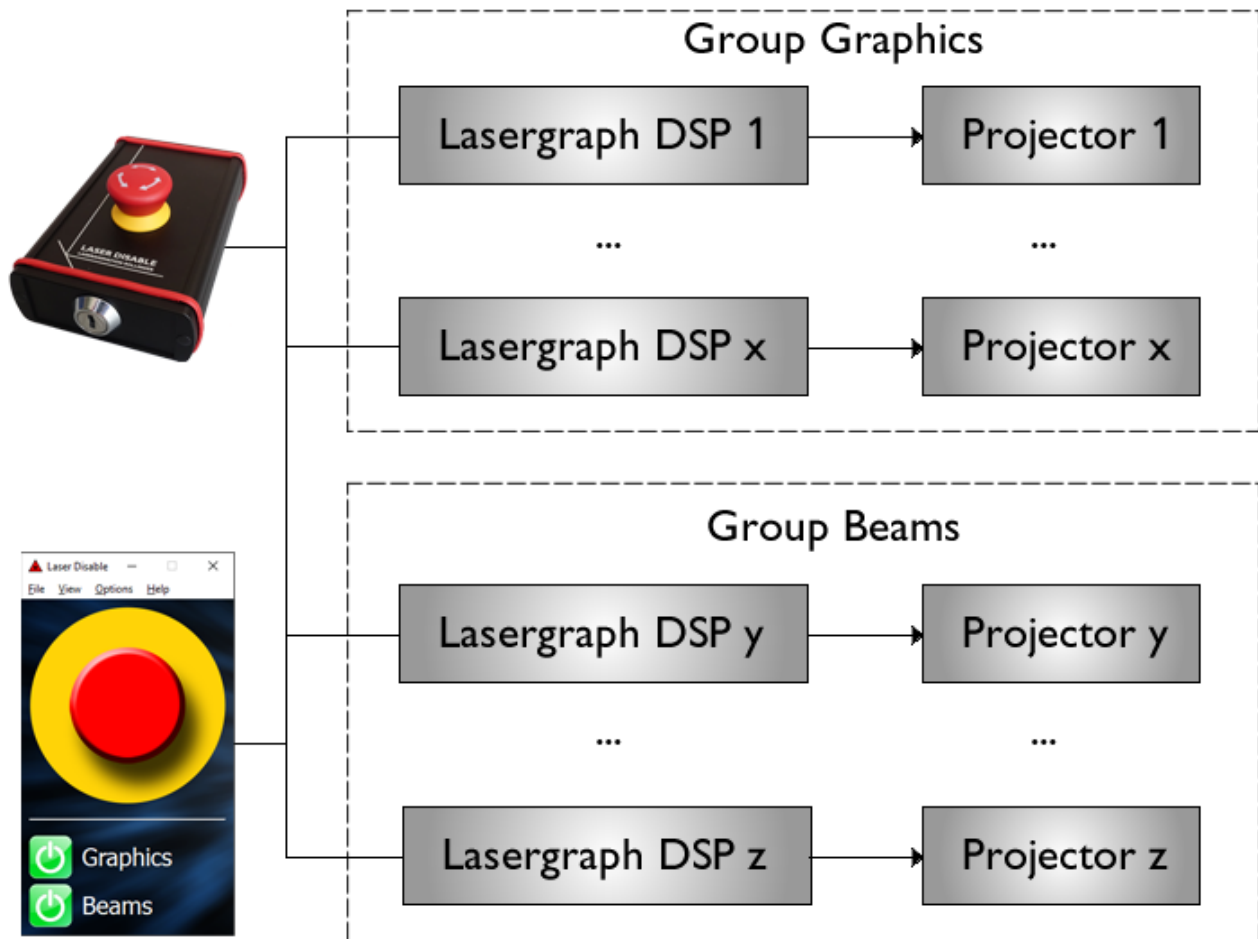
Two "Laser Disable Button" and the software "Laser Disable" control one or more laser projectors.



## Example 2:

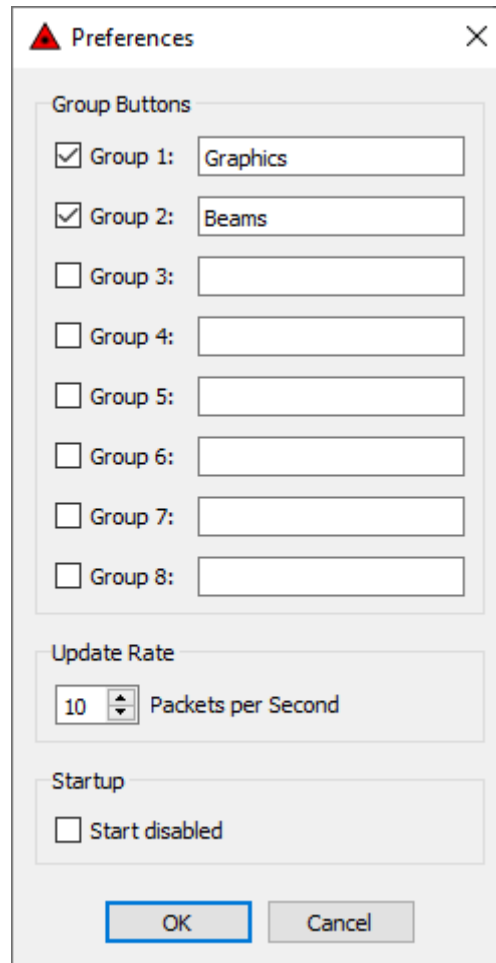
One "Laser Disable Button" and the software "Laser Disable" control several laser projectors divided into two groups.

The "Laser Disable Button" disables the laser output on all projectors while the software "Laser Disable" can also be used to control each group individually.



## 4 Preferences

After selecting the menu item "Preferences..." the following window opens:



### Group Buttons:

Up to eight groups can be defined here.

Enabled groups appear in the main window below the emergency-off button with the label entered here.



## Update Rate:

The value entered here determines how many "heartbeats" per second will be sent.

To ensure that a lost "heartbeat" does not immediately switch off the laser output, the update rate should be so selected that at least three "heartbeats" are received within the timeout set at the receiver.

Example:

Update Rate: 1 "Heartbeat" per second           => Timeout: min. 3 seconds  
Update Rate: 30 "Heartbeats" per second (33ms)   => Timeout: min. 0.1 seconds (100ms)

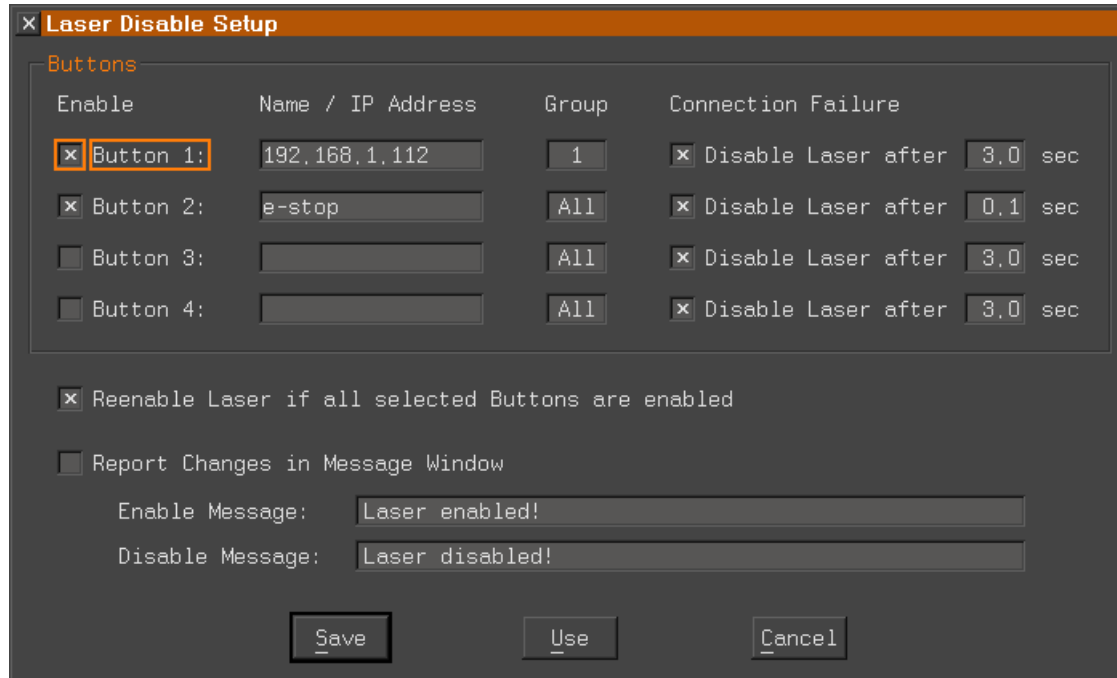
## Startup:

If "Start disabled" is selected, the emergency-off button is pressed at program start and the laser output is therefore disabled.

## 5 Device Configuration

### 5.1 Lasergraph DSP

"Laser Disable" is set up via the "Laser Disable Setup":



Each Lasergraph DSP can simultaneously monitor the status of up to four buttons.

A button ("Laser Disable Button" or PC / Mac with the software "Laser Disable") is specified by its network name or its IP address.

For each button you can independently set which of the eight possible groups the Lasergraph DSP should react to.

If "All" is selected, the Lasergraph DSP will turn off its laser output as soon as either the emergency-off button is pressed or any group is turned off.

In addition, it can be defined independently for each button whether the laser output is to be switched off if the connection to the button is lost. The timeout set here defines the time in which a valid "heartbeat" must be received from the button.

If no "heartbeat" is received within this time, the laser output is switched off.

If "Reenable Laser if all selected Buttons are enabled" is selected, the Lasergraph DSP automatically switches the laser output back on as soon as all buttons have been switched on.

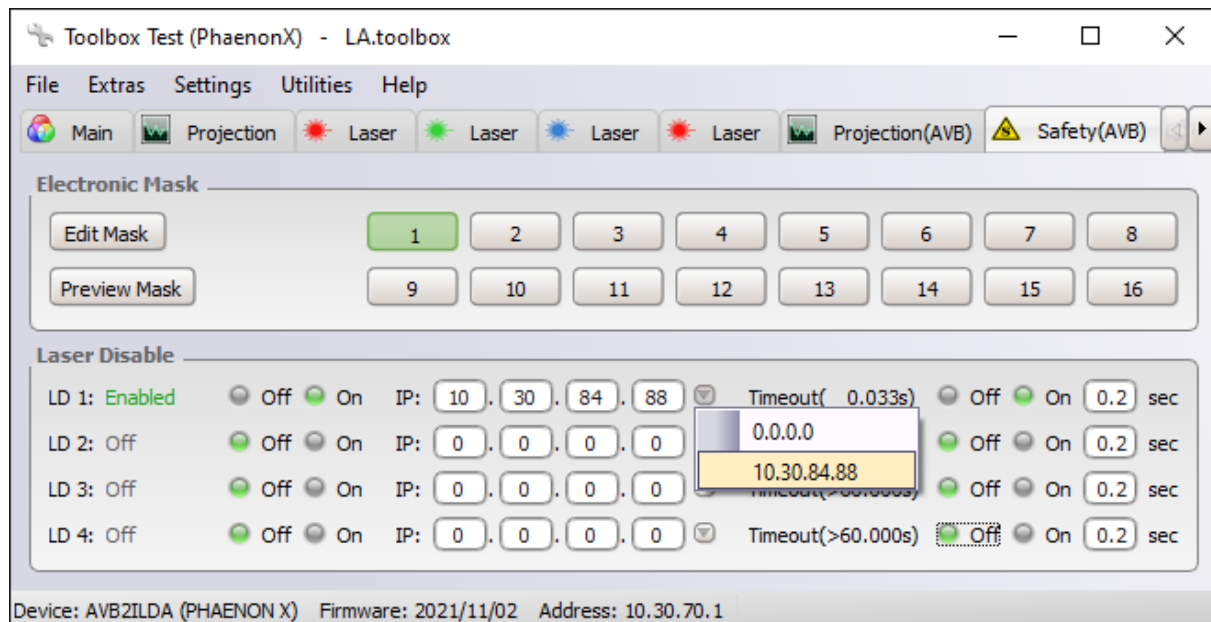
Otherwise, this must be done manually via the corresponding button in the preview window.

## 5.2 LA.toolbox

To set up "Laser Disable", open the LA.toolbox and choose the "Safety" tab.

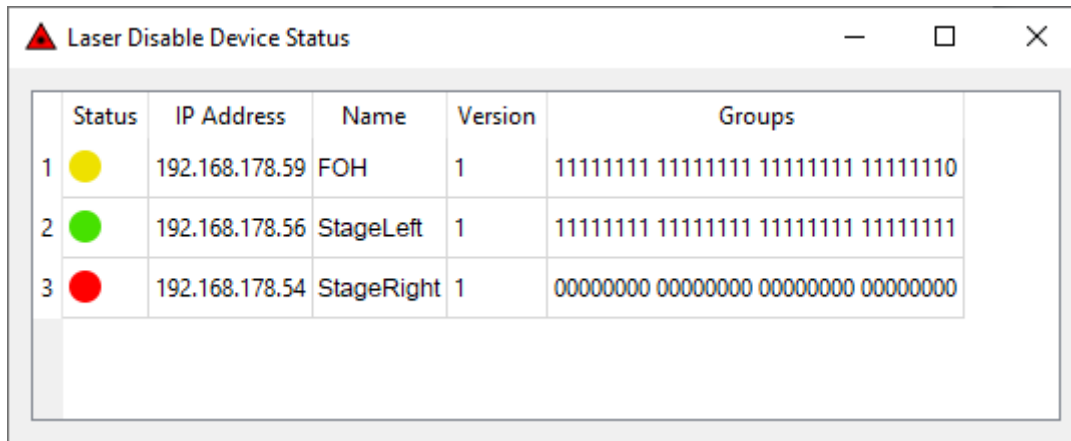
Select the desired "Laser Disable" button by clicking on the arrow next to the IP address field. A drop-down menu opens, in which the IP addresses of the available "Laser Disable" buttons are listed. The corresponding "Laser Disable" button is selected by clicking on the desired IP address.




"Laser Disable" is switched off and on in the LA.toolbox via the "Off" and "On" buttons.



## 6 Device Status Window





After selecting the menu item "Device Status..." a window opens in which all Laser Disable buttons in the network are listed together with their status:



	Status	IP Address	Name	Version	Groups
1		192.168.178.59	FOH	1	11111111 11111111 11111111 11111110
2		192.168.178.56	StageLeft	1	11111111 11111111 11111111 11111111
3		192.168.178.54	StageRight	1	00000000 00000000 00000000 00000000

### Status:

The color of the status icon indicates the state of the Laser Disable button:

Status	Meaning
	The emergency-off button is not pressed, all groups are turned on
	The emergency-off button is not pressed, one or more groups are turned off
	The emergency-off button is pressed
	The Laser Disable button no longer responds

### IP Address:

This is the IP address of the Laser Disable button.

**Name:**

In addition to the IP address, the name of the Laser Disable button is displayed, which can be entered in the Lasergraph DSP as an alternative to the IP address.

**Version:**

The version displayed here refers to the version of the communication protocol. Currently this can be 1 or 2.

**Groups:**

Even though only 8 groups can be used so far, the communication protocol supports up to 32 groups. The state of each individual group can be read as follows:

- 1 = Group is turned on
- 0 = Group is turned off

For better readability, the groups are divided into sections of 8 groups each. On the left side is group 32, on the right side group 1.

For example, if the first group is turned off, the following display occurs:

```
11111111 11111111 11111111 11111110
```

If the emergency-off button is pressed, all 32 groups are displayed as turned off:

```
00000000 00000000 00000000 00000000
```

## 7 Keyboard Shortcuts

Function	Shortcut	Menu Item
Window stays on top of other windows	<Ctrl>+<T>	View » Always On Top
Opens the device status window	<Ctrl>+<D>	View » Device Status...
Open preferences window	<Ctrl>+<P>	Options » Preferences...
Display program version and copyright	<Ctrl>+<I>	Help » About Laser Disable...
Quit program	<Ctrl>+<Q>	File » Exit

## 8 Release Notes

### Version 2023/04/20

- Under Windows, the status icons in the "Laser Disable Device Status" window were not visible under certain conditions.
- Under macOS, the space in the application name was missing. This caused inconsistencies between window title and menu items.

### Version 2022/02/15

- New window to display the status of all Laser Disable Buttons in the network
- Under macOS the query of the NetBIOS name did not work reliably
- The 'Channel Buttons' have been renamed to 'Group Buttons'

### Version 2018/08/09

- New option 'Start disabled'
- Improved compatibility with OS X 10.10 (and later)
- Under OS X App Nap is now disabled while Laser Disable is running
- Small bug fixes