

Thunder laser



TL-Timer Operating Manual

The TL-Timer is an additional tool for laser machines.

It will control laser machines periphery like exhaust fan, air-values, warning lights, pneumatic lifts, electrical locks and lost of other stuff automatically.

This will increase the ease of use of your laser machine.

Please note the different types of connection, which makes the TL-Timer able to work with each kind of laser controller.

Operation:

Normal use:

The TL-Timer gets activated by a control signal from laser controller. For this case the red LED lights up and all 4 relays will be activated until the signal from controller gets turned off. Without control signal the 4 relays will stay turned on until a given delay time has expired. Each relay has a freely adjustable delay time from 1-300 seconds.

Set up delay time:

Enter "Menu" switch once. The red LED will blink and the display will show you the delay time in second for the first relay. A yellow LED close to the active relay will show you. Which one is active.

The display does show the delay time in seconds. By pressing "down" or "up" you can change the value. By holding a switch down for more than 2 seconds the value will increase or decrease automatically.

By pressing "Menu" you can switch to relay number 2 now and set the delay time for this one.

For changing delay values for 3rd and 4th relay you have to press "Menu" again.

When 4th relay is active and you press "Menu" again. The TL-Timer will turn back to normal operating mode; the red LED will stop blinking.

After turning of power the TL-Timer will remember the delay-time-values, you did enter before.

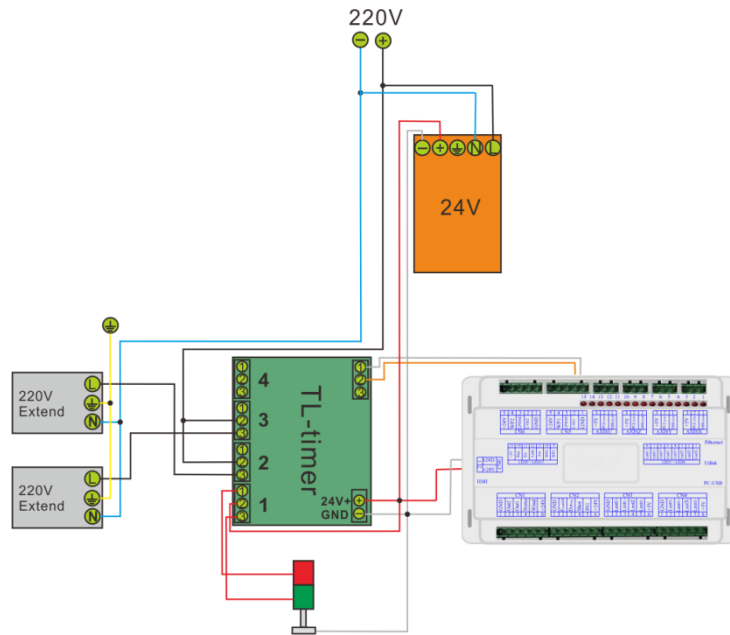
Relay-Output:

Each of the 4 relays offers a opening and closing switch with current capacity of max. 8Amps and a power capacity of max. 1000W.

Higher loads must be controlled by using a power contactor.

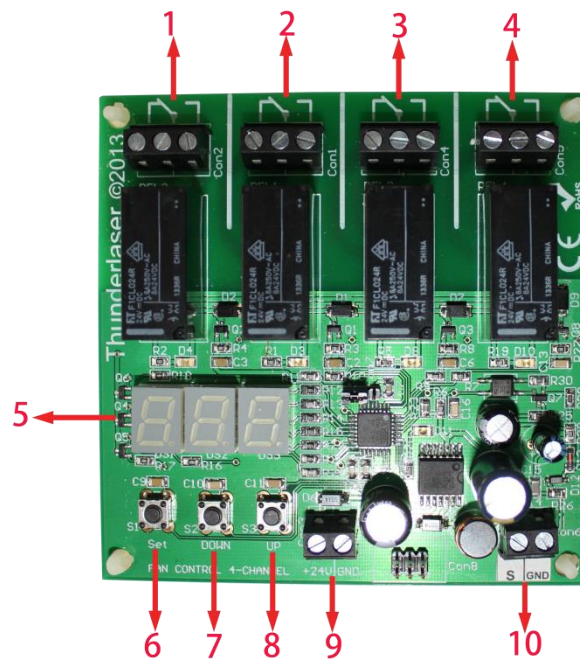
How to connect the TL-Timer to other external device and Thunder Laser controller

Please refer to this connection diagram as follows:



220V Extend power interface will be connect to air pump device and exhaust fan device.

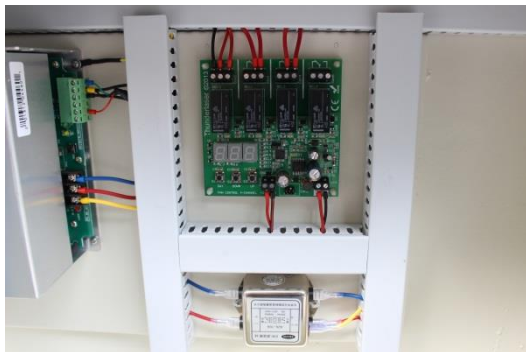
About TL-Timer controller interface and buttons description:



- 1: Interface 1, connection warning light, delay time is set to 1 second (Factory default settings, the user can be set if required)
- 2: Interface 2, connection air pump, delay time is set to 5 second (Factory default settings, the user can be set if required)
- 3: Interface 3, connection exhaust fan, delay time is set to 5 second (Factory default settings, the user can be set if required)
- 4: Interface 4, reserved interface, users can connect the relevant equipment if required
- 5: LED lights display, set the delay time for viewing each interface and enter
- 6: "Enter" button
- 7: "Reduce" the delay time button
- 8: "Increase" the delay time button
- 9: 24V power connection
- 10: Working signal connection

Where the TL-Timer is installed with Thunder Laser machine, please refer to the pictures as bellows:

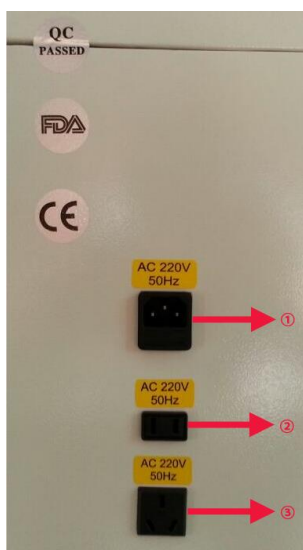
MARS Series Models:



MINI models:



About the machine power interface description:



- ①: Connection the main power supply
- ②: Connection the air pump device
- ③: Connection the exhaust fan device (Two plug-in interfaces)

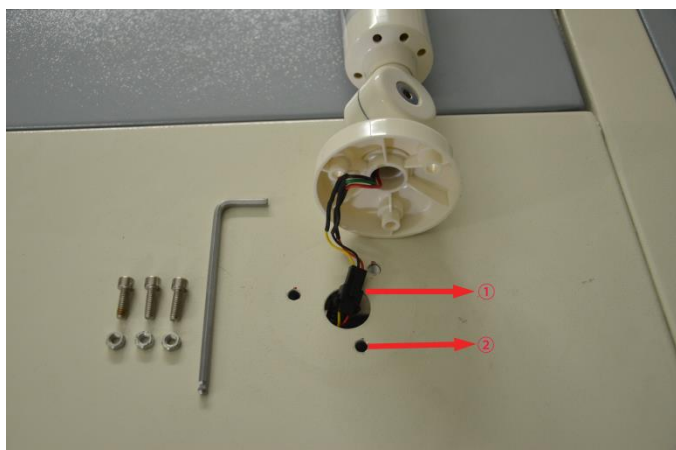
Caution: Do not connect the air compressor or the water chiller to the above interface, if connect them to the above interfaces that cause in failure of the machine, the warranty does not covered.

In addition

About the warning lights installation instructions:

When users receive the machine is MINI-60, (The Mars series machine has been installed the warning lights on the machine) please installed the warning lights on the machine, two-step installation will be ok:

1. Connection the warning lights interface
2. Install the warning lights and fixed to the specified location of machine, with three screws (The screw is hexagon, please use the hex tool), please refer to the following picture:



- ①: The warning lights interface
- ②: Screw holes (3, please use the screws with the warning lights)

The end